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**ANALYSIS OF FOREIGN DIRECT INVESTMENTS IN
HUNGARY**

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1 INTRODUCTION

Importance of the subject is emphasized by financial crisis based on decreasing international trade growth. In 2008, foreign direct investment discounted, of which increasing tendency has been seen at the world economic level since 2004. The economic and financial crisis, through several channels, made negative influences on international working capital flows. The financial resources available to companies reduced, because of reducing profits and increasing difficulties are to obtain the external access. The worsening economic outlook, especially recession of the developed countries and the increasing risks resulted in falling investment propensity.

The UNCTAD report marked a further 30 percent drop as a negative result for the year 2009 in consequences of the continuing effects of the crisis, also drew attention to the significant predictive risk. In the medium term there are three options could be envisaged, which are as follows: 1/ a lengthy recession, 2/ at the national and international levels the effectiveness of arranges implemented, 3/ the programs are successful and stimulating investments in the financial system is necessary for recovery of function of time. According to optimistic scenario, the FDI will show rising trend in the world after the end of 2009. The value of foreign direct investment will have rosin again since the most likely case 2011, provided that the global recession comes to an end in the first half of 2010. The WTO forecasts that in this year decline will be about some 10 per cent in international trade, shrinking, shrinking foreign direct investment will continue for the time being, a noticeable upturn will be expected in 2011.

In the case of current view of the problems, also Hungary is no exception. Since the end of a turning point in the Hungarian economy, which is the initiator of economic liberalization, privatization and foreign direct have consequence of the inflow of working capital, which caused a positive change.

Since the beginning of 1990s, everyone has become evident that international trade grew faster than production. In the second half of 19th century and after the II World War this was a

natural process. At the same time they observed that the dynamic growth of foreign trade has accompanied with foreign direct investment spreads. (Bowen et al,1998).

This is strange, because it is designed specifically that export is to foreign markets from domestic production, so that negative correlation ship between FDI and exports should be needed to observe.

The country exports abroad more, the need for the relocation of production abroad is less, and the FDI should be less. Whatever the FDI theory must provide an explanation for this "anomaly".

In the second half of 19th century the FDI and foreign trade increased at the same time. Later, after the II World War, the first of flows between developed countries started growth, and as of today these flows provide the majority of FDI volume. This has one reason that developing countries long opposed to the inflow of capital from developed countries (excluding support). FDI, in particular, was facing a lot of aversion, because it was as reported in a direct control over companies of other countries. Therefore, both the former socialist economies and developing countries the FDI played a minimal role. Yet many developing countries have been agreed on an increasing role of FDI in the investment since the beginning of 1970's. Although it should be noted those commercial banks' loans were the main sources of inflows until the creation of Latin American debt crises in the 1980s. In 1994 the Mexican crisis had no particular impact on FDI flows, however, in 1997-98 Asian financial crisis were serious consequences in several regions of the world. The Asian crisis was a much smaller effect on Central and Eastern Europe, although somewhat inflows reduced into this region.

Since the beginning of 1990s a sharp increase in FDI stock has occurred in our region. In the early phase of economic transition those countries which were most closed to EU and most quickly privatized one, the FDI has flowed into these countries. However, this FDI inflow was dwarfed by a spectacular rise in the world, not as developed parts. These flows, most of Asia and Latin America were adopted. The absolute numbers, however, could be misleading. If we consider the size of countries (such as the population of the pitch), then we see that the Czech Republic and Hungary led to the per capita FDI stock in Central and Eastern European countries in the list.

Already commonplace goes, the Hungarian privatization process implicit in the foreign direct investors better opportunities than domestic investors, so the domestic economy have gained considerable weight to the foreigners for a very short time. This is particularly strongly prevailed in the manufacturing sectors. It follows that the significant role of foreign direct beneficial or harmful effects in these sectors still need to be better able to monitor, the Hungarian experience is particularly useful in the evaluation of FDI.

It is well known that foreign direct investment played an important role in the transformation of the Hungarian manufacturing industry. The motivation of investors has very different opinions formulated. In the early 1990's, two sharply conflicting attitudes were concerning FDI.

One of them mainly regarded FDI inflows as a negative process. The main reason – over the political and dependency theories - that he saw that the main motivation of foreign investors to obtain the domestic market and to flow the profit out from the country. The massive capital inflows and the accumulation of profit in foreign hands have raised the possibility that a GDP growth and outflow the profit, the national disposable income (GNI) can decrease.

The other opinion concerns that the inflows of foreign direct beneficial effects can not question. In addition, several arguments may cover the increase in investment is generally beneficial to overcome the effects (such as job creation, the per capita capital stock is rising), not specifically related to the foreign direct investment in highlighting the benefits. These benefits, including an enhanced role in technology and knowledge flow into our country from abroad, which is an important source of the need to increase the domestic value-added output ratio. The new technology and knowledge to become established, however, does not mean that other companies and the domestic labour of our country share is sufficiently or at all.

Market mechanisms (such as job changes between foreign and domestic companies, or are competing for foreign technology imports from other sources) are to guarantee this transfer process, however, question that this is how quickly and successfully.

In summary, those people emphasizing positive processes think the technological transfer process in two stages. The first of the new technology will appear in the country by foreign-owned firms. The second stage is built as a spill over into the domestic technology firms.

This essay as a part of this literature considers the validity of the stairs. Nowadays we create new challenges, which are more necessary to make such a topic, using different methods of testing.

Since 2001 the price and cost competitiveness of Hungary have deteriorated rapidly, and therefore in the next years, examining the possible distortion of the significant presence of foreign direct investment in the economic processes. Depending on which indicators are to be used in analyzing the real exchange rate, this is partly a natural process, which can be regarded as a fast-growing economy. However, if the price and cost competitiveness indicators, in addition to other indicators are deteriorating, this is a serious warning for the management of economic policy.

The 2-3 per cent real appreciation is far more than price and cost increase, together with the appreciation of the nominal exchange rate may give cause for concerning if the result of a competitive private investment and exports to decline or grow much less dynamic than before.

The research will examine the available data, how the volume of FDI capital working inflows make influences on domestic economic indicators, including economic development, investment, export, and the evolution of unemployment.

The aim of the research:

- A brief overview of the definition of foreign working capital;
- To demonstrate the role of FDI in regions and make comparisons with other parts of the world;
- A summary of the explanations relating to foreign working capital, and the formulation of hypotheses based on the obtained results from researches;
- The testing of hypotheses with available Hungarian spatial data.

In my dissertation, I describe the effects of foreign working capital investments, the motivations of investors and highlight the need for system reform, investment promotion. In my work I tried to compare foreign working capital situations of other countries in Central and Eastern Europe with the Hungarian one.

In my dissertation the importance of foreign working capital is emphasized, and describe the model for operating of FDI activities and their influences on the national economic structure, namely in Hungarian one, and I provide criticism for investments of foreign companies.

2 LITERARY REVIEW

2.1 Influences of globalization on economic policy

Free decision principles are adapted by each nation and their governments in their macroeconomic presuppose. In this way nations and their governments strengthen macroeconomic background for the whole economy. Now a day governments are pressed by the different economic conceptions and opinions of the different social parts.

At present, governments are facing several economic policy dilemmas and different ways. To a large extent, the current confusion reflects the inadequacy of the traditional paradigm as a framework for economic policy at the macroeconomic and microeconomic levels.

Also monetary policy, fiscal policy, trade policy, human resource management and industry-policy mainly in highly developed economies make considerable influences on process of the world economy. New trends and orders of today's world economy make influences on the game and competition between nations and economies. Also monetary and fiscal policy, trade policy, labour policy and industrial policy are deeply affected by the new rules of the game in today's world economy.

The question emerges: "Does it make sense to keep the same macroeconomic paradigm for economic policy decision at the national and multinational levels despite the changing behavioural patterns of firms and States?" (Michalet, 1994).

The world economy today is a multidimensional system within which factors of production move according to decisions that are made by transnational agents operating in oligopolistic markets. To understand the dynamics of the new world economy, it is necessary to consider together trade flows, capital movement, inward and outward FDI, technology flows and labour movements. Such an approach implies not only that exports and imports of goods and services are no longer the exclusive forms of economic transactions among nation-states, but also that the various dimensions of the world economy are tightly interconnected. Therefore, it is no longer feasible to develop separate analytical frameworks for trade, financial markets, international monetary movements and migration as if these belonged to distinct fields that

are subject the separate theories. Neither can the working pieces of world economy be made understood by simply adding up distinct pieces of knowledge. The very nature of the world economy is the existence of close interactions, mutual connections between FDI, trade, technological transfer, financial and labour movements. Exports coming from “A” country to “B” country provide new favourable opportunities and constrains for FDI. These investments are financed from local and international sources.

The global economic integration

Economic development over countries is the way to the world-wide economic integration. In the majority of developing countries, internal and external trade has become a part of a package that includes also capital, technology and human resources flow.

The fewer developing countries can connect by trade to the world market. The most developed countries are connected through both inward and outward flows of trade, FDI, technology and capital. For those countries, FDI play considerable role, the technology and capital flows– especially outward FDI, technology transfer and capital landing – became more dominant than exports of raw materials (**Michie and Smith, ed. 1995**).

Inputs of production are increasingly re-building national borders. In most cases, within FDI system the foreign companies imply an outflow of capital from countries. In case of labor force flow is concerned, managers, engineers and technicians often become expatriate workers in foreign cooperation. Technology, a considerable input of production belonging to FDI projects, also flows to host countries. Finally, the outflow process, which realizes the closing productive facilities in the home countries and the establishing of new productive units abroad, in this way the FDI realizes foreign ownership in host county, like through of as moving a piece of land from one country to the other one. Really FDI is becoming a crucial determinant of a country’s pattern of specialization depending on the level of development of a host country (**J. Hoós, 2000**).

2.2 Globalisation process or the start of FDI flows

Capital flow was for ever. During the colonialization the highly developed countries sent their capital, machines to colonialized areas, in order to supply their demands by the found cheep labour forces and raw materials. This kind of capital inflow continued until the end of colonialization. The First and Second World Wars resulted in economic growth and decline in economic life.

In case of highly developed countries their FDI, investments, internal or external one became one of the main components for the development of the economies and have played an important role in improvement of the economic sectors and globalization process for the last decades. Since the middle of the last century, foreign direct investment (FDI) has become an important part of economy. FDI has been the main component of the world economy and the globalization process over the past thirty years. The Marshall- aid from USA provided considerable financial resources for reconstruction of Europe. The reconstruction period of prosperity due to the economy of Europe extent to obtain and use the benefit, and again a significant demand in European countries, the U.S. big companies are also becoming a major investment of capital. In the second half of 20th century the flow of capital increased much faster growth than exports. In the same time the world exports between 1975 and 1990 only increased three times, while the foreign direct investment - FDI - increased seven times (**Árva, 1994**). This growth rate has only continued to be faster. Meanwhile, Japan's economy has become one of the highly developed countries of the world economy, and one of the leading economic countries of the world, has become a major player in trade. At the same time, Japan has become a significant player in fields of FDI and exports.

By the beginning of 1980s, three major areas of the world's FDI flows are the most intensive one, which are as follows: America, Western Europe, and Japan. They were often named triads of FDI by the scientific literature. By the end of the 20th century, three areas within and between FDI flows shared nearly half of all capital flows. Meanwhile, significant capital has also flowed into the periphery of the three poles.

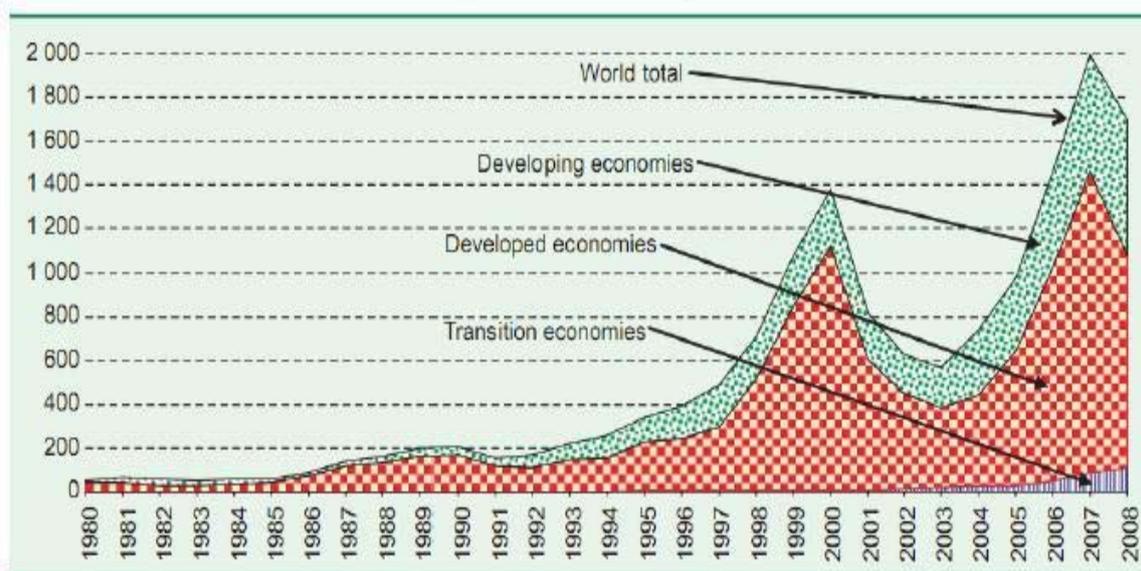
Japan is in the Asian region, Western Europe in the neighbouring countries of Central Europe, the USA and Europe in the other states of American Continent, have invested considerable capital. European investment was stimulated by the end of the Soviet Union in the period after 1990. In the Central European countries, a significant privatization process accelerated FDI inflows into this region. Today, additionally to the triad, although by international comparing, flows are more monitored in cases of developing countries, developed countries and transiting economies of East and Central Europe. (See: Figure 1.)

There is no other area in Europe, where in point of view of FDI flows there are three main kinds of types of the different states became neighbour, for themselves. Hungary is as a developed state, Romania as a developing country, and Ukraine as a transiting economy. In

spite that their historical "roots" is same, since the disintegration of the Soviet Union they have began to develop on different ways.

Hungary has been over a very experienced transition development and has very fast joined to the EU, as the "Highly Developed West" in fields of foreign trade, economic integration process and its membership in international organizations. Romania has increased backwardness behind Hungary, but in spite that its economic growth was slower, probably its economic system was more stable, than Hungary's one. Ukraine has politically separated, which has pressed the country between West and East for more than ten years.

Figure 1: FDI inflows, global and by groups of economies from 1980 to 2008



Source: UNCTAD FDI/TNC database (www.unctad.org/fdistatistics) and UNCTAD Secretariat estimates.

Source: Own construction based on UNCTAD database, *World Investment Report (WIR)*, 2009

By today, all of three economies integrated into the world economy. They were post-socialist countries discovered by the Western capital and then, the considerable share of their economic structure and production were covered by the international corporations in all three countries. Therefore, the development of direct investment, international capital has implemented considerable growth in Central and Eastern European region are very visible.

Since the middle of 1980s, the FDI (Foreign direct investment in working capital) becomes more important in the world economy. Their growth rate and importance have been over both of the world trade and the international financial transactions. Also this means, that FDI has become increasingly a leading power in the world economy, and dominant element of the world economic integration, by the other name globalization.

In 1970, into the world economy, the volume of flowing working capital was accounted as US\$ 12 billion, which according to UNCTAD figures for 2000 increased to US\$ 1,400 billion, and suddenly this dropped, as data proofed in 2001 to 41%, as US\$ 818 billion, in 2002 to 17 %, as to US\$ 681 billion.

The volume of working capital was invested globally in 2003, which decreased further to US\$ 580 billion, but in the next year in 2004 this increased its growth to 6%, which equalled to US\$ 612 billion. Between 2004.-2007., though the 1990s their growth was more moderate.

However, in the Central and Eastern European region working capital implemented deepest growth in respect of the year 2001 as US\$ 26 billion value, which in 2002 increased to US\$ 31 billion, in 2003, then decreased back to US\$ 27 billion. By contrast in 2004, the working capital realised as extra large amount of inflow into this region, as US\$ 36 billion, which was mainly resulted by joining of 8 countries of the Central and Eastern Europe Region into the EU, so there were positive results for Hungary for a short (2004-2005), medium term (2006-2007).

In the world economy, 49% of the investments were implemented in the *service sector* in 1990; opposite to 2002, 60% share of this sector was observed; while in period of 1990-2002, the volume of investments declined from 42% to 34% in the *manufacturing sector*; and the volume of investments declined from 9% to 6% in the *primary sectors* (agriculture, mining).

Within the service sector, the largest share of investments was expected in the business services, tourism, computer science and information communication technology, trade, construction, energy, financial services and transport. In spite of extending service sector, the manufacturing sector still remains an important target investment sector, particularly in fields of electronics, automotive, mechanical engineering, and semiconductors, computer equipment and construction machinery field. For the past decade in **Central and Eastern European**

region, within the service sector, the most significant investments have been implemented in business services, construction, education and health care, computing and ICT, and transport. In the field of company functions transportation, the logistics / customer service, the regional centre, sales / distribution and research and development had considerable role.

Additionally to these, in the manufacturing industry, the most dynamic branches were promised, namely the automotive, electronics and food industry. In the world economy, the **largest capital exporter countries were** United States, Germany, Great Britain, France, China and Japan, but the Netherlands, South Africa, Spain, Italy and Canada, which have also had considerable potential. In **Central and Eastern Europe**, the most foreign capitals came from originally; Germany, USA, Austria, the Netherlands, Japan and Greece. In Central and Eastern European region Hungary was one of the most popular target countries for foreign capital inflow, namely in ranks 3rd and 4th place with Czech Republic, while both Poland and Russia was an absolute favourite (ITD, Hungary, 2005).

Foreign Direct Investment Inflow into Hungary in 1990's

The most significant FDI inflows of foreign capitals have been into most dynamically developing countries of Central Eastern Europe Region for the last decade. These favourable conditions were occurred by the political and economic transition in the Central European Region; have resulted in the restructuring of economies in the late 1980s and 1990s.

There is a real fact, that Hungary as one of the Central European countries has experienced a fast economic growth for this decade of transition from the centrally planned economy to the free market economy. The role determined by foreign direct investments in this process was very significant, because of these investments provided the integration methods into the world economy (**Alfaro and Chanda et al., 2002**).

In May, 2004 when Hungary joined to the European Union, there were new stimulating arrangements for incentive foreign investment, similarly as it was in Czech Republic and Slovakia.

The macroeconomic rules and the positive structural reforms of economies in the CEE Region, all together strengthen the European Union (EU), as the world's third largest economy, which made positive influences on incentive capital inflow for FDI into this region. In 2002 the European committee of Copenhagen confirmed the new enlargement of EU with joining eight new countries into EU. These countries were, as follows: Czech Republic,

Estonia, Hungary, Latvia, Lithuania, Slovakia, Slovenia and Poland. Two years later, in 2004, by the 1st of May these countries successfully wholly became member states of the European Union.

Additionally to considerable results of transition period in CEE countries, the FDI also has played main role for period of the transition process in Central and Eastern Europe, because FDI created an effective corporate management, private ownership conditions, accelerate to advance capital resources and technological development. Hungary is one of the countries, which could successfully implement transition in its economy and Gross Domestic Product (GDP) growth, has the best opportunity to receive more foreign capital and a good rate on returns of investment, **(Hooley. G. Cox 2009)**.

Considering the FDI as the main driving force for the economy (it promotes development and economic growth), FDI also creates new working places, thus reducing unemployment, rises the welfare of the people. FDI is an instrument that grants access to export markets, increases productivity, and boosts foreign trade.

In 1989 Hungary was the first country, which opened its economy for foreign direct investment. More investments were realised in the early and middle 1990's according to privatization process, when the Government sold national domestic assets to foreign capital owners and investors. At the end of 1990 - UNCTAD, the UN declared statistics, that foreign working capital (investments), as foreign operating capital stock had share 1.7% of the total GDP of Hungary, which exceeded 50 by the end of 2001.

The privatization process reached its topic level in 1995, when strategic energy sector was sold. In this year, the shares and other share participations of foreign working capitals inflow was 66% (2 368 million euro) based on privatization process. In 1996-1997 this portion declined to only a 19%.

From 1998 until 2002, there was no real privatization in Hungary, in this period there was other driving force for foreign investments and activities of foreign working capital. For 1990s overall of the Hungarian National Bank has calculated that Euro 4.7 billion value of foreign working capital lowed into Hungary resulted by the privatization.

The first phase of foreign investment was in the early 1990's, when the main attraction of cheap, high unemployment, and large numbers of available workers reported. In the late 80's, began reforms in a market economy is built on the legal, regulatory and institutional, domestic and foreign policy, stability reigned, particularly in the Central European region in

comparison. From 1990 to 1995, 5.2 billion euro Greenfield investment was realized in Hungary. Mainly within the manufacturing industry, the low level value-added processing activities with low wage cheap labour forces dominated. The products mainly were produced for increasing export; foreign trade has the considerable influences on fast growth in 1995, exports shared 51% of foreign-owned firms.

The foreign capital could not have wholly integrated into the Hungarian economic structure, the economic growth was island-generated by multinational companies operating in Hungary, the Hungarian small and medium-sized companies supplying the demands of multinational companies have not played a significant role yet. In field of sectoral distribution of foreign capital in late 1995 was, which were as follows, its share was 41% in manufacturing, 14% in electricity, gas and water supply sector mainly focused. The territorial distribution was highly concentrated in Budapest, where the share was 57%, and 12% in Western Transdanubia, also in Southern Transdanubia the lowest one was 3.8%.

In 1995, after the stabilization process the investor confidence has returned. From time to time skilled, affordable workforce and stable economic environment were in the building, which received from the investors. In 2004, after our joining to EU, the country provided good prospects towards for foreign investment. The low corporate tax, investment advantages, favourable geographical conditions could attractive FDI firstly to Hungary in the region. The country has advanced network infrastructure based on successful regional development process, and greatly promoted the FDI to invest in Hungary. Export-oriented car manufacturing, electronics, and increasing financial, investment services were characterized in this period. By the end of 2000, already 73% of exports have been carried by foreign-based corporations and multi and transnational companies. The manufacturer of suppliers' representatives appeared, as well as the development of Hungarian small and medium-scale enterprises, the modernization of technology resulted by an increasing number of domestic firms, which firms become suppliers.

The electrical machinery and apparatus manufacturing industry was 8.3% share of the foreign working capital stock in late 2000; there was 7.9% of vehicle, transport, storage, telecommunications, 16.6%, respectively, in the real estate, business services 12%, financial business sector and 10.1% share of the foreign working capital stock.

The area of concentration was not essentially changed, because at the end of 2000 in Central Hungary, foreign capital was 67% (58% in Budapest) and the second was in West Hungary,

where its share was 11%, while the last of the lagging, in Southern Transdanubia was 2% respectively. Germany was the largest investor in the intervening period, when their invested capital stock was 37.4% of German companies originally, by the end of 2000. The Netherlands shared 14.6%, second, third, Austria shared 8.9%, while the fourth, the United States shared 7.6% of all foreign capital invested in Hungary.

In field of the inflow of foreign working capital, since 1997 the re-invested incomes of foreign companies have been growing role. During the period of 1997-2000 the re-invested incomes of foreign companies as a form of foreign capital inflow has considerable share of all capital investments, which reached more than two-thirds of the income re-invested in this capital inflow form. Each year this kind of foreign investment was averagely early 1.1 billion euro in Hungary. The foreign investment was characterized by both horizontal and vertical expansion of activities.

Foreign Direct Investment Inflows of Hungary in 2000's

Value of the whole foreign capital flows has increased sharply for 1990s, after that in 2001 this declined by 41%, while in 2002 this declined by 21%, namely to US dollar 651 billion in working capital inflow value. The main reason of this event was that period of high-valued purchases has been over. In 2002, value of whole foreign capital inflow reached only 45% (400 billion) of the annual inflow in 2000, which were received to the European Union. But in Central and Eastern Europe the process was contrary taking place in the world, because the capital inflow increased within foreign investment. According to data of UNCTAD in 2002, the value of foreign capital inflow increased by US\$ 29 billion (16%) in CEE region. Of which 19.4 billion dollars was inflowed to Visegrád countries. The region had growing capital attraction, which was resulted by largely accelerated privatization, the world average faster economic growth; an improving economic environment. In 2003, however, the overall stagnation of the Visegrád countries resulted in only 42% of previous year's results of total foreign working capital inflow, which was due to slow-transition and privatization.

In Hungary in the 2001-2002 period working capital inflows resulted by incomes of Greenfield investment and the only source of income was re-invested. In the first half of 1990s investment perspective Hungary's benefits were largely lost.

The increasing growth gross wage was seen, which did not pursue due to the increase of efficiency improvement, the unit labour cost position of our country has deteriorated concerning the region-wide size. According to consequence of all these facts, in the field of the first wave of green-field investments the country's attractiveness significantly declined, and even in case of some highly living labour-intensive sectors, for example textiles, footwear, electronics; the significant working capital outflow was withdrawal. The multinational corporations have transferred some economic activities to the more East, in several cases to China. According to these last events the Hungarian Government promoted the FDI to invest more in the second wave is to encourage Greenfield investment, the higher value-added production to be invested, and they aimed at attracting the foreign companies to invest in regional services firms sought to, or seek.

For 2001-2003, annual data show that a total of 3.7 billion euro worth of shares and other shares in the form of direct capital investment, most from Germany (901 million euro, 24.4%), Austria (650 million euro, 17.6%), Japan (362 million euro , 9.8%) and the United States (301 million euro, 8.1%) have been invested in Hungary.

The majority of invested capital was in the manufacturing sector between 2001-2003 (70.3%), included also electric machines and instruments (785 million euro, 21.3%), vehicle construction (800 million euro, 21.7%), metals primary and fabricated metal products sector (468 million euro, 12.7%) and machinery, plant (232 million euro, 6.3%) and financial activities (681 million euro, 18.5%) and real estate economic service sectors (310 million euro, 8.4%) flowed.

Favourable possibility for Greenfield investments in Hungary attracted FDI and multinational corporation to implement equity investment in this region, which comparably at regional level, the previous years' performances have also been weaker one for 2001-2003 in an annual 1.1 billion euro flowed into this form. It can be mentioned an increasing trend towards this form of income re-invested in value of investments, which in 2003 the Bank has estimated that 2 billion euro.

The newly created productive investments have become increasingly rely on foreign companies in the delivery capacity of Hungarian firms. They continued their export-orientation strategy, and it also was in 2002, present exports 83% of the complicated foreign enterprises. The earlier less degree of foreign investment activity indicated, however, that – to opposite more 51-53% over - only 43% of all investment performance output was given by foreign-owned firms.

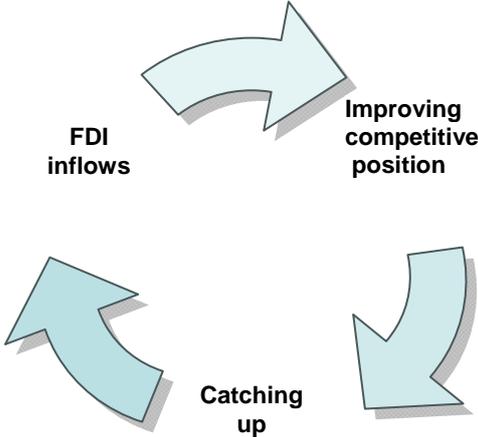
Since 1990 foreign working capital investments have been going on, and until 31st of March, 2004, the stock of foreign direct investment reached its value of Euro 40.5 billion.

Of which amounts about Euro 33.7 billion was in equity capital and re-fixed income investments in the form of stock, other forms of equity investment portfolio was EUR 6.8 billion in the 2004th March 31 (KHEM, 2007).

2.3 The possible influences of Foreign Working Capital Investment

The foreign working capital investments in the host country effects are extremely complex, for which there is no singly unified theoretical framework. The issue is separate, although some segments, but can be analysed, in both of theoretical and practical levels. There were many studies, which made from different fields of empirical research.

Figure 2 The growth effects of capital inflows



The working capital flows, improving competitiveness and convergence of interacting are making influences on each other in a circular process (Figure 2). The economic growth effects of capital inflows accelerate to improve the competitiveness of emerging countries. Also the generally advanced economic conditions can stimulate foreign working capital inflow into a country.

The drop of any element in the process can discontinue any positive change. Changes of the FDI flow direction can deteriorate emerging chance of any country.

2.3.1 The possible influences of Foreign Working Capital Investment

The host countries' economic growth, GDP growth are expected from the foreign investment, because the growth of GDP or domestic corporations, domestic resources are carried out by, or absence, may be created by the foreign capital and its financial resources. he second case

concerns - in particular, lack of capital - Central and Eastern European countries, because here either internal or external resources are not available, so the two resources of economic growth can be used: first, the companies settled in the production, and they increased production of domestic firms, which the former companies are able to direct or indirect consequence of increased production.

In the case of the first phenomenon occurs, thus only additional foreign investment increases the growth of GDP, then - in the event of non-additive economic growth - have a greater chance to create the dual economic structure.

There is a great responsibility of the host country in order that they avoided this situation and to strengthen the economic integration. Naturally, there is no matter whether the foreign operating capital produced any percentage of GDP in the country. Lucky really working for foreign capital investments has adequate structure, if it meets demands of national host country. Therefore not just a few multinational companies are present in one sector but many sectors are also appear in the hosting investing companies, and not just a global giant multinational companies, but an international medium - and large investments are made.

The branches of the processing industry have made large investments in Hungary, which all foreign investment in working capital accounted for 37 percent, but concerning the basic structure of the economy, in hosting country this was not considerable (**HCSO, 2002**). On the other hand, the country's competitiveness can not be determined by only just one or two sectors – even they are flexible for easy changing - and extremely high value of their production factors, but additionally to these, other several factors - such as labour skills, the stability of the legal system - in respect of the benefits should be combined. In Hungary today this is one of the biggest "problem" because the labour costs have increased significantly in recent years, and the benefits made up a considerable mayor part of its. In 2002 and at the end of 2003 several foreign-owned companies discontinued production in Hungary. Naturally most of them have other reasons to close their domestic subsidiaries, but everybody appeared in a major excuse for excessive increases in labour costs.² In January 2003, the Salamander shoe company dismissed 800 employees and withdrew from Hungary. The only reason was that it was no longer worth the Hungarian production, because of highly excessive labour costs were in 2003, Hungary had a very high level of contributions related to salaries.

IBM closed his hard drive manufacturing session, which was also raised in relation to the closure unit labour costs increased, but the official reason was mainly that the prolonged stagnation was in the media world, so the manufacturing unit was closed.

2.3.2 Employment Impact

The various kinds of Foreign Working Capital may affect employment in different ways. New jobs which are created by green field investments can play an important role in reduction of unemployment. The nature of investment should not be ignored, since if the investment is made in a country because of the exploitation of the cheap factor of production, for instance cheap labour, in the long run further investments and the welfare measures of the government led to the loss of competitive advantage that rising wages result. All these involve the moving of factory and lay-offs. However, the matter is complex, since the growth of workforce's price is not caused merely by induces governmental measures, but it is possibly caused other reason too. For instance, additional job opportunities are formed (in this case competitive advantages are higher).

In the case of investments that mostly through the privatization are got into foreigners' hands it was general that employees who are dismissed by reason of rationalization increased the number of the unemployed in the short term. They were "unemployed within company", who just damaged the corporate profit. For that these people do not become the part of lasting unemployment, governmental measures are essentials that have to be realized alignment with the transformation and structural reorganization of economy. The government in power has to take it into consideration for the long run, since sustainable development generates permanent economic transformation that emphasizes the accomplishment of the lifelong learning programs.

2.3.3 Structural reorganization effect

The primary structural reorganization effect of Foreign Working Capital is depending on sectoral-technical structure of settling industry and the initial condition of recipient country. If new structural elements are succeed in integrating into national economies, the whole economic structure can be transformed radically and macroeconomic indicators can be

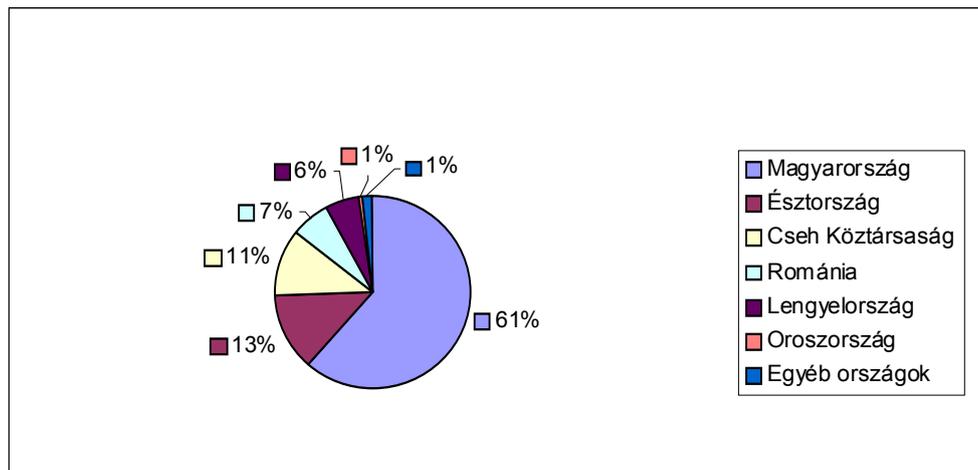
improved. This effect is succeeding in the case of IBM's Hungarian investment when a new activity was introduced in Hungary. IBM transformed its export structure and focused on high-tech. The Hungarian subsidiary had 8 % share¹ in the value of 543,819 million HUF in exports and the second largest exports revenue after Audi. Multinational companies produce items which composed previously less part of production. The predominance of processing industry has been continuously increasing. To be more precise, foreign investment companies represent at 67,4 percent of the whole sector's share capital, and at 73,6 percent of export. Éltető Andrea emphasized in her study in 1999 that sectors in which foreign investments considerably invest, have been rapidly expanding their production, while in some cases other sectors have stagnated.

This resulted in change in structure of foreign trade and the growing concentration. Foreign investment is partly helped Central and Eastern European countries in their integration into Western production systems, but partly, product-and geographic concentration is also made them vulnerable to some extent. This draws attention to the danger that if the Central European countries lose their attractiveness for the multinational companies, these last one as foreign capital can leave from this region. This outflow may reduce the risk, if the local supplier industries develop, and if it is not cheap, but skilled labour can be attractive. The risk can reduce in the future, if the Hungarian suppliers not only deliver for a foreign investor, but they diversify their national production and services, in order that a TNC's withdrawal does not lead directly to bankrupt for Hungary.

Currently, the manufactures of electronic devices in East - Central Europe have the largest share. Flextronics (Singapore), the Elcotech (Finnish) and Solectron (USA), Sanmina-SCI (USA), Zollner (German) manufacture their products in Hungary (Figure 3). Those companies may stimulate the more advanced economic structure and external economic orientation for East - Central Europe.

¹ Source: UNCTAD World Investment Report 2002. (Antalóczy and Saas, 2001.)

Figure 3 The largest investment in electronics in Central and Eastern Europe, November 2001



Source: own calculation based on UNCTAD WIR, 2002

2.3.4 Reinforcing effects of market competition

The settling companies with capital inflow generate competition between the production inputs market and product markets; this can primarily result in profit decrease, at level of competitors. Production input producers supplying foreign investing companies create and increase competition between them in order to increase their supply for FDI. So even national companies producing inputs for the market segment also increased competition forced, which led to the absolute increase in efficiency, which is not necessarily a disadvantage. It can be declared that if the domestic companies are capable for efficiency increase and cost reduction, they also increase their international competitiveness. As a result of the increasing domestic competition and forced by the profit growth target on the international market also has ability to survive in business, strengthening the exports, thus to reduce the balance of payments deficit. It also must be taken into account; this can be basically perspective, only for capable of development companies and sectors, because otherwise the entire backlog of foreclosed from the market risk for companies, especially if the sector of international competitors has the capital and efficiency that the domestic firm can not catch up in the short term.

The foreign investing companies on host country may also offer new opportunities, because they require such inputs, which any company may not also produce this, but there may be companies that would be capable of producing necessary inputs for the potential market.

Referring to change it can be noted that if the production takes place steer in the right direction, it will renew the economic structure. The company settles expanding product range. The foreign company can make the *domestic consumer accept* the new product, even in the medium term; *demand* innovations to emerge.

2.3.5 Impact on suppliers

There are several beneficial effects of domestic suppliers, which can only be emerged highlight a few topics from. This is a case for example when the supply rate is low, or if the supplier has only a low degree of processing and low-technological products, which can provide or offer for foreign companies. In this case, the possibility is that the domestic company's own preference for a foreign supplier, as FDI, install them in the host country, in which the effect is fairly complex, can not be determined in black and white, good or bad for the host economy. The international synergy and efficiency of transnational and multinational corporations for the logical thinking that they have their own global supply systems operate.

The emergence of international suppliers and international business vertical supply systems stimulate domestic companies to follow a permanent escape "under pressure" claims, in which the innovations, it is essential to the increasingly stringent quality assurance systems for the introduction of competition to remain the only chance. The delivery operation is followed by continuous activity and also the FDI is inextricably accompanied with the strong needs for information, and knowledge transfer, research and development (R&D).

In that case, when, if the foreign companies and local companies develop strong relationships with each other, and also they become partners for each other, so a kind of complementary role becomes created to develop a balance between both of foreign and national sectors in host country. Even theoretically it may also happen that foreign investment given by FDI can provide a starting help for domestic companies, which can expel the foreign companies from host country.

Basically, there are *two kinds of connecting between companies*, which are as follows:

- the *forwards connecting effects* on companies more advanced in the vertically production chain, focusing on *output*, as producing and selling products directly to consumers on market;
- represent the effects of *backward connecting effects* to companies interesting *inputs* with businesses.

There is a lucky for two cases, if both of influences concern domestic companies in a positive way. The danger here is the export orientation looking forward connecting points, and the import orientation looking backward connecting pointing having advantages for foreign markets and foreign companies.

2.3.6 Impact of technology modernization

The sectoral structure of investing companies has special significant importance, because technical and technological production level of foreign companies determines whether any development accrued. Strengthen for them has great importance that the higher technological level can inflow into domestic firms of the country, and how their developed technological level is higher. Naturally, the relationship is not only depend on the imported inflown technology and the surrender of will, but this is also depend on the absorption ability, adaptation, implementation ability, learning ability, the depth of technology gap between the two sectors, culture, human capital, the education system and more many additional factors.

However, this is not only the technical tools and systems should be considered, but the transfer and spill-over total innovation interpretation, which includes management methods as well as keep the deadlines, the optimal supply chain design, production organization, or the rules of hygiene. In case of the optimal condition, flow of knowledge and the spill-over are mutually two-way process, which means that flow is from one of the operators or any operator to another actor without compensation.

In case of knowledge flow, the nature of the investment can be crucial because in the case of a green-field site - mainly from internalization reasons - the company does not allow transfer of the firm-specific technology, because the company can loose its competitive advantages, but the knowledge can play a major role in privatization or access to obtain the technology.

In addition to the above mentioned development impact of working capital for trade should also be analyzed. By the hand this can be implemented by the flow of advanced imported products, for example, companies buy modern machinery, product development, or encourage, any attempt to replicate, imitate the product, etc. On the other hand - as it was said about their impact on the market - the export, if goes to developed markets to stimulate higher level of production, lead companies to export orientation, the process was named as "learning by Exporting" effect (**Bransletter, 2000**).

2.3.7 Impact Services

Essentially services may not be transported and also the distance costs are so high (this can be reduced by the spread of information technology, but this is still significant) and this has two important consequences. First of all, mostly working capital investment can be available the market and not exports, second, the services of firms settled in services can not be exported. It is no coincidence; therefore, a high proportion of service sector is within the working capital inflows. If this ratio is particularly high, the nature of working capital is so modern, this may be an indicator that how much the foreign working capital concerns as developed level of a country's economy, whether the foreign working capital sees *potential market* for their services, and not only as *resources* of raw materials or cheap labour force for themselves.

Some parts of the services, such as financial, marketing and managerial advice, information and engineering services for the so-called producer services, are able to down-link their effects to increase more dynamic development for the economy, essentially they sell knowledge. Their effect especially is beneficial in such an economy, where the market economy creation has not discontinued yet. Because they use highly educated and skilled qualified national-local labour force based on wide-side knowledge, the spill over effect accrued, even as an employee with enough hard effect. They split the flow of knowledge in the economy, for example, which are lack in developing, or post-socialist countries, but they means essential inputs for economic development.

2.4 Why is the FDI good for the economy?

Point of view of a country terms of the relationship between FDI and competitiveness can be especially approached in effects of foreign direct investment on economic growth. The theory does not give a clear answer for the question whether capital inflows can be beneficial for an economy. The neoclassical growth theory model declared that foreign direct investment does not affect long-term economic growth rate.

This is understandable, if anybody considers the model's conditions, which are as follows: permanent measure efficiency, decreasing marginal-product of inputs, among the inputs the positive substitution flexibility and perfect competition. *Exogenous increase of FDI increases amount of capital per capita*, but this may be only temporary because of the conditions,

namely because *decreasing return of the capital* limits this increase. The FDI may affect on long-term growth rate by its two exogenous factors, namely: one is technological progress, and the other is changes of the labour force' volume. This means that, the foreign direct investment will have positive effect for growth, if the FDI increases the country's technological and employment level.

The endogenous growth theory, which does not remain conditions of perfect competition, and this theory provides greater scope for FDI impact on growth.

In the theoretical framework, the investment, and so FDI also may influence on the rate of growth by its research and development (R & D) or by its impact on human capital. Even if the return of capital decreases, FDI can effect on growth by through of the externalities.

These such kinds of externalities could be *partly* the "leakage" of knowledge (organizational forms, improve the quality of human capital and the quality of the assets) from *subsidiaries* to the local economy, or *partly* the effects of various coming through *relationships between its subsidiaries and local firms* (joint ventures, technical and technological relations, technology transfer, purchase orders, sales of common products, access to markets, financing conditions improve, the intense competition created by the presence of subsidiaries, etc).

Through these factors on the one hand, the subsidiary, on the other hand, the related companies increase their productivity in the host economy. The ripple effects of technology transfer and existence of the local effects prevent the declining marginal productivity of capital, and so that they ensure higher growth rates generated by longer-term endogenous factors.

So there is a condition for that the FDI can have a positive effect on the host economy that these externalities should be exist. From point of view of corporate, the most important actors are the multi-national corporations implementing FDI. These companies work out most of the R & D activities. In this case they become the most important sources of technology. In wider sense the technology includes also both of the organizational and management skills. The host economy can obtain this technology directly from the local operating subsidiaries of multinational companies on site or indirectly, the subsidiaries have technology transfer to other companies of the host economy. The impact of technology transfer may occur in productivity improvement, the changes of industrial structure, increasing R & D spending, changing structure of exports and imports, and the change in the stock of human capital.

At the same time, FDI does not always guarantee a positive role for interest of economic growth in field of technology transfer. Probably the appropriate technology (for example: different levels of human capital stock) may not be transferred, also there is no significant technology transfer, or the technology is not transmitted (e.g., institutional deficiencies, the inability to receive local economy, because of isolation or the subsidiary in host country).

In each theory there are different impacts of foreign direct investment on increase of the economic development. The empirical results concerning to role of FDI in economic growth is not clear. In many cases, *analysis* concerning many countries about relationship between the economic growth and FDI does not present or positive or significant (e.g. de Mello (1999), Crankovic and Levin (2000), Lipsey (2000)). One of the most important counter examples are analysis of Borensztein, de Gregorio and Lee (1998), which show that FDI can be a positive impact on economic growth, depending on the level of human capital and capital absorption capacity in the host economy. If the quality of human capital is over a threshold value, as measured by the proportion of participants in secondary education, the foreign direct investment may increase significantly the rate of economic growth.

Similar conclusions were reached by Hermes and Lens (2000), who studied the developing countries and he declared that not only the human capital, but financial markets also must reach a given level of their development in case of developing countries. The role of financial markets is also emphasized by Alfaro, Chandra, Ozcan, and Sayed (2001).

In transiting countries, concerning the period between 1990 and 1998, Campos and Kinoshita (2002) declared that FDI has positive and significant impact on economic growth. They confirmed results of Borensztein, de Gregorio and Lee (1998), and they emphasized that in the transiting countries, the quality of human capital exceeds that threshold, which is necessary to ensure prevail of the positive impact of FDI on economic growth.

2.5 The main theories explaining impact of foreign working capital flow on the economic development

In latest decades the *topic of economic development* is interested, which focused on two main issues. First, what determines the rate of economic growth? Second, what is optimal allocation of resources from point of view of the economic growth? These issues are concerning direct foreign working capital investment, of which examine the growth rate

The impact of FDI on economic growth approaching the theoretical side two approaches meet (Sass, 2003) ²:

- **Neoclassical growth model:** the theory declared that foreign direct investment does not affect on economic growth for long-term. It should be concerned, however, that the basic assumptions of the model, which means permanent size efficiency, decreasing the limit product of inputs, the flexibility of the positive substitution between inputs and perfect competition. Exogenous growth of FDI increases amount of capital per capita, but this may be only temporary based on conditions, because decreasing return of the capital limit this increase. The FDI may affect on long-term growth rate by through of two exogenous factors: one is *technological progress*, and the other one is the *volume of labour force changes*. It means that, the foreign direct investment can have effect positive on the growth, if the FDI increases country's technological level and employment.

- **Endogenous growth theory**, which has not keep the conditions of perfect competition for longer period, and provides greater scope for FDI impact on growth. Within the theoretical framework, the investment, and so FDI can make influences on the economic growth rate by through of R & D and human capital impacted directly also by FDI. Even if the return of capital decreases, *FDI can impact on growth by through of the externalities*. This could be "leakage" of knowledge (organizational forms, the quality of human capital, improve the quality of the assets) by through of its subsidiary in local areas of the host economy; and the effects of various relationships between its subsidiaries and local firms. From these effects, it can be emphasized, such the operation of joint ventures, technical and technological relations creation, technology transfer, the sale of intermediate products, access to market, financing to improve conditions, the intense competition created by the presence of subsidiaries.

Additionally two theoretical trends empirical research presented also partly positive and partly negative effects, which are as follows:

² Sass Magdolna [2003]: Versenyképesség és a közvetlen külföldi működőtőkével kapcsolatos gazdaságpolitikák. PM Kutatási Füzetek, 3. szám.

Table 1

Empirical studies demonstrating the positive relationship	Unable to find a significant positive relationship analysis
<p>- Gregorio és Lee [1998]³: if the quality of human capital and capital absorption capabilities exceed a certain level of foreign direct investment will significantly raise the pace of catching-up economy.</p> <p>-Hermes és Lensink [2000]⁴: very important for developing countries - over the previous two elements - the financial market development is to achieve positive effects.</p> <p>-Campos és Kinoshita [2002]⁵: the economies in transition, between 1990-1998 confirmed by examining the FDI and economic growth among a significant positive relationship.</p> <p>- Xu [2000]⁶: FDI enhances factor productivity growth.</p>	<p>- de Mello [1999]: multi-country national on the basis of analyzing the data, you can not find a clear positive link between FDI and economic growth.</p> <p>- Lipseý [2002]⁷: the structure of the host country of a significant effect, but the spillover is not clearly detectable</p> <p>- Hunya [2002]⁸: the acceding countries is highly dependent on the structural change in manufacturing FDI inflows the participation of foreign companies advantages in productivity, exports, investment and profit compared to the national ones, duality of individual economies. Technology transfer, there is not spillover.</p>

Source: own composition based on Halmos's construction, 2005

³ De Gregorio, J. & Lee, J-W., [1998] How does foreign direct investment affect economic growth? Journal of International Economics, Elsevier, vol. 45(1), pages 115-135

⁴ Hermes N., Lensink R. [2000]: Foreign Direct Investment, Financial Development and Economic Growth. University of Groningen, SOM Theme E Working Papers, No. 27. – idézi Sass Magdolna [2003a]

⁵ Campos N. F., Y. Kinoshita [2002]: Foreign Direct Investment as Technology Transferred: Some Panel Evidence from the Transition Economies. William Davidson Institute Working Paper No. 438. – idézi Sass Magdolna [2003a]

⁶ Xu, B. [2000]: Multinational Enterprises, Technology Diffusion, and Host Country Productivity Growth. Journal of Development Economics. www.bu.edu/econ/ied/seminars/pdf/ky_Sept2002.pdf

⁷ Lipsey, R.E. [2002] Home and Host Country effects of FDI, NBER Working Papers 9293. <http://www.nber.org/papers/w9293.pdf>

⁸ Hunya G. [2002] Recent Impacts of FDI on Growth and Restructuring in Central European Transition Countries. WIIW Research Report No. 284. WIIW Vienna.

The productivity of subsidiary and the other companies associated with these elements increases in the host economy. The *local existence* of technology and the ripple effects of the spate prevents that the limits of capital productivity to decline, thus this ensures higher growth rate generated by endogenous factors for a longer-term. So in conclusion, in order that the FDI can have a positive effect on the economic growth of the host economy, a condition, namely these externalities should exist in fact, (Antalóczy and Sass, 2002).⁹

According to my opinion, if the host country has the appropriate attributes mentioned in the table above in designated areas (education, position, human resources, finance and capital markets have developed, advanced banking system, adequate absorption capacity), in this case the positive effects will outweigh; the *negative effects*, such as the duality, the structural dependence and the enclave nature operation of transnational companies are becoming less occur, but *negative effects* only to the end of the catching-up process is completely eliminated.

2.6 The main theories explaining FDI flows

Theories explaining foreign working capital flow would like to find explaining, which factors and motivations stimulate a company to transfer a part of its production into developing country. The development of theories explaining international trade had a major impact on theories working capital. According to early ideas that the high volume of trade was thought by economists between countries with different economic levels, and similarly to these economic situations, the motivations of foreign direct investment was the difference in factor endowments and the resulting price differences were resulted by the underlying cause of capital flows. *If a company of the "A" country* could produce in a country B with a significant comparative cost advantage comparably with the production in "A" country, which could produce over cost for the creating of a subsidiary in country B for the establishment and operation costs, the question of the "A" country would likely to establish the company's investment in country "B".

So, when the foreign company decided - based on the net cash flows – to realize the foreign investment, which can produce a positive net present value at level of acceptable risk, the decision is likely to be positive. *The companies will finance themselves in that country, where*

⁹ Antalóczy K., Sass M. [2002]: Magyarország helye a közép-kelet-európai működőtőke beáramlásban – statisztikai elemzés. *Külgazdaság*, 7.-8. szám.

capital. In theory, this process is continuing until that time, when the interest rates will be equal in the tested negated countries, and then capital flows will discontinue into these countries.

In the last century this process occurred for investments in those countries, where the transaction costs were very high. Currently based on the actual data, the most of the capital flows occur between the highly developed market oriented countries.

The *classical theory of comparative advantages* declares that the reason of movement belonging to production inputs is that different rates of returns are linked to inputs in each country.

It means that one input flows between countries within a period, when the return of this input will be equal in all countries concerned. Mundell represented this theory. He worked out the model, which he assumed that the capital flows was a perfect substitute of the commodity flow.

Thus, free trade can be able to compensate prices of production inputs. But the price differences are caused by the *duty* of the production inputs, *which* caused increasing price difference between price levels of production inputs, and also caused more intensive capital flow to be strengthened, in extreme cases, the movement of capital, can or can completely replace a goods-trade, and thereby discontinue between countries. Accordingly, the input flow complements flow of goods and generally trade between countries.

The capital-intensive exports and the export of capital goods increase the relative rate of capital return, and now return rates of production input belonging to one country can close to the other's one. This equilibration process can really be closed only in approximate trend between return rates of countries, because there are many different conditions of countries, for example transport costs, the production functions of different countries with different preferences and different input intensities of production, because of the possible rotation of goods and capital flow is not a perfect substitute for each other.

In many cases the trade-based theories became empirically proven - because of especially high transaction costs were at the beginning of the 20th century. Today, however, when a significant part of FDI flows between highly developed countries was taking place (which still did not yield differences, or there are no trade barriers), this theoretical approach is obsolete, becomes irrelevant.

2.7 Model of Froot and Stein

Froot and Stein¹⁰ model in 1989, under the given conditions the company investing took investment decisions, so they created a production unit. So, because of sensitivity of the variable factors, the company did not go until the point, where the balance of stock will be in fact. The cyclicity of foreign direct working capital investments was caused by the expected changes, because based on the impact of favourable changes companies realized their investment business forward, while based on the negative conditions, they were delayed, which last one happened because of the world economic crisis occurred in 2008.

The theory declared that because revenues and costs of the company's established subsidiaries largely incurred in the currency of that host country, and the exchange rate risk concerned only the repatriation of profits. The foreign direct working capital investment is preferable to portfolio investment comparably, since the exchange rate and other external risk factors positively correlated with volume of the investment, while in case of portfolio investments the correlation is just negative.

2.7.1 Hymer's theory

The approach of *Hymer* (1976) is that a company invests abroad, if the company must be faced a lot of trade barriers. The local competitors know more about local law, language, taste and culture, and therefore the foreign investors should balance disadvantages on this domestic market. It is also true that these drawbacks outweigh the benefits can be relatively, simply and inexpensively moved between countries, easily the foreign subsidiary companies have the resources to obtain benefits.

Such factors can include management and marketing skills, brands and technical and research and development results owned by the company. But, these benefits are rarely proved to be stable characteristic of the companies (except as owner of the legacy of knowledge and tradition). Mostly they are costly to be advanced. These costs may be so high, in this case it is impossible to be covered only on the domestic market, and they have to be covered by the

¹⁰ Froot, K.A. – Stein, J.C. (1991) Exchange rates and FDI: an imperfect capital markets approach. Quarterly Journal of Economics No. 4.

or wholly, so FDI also increases.

This approach is adequate with the explanation that the benefits associated that how the company develops, but this approach is not adequate that why company should become the owner of the foreign companies, and why companies do not choose other forms of ways to supply foreign market demands, like as exports, or know-how and licensing agreements. Theoretically there is nothing to prevent companies to implement such agreements covering the developing costs of company-related benefits.

Hymer (1976) declared that many kinds of costs move the company's investment, but it is difficult to generalize, that exactly which component becomes is dominant. It is hard to see why it is necessary that the expansion should take place abroad. So that he prefers to emerge more relevant elements instead of only one and he argues that foreign investment in itself proves that there are aspects of components that are economical to make it together. The cost internalization approach in trying to more concreting factors, which Hymer (1976) abstained. He stated that, in those cases of production expansion abroad if the export and licensing agreements are so more expensive. When a foreign producing unit became owned by the company, they internalize the cost of their production.

According to strategy of a company, if the export network marketing to be built is expensive and R & D expenditures are so highly abroad, in this case it is the best solution for the company to establish foreign subsidiary in order to transfer technology and knowledge within the company. But why do multinational companies often avoid the licensing agreements? Based on these agreements the know-how can be very difficulty to monopolize, if they transfer one. However, if the transferring company tries so much to limit technology transfer, the trademarks and goodwill of transferring company will be unaffected. Because this action of transferring companies results great cost and risk for the future of transferring companies, so these companies increasingly try to control the use of their know-how and licenses through their direct ownership.

The benefits according to local places of companies are also such factors, which the empirical models can concern (Blomström and Kokko, 1998). The gravity models used in trading modelling extended in the modelling of FDI.

Accordingly, it can be expected that the distance is negatively correlated to the size of FDI. It should be noted that theoretical basis of gravity FDI model are absent until now.

2.7.2 Vernon's Product cycles hypothesis

In 1966, R. Vernon placed industry life cycle curve at the centre of overview based on his created theory according to analyzing expansion of the American transnational corporations. According to his opinion, the establishment of new industries most likely was in advanced highly developed industrial countries because these countries have the satisfactory financial capital and resources, expertise and scientific capacity, skilled labour needed for production, ability and willingness purchasing capacity to buy new products. This means that the innovating companies can obtain competitive advantages – even somehow monopoly position - in their own country. The new innovation, new product can provide profit for companies. Going towards in the industry-life curve, by the accumulation of obtained information about the product, production experience, market knowledge, the product will be unified, optimized production technology develops, and the demand and the production also becomes extended. Earlier the research and development strategy focus on only importance of competitive advantages, but later on the strategy and research transfer concerning on the price, which new strategy to set up a new combination of production inputs.

But the unified production system can be moved to lower production cost countries, which results in lower production costs for innovation companies in highly developed countries to maintain competitive advantages. Based on the opinion of Vernon, therefore, the strategy of FDI – working capital investment is to obtain competitive advantages against the other companies and not in difference in results of production (**Egri, 2010**).

The theory declared that the competition stimulates companies to develop innovation continuously. The innovation strongly demands specific market conditions, skilled workforce, strong market demand high quality products and the latest technologies in the access required. All these together are in highly developed countries.

The innovator company has had a monopoly position for a shorter time in production of its new production, so the production only for the domestic market can be efficiency, because the company can strengthen the price above marginal costs. Later, the same competitors catch up, and they produce same products meeting demands of consumers. For the innovating companies, they have to reduce costs in order to maintain competitive advantages because they are not so independent in field of pricing; its competitors are no longer fully independent.

In this situation, the investment is not resulted by different returns, but to ensure competitive advantages of the companies on market of given product. The making decision about the production place is based on the relative production input costs. The relatively lowly production input costs in case of unified products strengthen the comparative advantages of developing countries.

According to explaining the theory, which focus on the certain set of motivation of capital flows as large-scale one from highly developed countries to developing countries, but the capital flows between highly developed countries does not provide reasonable.

2.7.3 The OLI paradigm

The direct working capital investments are affected by both of micro-and macroeconomic conditions. The theory chaining the various elements is one of *J.H. Dunning's OLI paradigm*,¹¹, which has some most important elements, which are as follows: the transaction cost theory, internalization theory and strategic management approach. The **eclectic theory** of the main hypothesis is that the company prefers direct working capital investment to export, if the company can obtain or gain transaction cost advantages, and also the local background is favourable for production conditions.

The FDI has become one of the most eclectic formulate accepted from the theoretical approaches. Also in its name the **eclectic theory** reflects that this theory does not accept explanations based on single factor and this emphasizes large differences in the motivations of investors at the same time. It unfits three different approaches. Dunning (1992) described the joint explanatory validity.

This theory is often called as **OLI**. The 'O' indicates the property (*ownership*) named by Hymer (1976) emerging this explanation of the criteria included among the 'L' denotes the site

¹¹ Dunning J.H [1993]: *Multinational Enterprises and the Global Economy*. Addison-Wesley Publishing Company.

flexibility often provides the basis for empirical analysis (*Éltető-Sass, 1997*). *Dunning (1992)* declares that three aspects together provides the necessary and insufficient conditions of FDI flows.

The OLI paradigm collects the motivations into three groups, which stimulate company to realize foreign direct working capital investment. The motivation comes from situation, in which a company wants to expand, where he has earlier any ownership share, as advantages over other companies, or where penetration is made and the companies, which appear just as exporter on this particular market, the barriers to entry are too high (**Oszlay, 1999**) ¹²:

- **Ownership advantages:** the products, production processes and technology, which the expanding company has, but other companies do not have one, because they may be to legal protection, or other company can not create these one. On the one hand is the material assets are included under patent protection, on the other hand a material asset, which can provide sufficient advantages to balance the additional costs of production abroad. The ownership advantage is belonging to a company that already holds, which has not decided on the direct foreign investment yet.
- **Location advantages:** the host country's market provides advantages, which are only available for a company, if the FDI investments have already been implemented. For example, an investment could be beneficial in available for the market, to where the traffic or transport cost is high, in addition customs duties or quotas restrict the free inflow for products on this market or country. Other reason is that terms of employment provides the abundantly available natural and human resources, access to opportunity and benefits for investing company. In case of the non-exportable services, investment can obtain market positions for investing company in that country.
- **Internalization advantages:** a company, which has unique products, manufacturing processes, which are not available for another company. The license transfer or joint venture formation with the possibility of internalization measures required to capture the benefits of fixed investment costs. When know-how or manufacturing processes are handed over, companies have to recover their characters in order to make the agreement. In case of such agreements, each partner must assume a significant risk. The transferors that reproduce the

¹² Oszlay András: Elméletek és tények a külföldi működőtőke befektetésekről MNB Füzetek 1999/11. p.7.

estimate. The role of risks related to the corporate decisions has significant affect on creating business. The importance of these advantages emphasizes that license agreements are small volume comparably to foreign direct working capital investment.

The company-specific ownership advantages are able to explain the importance of FDI flows within intra-industry. The localization advantages can not play important role for benefits of a foreign working capital investment presence in a sector of the host country, because the corporate strategy, company-specific and industry-specific factors are responsible for that. Dunning distinguished four types of investment:

□□ ***The foreign investments exploiting local resources.*** They are designed to exploit advantages of existing international differences of production inputs costs. The investor is motivated by the business's profitability and competitiveness increase. Output of the production invested abroad is exported mostly into highly developed industrialized countries. This is essentially company of the neoclassical model. The targeted resources, which are as follows: natural resources, labour and foreign investment in the acquired technology, business knowledge, organizational experience, etc. These latter one joined into the model has been over the neo-classical arguments.

- The purpose of ***market-oriented investors*** to supply products on market of the host country and direct care products. This kind of foreign direct working capital investments has five dominant causes which are as follows:

- o The first reason is the *post-investment*. An investor establishes investments in those countries, where key suppliers or customers are; because it ensures and strengthens business continuity.

- o Another reason is for *adapting products to local market needs*, local or special need for the involvement of production inputs (usual raw material is used on given market).

- o The *local market supply may* be cheaper by locally-based production, production and transaction costs, because of lower level.

- o The fourth reason is that *the company is forced by its competitors to compete* in order to presence on markets considered important. The global strategy includes market presence and share of market, which are important elements.

- o Finally, *host countries arranges* taxes, customs duties, import controls induced the production of administrative placement for investors.

- The main motive of the investment is to use increasable efficiency of existing resource- or market-oriented investment rationalization, so the investing company can achieve synergies in geographically different places through a coordinated management of subsidiaries. These benefits are resulted by their very nature, economies of scale, risk diversification and returns to scale. The advantages prevail between the corporate value chain and various strategic business units within the chains.
- *Within validating of the strategic benefits*, foreign companies buy their values to realize their own long-term strategic goals, especially to achieve maintenance of their international competitiveness and growth. Such kinds of investments are achieved by large companies following integrated global strategy, also smaller companies at the first step in their international activities to ensure the competitiveness, which by they purchase other company's property with their market knowledge. Dunning declared that the source and market-oriented investments are the first initial investments. The efficiencies and strategic benefit oriented investments are such additional investments in general, so which resulted in more capacity for companies, than before. Such additional investment can be achieved by a reinvested part of profit. The changes of the international flows belonging to FDI have been observed for the past 20 years mostly in field of latter types of investments largely (Egri, 2010).

2.7.4 Ozawa's phase model¹³

In catching-up countries in each phase the capital generally inflow into industrial branches more able to produce higher value-added. The theories - concerning company's internal motivation and environmental factors – summarized phase models can be called, because the different phases of capital flows can be observed in consequence of countries and companies at to different developed levels.

Ozawa in theory of phase model in 1992 started from Dunning theory. According to the FDI working capital investment the firms can have two kinds of motivations, which are as follows:

- In direction to cheap production inputs,
- In direction to find competitive markets.

First at the beginning available cheap raw materials and later cheap labours were subsequently the company's objectives. The motivation was to attract demand of markets, so to search

¹³ Ozawa 1992. Foreign Direct Investment and Economic Development. Transnational Corporations Vol.1. No. 1. p. 27. www.unctad.org/en/docs/iteiitv1n1a1_en.pdf

market position within colonization. These were two motivations consecutively by times. At the beginning a company would like to site to obtain cheap resources in another country. Then because of the development of local resources and increase of capital stock, mostly the motivation in direction to search market was the reason for site of companies. Meanwhile - as the host country became richer in its capital investment, they can start to export the capital itself into countries owning cheaper production inputs. In the third phase of development the host investment country itself also will seek to innovate, and looking for market will be motivated by the search market.

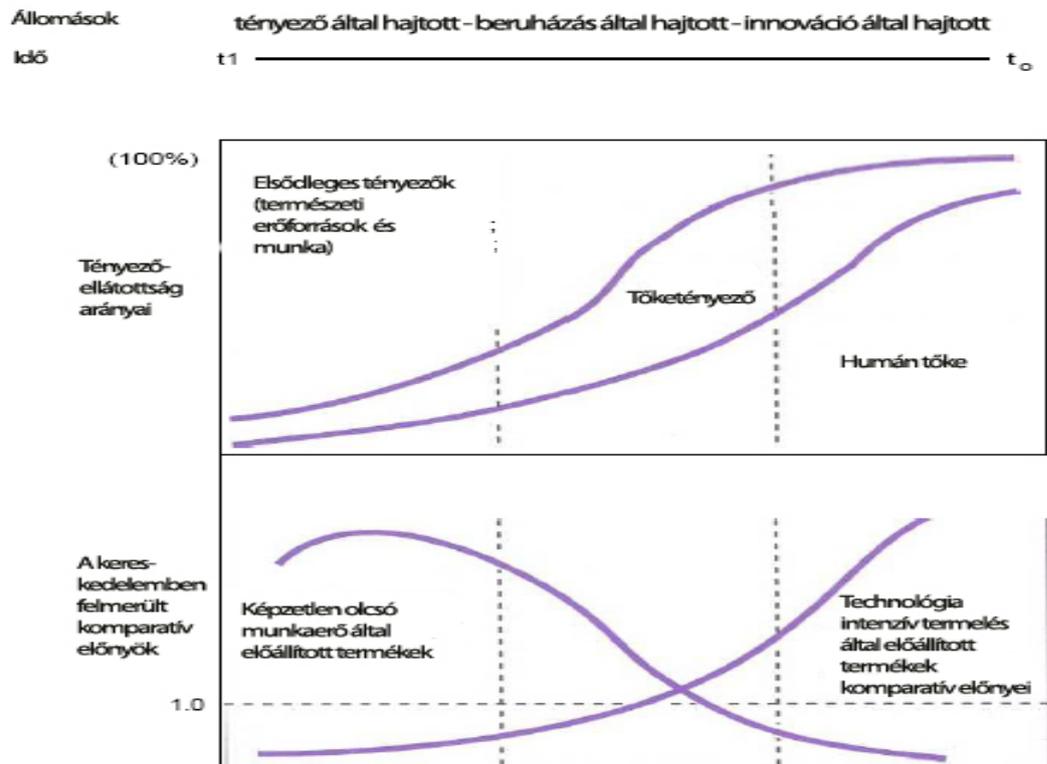
The phase-models will be fulfilled in Narula publications. In Andrew Oszlay study, in which it is written by Narula (1995) that FDI in the first phase was motivated by different factors of countries (these were the Dunning's Location-benefits). Later in the highly developed countries, the companies have accumulated assets, human capital, managerial skills and....etc. for production period, by which they obtained ownership advantages (Dunning O-advantages). These *advantages* can quickly spread throughout the world, *which* become more important than to obtain place for companies themselves.

According to Figure 4 in my opinion this model most describes the catching-up walk-way track of the convergence.

So companies become increasingly independent from their own home countries, because their ownership advantages can be excitable in all over the world. This is the final phase accompanies with more intensive FDI working capital flows.

The phase models undoubtedly contributed to understand FDI flows among highly developed and developing countries. However, the phase models don't provide a satisfactory explanation for highly level of investment among the highly developed countries. Today this is the main research question among experts. The model claimed that investments among developed and developing countries takes place mainly to exploit the production inputs, while among highly developed countries the FDI investment seeking market positions is typical.

Figure 4. Stages of development, the factor endowment ratios and comparative advantages change



Translate of table's text from Hungarian to English

STAGES / TIME	Factor	Investment	Innovation
Supply factors	Primary factors: Natural resources, human resources	Capital	Human resource
Comparative advantages in trade	Products produced by unskilled workers		Comparative advantages of products produced by technology and intensive production

FDI inflows	Search Factor	Search Marketplace	Market / Technology Search
FDI outflows	Trade support, resource finder	Low-cost labor seeking	Market / technology search, investing the surplus profit

Source: own construction based on: Ozawa's study 1992.

2.8 The state's role in capital attraction

Why do companies invest in abroad? *Dunning (1993)* developed theory with the synthesis of previously published theories, because the previous explanations could not be able to fully justify the existence of direct foreign investment. According to Dunning, the international production resulted by such a process, on which equity or ownership, internalization and site-specific localization can be influences. From point of view of the main subject, namely which elements the investor company chooses the choosed places for establishments based on.

First the availability of local inputs can be affected by such these factors, which are as follows: natural resources, market size, geographical location, economic conditions, cultural and political environment, the factor prices, transport costs, some elements of the government's economic policy (trade policy, industrial policy, fiscal policy, tax policy, etc.). That means that the government's economic impact on a country's ability to attract capital. The government, recognizing the FDI is for the economy, the potential positive effects on competitiveness, in recent they have decreased significantly the barriers to investment, more and more sectors opened up for FDI. (UNCTAD, 2002) In addition, in many countries they tried to improve the general investment environment, and also different kinds of advantages have been introduced for interests of the foreign investors. Motives concerned the governments at the macroeconomic level to reduce the high debt, increase low growth rates or reduce unemployment.

Second, it is also important, the globalization and regionalization processes created a situation in which investment stimulation appreciated for governments (Blomström and Kokko, 2003). International Trade (GATT, WTO) and regional trade liberalization (e.g. EU, NAFTA), unified regulation, increasing trade liberalization, the technical-technological innovation, the development of the telecommunication have become more unified and also the role of market size increased in choosing the location for investment. So, the importance of investment increased in export oriented production, and the less capital strong countries have also increased the possibility for attracting investment. Also the globalization / regionalization processes have resulted in increasing role for FDI incentive policy from side of national governments.

Third, the '*incentive competition*' has appeared between the countries in order that more foreign capital to inflow into each country (Oman, 2000), which any country was out of, this country losses possibility to attract foreign capital to inflow into national economy. The strength of the "incentive competition" indicates the growing awareness of state support per job created by FDI.

According to UNCTAD data, for example, in many cases the state support per job created by FDI exceed US\$ 100,000 in 2000, for example, in case of Intel's Israeli or Honda's American investment. Among the EU members, Germany (Dow investment, US\$ 3,400,000 / job) and Britain (Ford, Dupont and Hyundai investment) were also included in the list of most generous supports. These extreme subsidies emerge the question whether in these cases the investor is the absolute winner of the '*incentive competition*' among the countries. Haaland and Wooten (1993) declare that the level of support may be so high that even a significant spill over host for the holding of the foreign investor can be a net winner.

Globalization and regionalization progress have the other important consequence for the development of investment promotion of competition, which as a follow: because the markets consolidating unified at regional level became more advanced than globally, so it is likely that most of the competition venue at levels of large multi-country region or between regions within a country accrued. **These regions** with unified market conditions can be similar, but they have also differences in field of support measure for per job created by FDI.

The emerging question is that how companies investing in site selection decisions can be influenced by the FDI promotion tools.

General economic conditions of the host economy are the most important for multinational companies to select the country and to invest. The multinational companies analyze the market size, income level, the characteristics of human capital (skills, productivity, relative wages), the infrastructural, political and economic stability, regulatory and policy frameworks, depending on the type of investment (domestic or export market, producing more and the host economy in which factors of production used intensively). The type of investment is determined by factors and their economic weight. This was confirmed by the empirical literature analyzing the capital flows between countries, because many experts have

declared for a long time that discounts and incentives do not play significant role in the selection for location of investment.

2.9 Concepts and explanations relating to the subject

FDI

There are three forms for foreign direct investments. The first simple investment of FDI would be a direct investment by a corporation in a commercial company in another country. The main situation is that this investment and its business action is in other country, it means that the business enterprise activities completely out of the national economy of the corporation's home country. The investing corporation must control 10% or more of the voting share of the new invested company or venture. (Mankiw p. 50)

According to history of the FDI activity the United States has been the leader of capital outflow since the end of World War II. Businesses of other economies have taken their capital outflow since the beginning of the last decades.

Foreign Direct Investment another points of view

Definitions of FDI are contained in the Balance of Payments Manual: Fifth Edition (BPM5; Washington, D.C., International Monetary Fund, 1993) and the Detailed Benchmark Definition of Foreign Direct Investment: Third Edition (BD3; Paris, Organization for Economic Co-operation and Development, 1996) **{11; www.unctad.org}**.

According to the BPM5, FDI was determined as a kind of capital flow of a company as an investor to invest or to make enterprises operating out of the national economy. Further, in cases of foreign direct enterprise investments (FDI), which are as follows:

- the investor's purpose is to gain an effective voice in the management of the enterprise;
- the foreign entity or group of associated entities that the investment is made by as „direct investor“;
- the unincorporated or incorporated enterprise – a branch or subsidiary, respectively, in which direct investment is made by as a „direct investment enterprise“;
- some degrees of equity ownership are almost always considered to be associated with and effective voice in the management of an enterprise;

- the BPM5 suggests a threshold of 10 per cent of equity ownership to qualify an investor as a foreign direct investor.
- once a direct investment enterprise has been identified, as a necessary to define which capital flows between the enterprise and entities in other economies should be classified as FDI.

Since the main feature of FDI this is taken by an enterprise based on their interest, only the capital which is provided by the direct investor either directly or through other enterprises related to the investor, as FDI.

The forms of investment by the direct investor which are classified as FDI are equity capital, the reinvestment of earnings and the provision of long-term and short-term intra-company loans (between parent and affiliate enterprises).

Components of FDI

The components of FDI are consisting of capital, reinvested earnings and other capital (mainly inter-company loans). The countries do not always collect data for each component, they did not report data concerning the FDI, so the data can not be fully comparable between countries.

In particular, data about reinvested earnings, the collection of which depends on company surveys, are often unreported by many countries (*I2; www.unctad.org*).

The threshold equity ownership

Countries differ in the threshold value of foreign equity ownership, which they take as determination for direct investment relationship. At the level of participation the direct investors are normally often regarded as having an effective say in the management of the enterprise involved. The threshold value usually applied for FDI is at minimum level of 10%, for data on the operations of TNCs (Trans-National Companies), it involves voiting shares between 10 and 50%.

Some countries do not specify a threshold point, but they really analyse in case of a company, how much an investing company has an effective voice in the foreign firm in which it has an equity stake.

Influence of the quantitative differences on the threshold value used is relatively small, because of owing highly large proportion of FDI which is directed to majority-owned foreign affiliates (*I2; www.unctad.org*)

Defining treatment of different forms of investment

According *equity stake* of foreign enterprises, as investors, *by which* foreign investors have many other ways for them to get the effective voice. The subcontracting, management contracts, turnkey arrangements, franchising, leasing, licensing include this effective voice of foreign investors.

For example, the OECD arranges investments as financial leases between direct investors and their branches, subsidiaries or associates as if they were conventional loans; such relationships were reasons, why they renewed definition of FDI (*I2; www.unctad.org*).

Direct investor

An individual; an incorporated or unincorporated private or public enterprise; an associated group of individuals or enterprises; a government or a government agency; an estate or trust; a group of related individuals, or an international organization which have 10% or more one of an investment in a direct investment enterprise named as a subsidiary, associate or branch, operating in an economy (**Mankiw, 2000**).

Meaning of Economic Environment

Those economic factors which are based on working of the business, they are known as economic environment. This method includes principles, economic system, trade cycles, economic resources, level of income, distribution of income and well fair etc. Economic environment are very dynamic and complex. It is not same at all. It remains changes from time to time in the economy like change in Governmental policies and political situations (**Mankiw, 2000**).

Foreign Investment Principles

The policy related to the investment by the foreigners in a country is known as Foreign Investment Principles.

If the government has accepted liberal investment policy, then this leads to more inflow of foreign capital into the country, which ultimately results in more industrialization and economic growth in the country (**Mankiw, 2000**).

Expected Returns

The drive to invest in an asset basically springs from the benefits an investor had foreseen as the outcome which supersedes the exposures he intends to expose his capital, and this outcome could be referred to as the expected returns from such investment. However, theories proved that the expected return from an investment should be commensurate with level of exposures such capital is exposed to. Expected returns could also be defined as the risk free rate of return in addition to the risk premium also known as the expected value (**Bodie, 2007**). Put in another way, expected return could be said to be the foreseen benefit of an investment over the cost of such investment.

Risks

The degree of returning uncertainty could be determined by risk. By other words, the possibility of non-determined investment can increase uncertain situation (**Turbit, 2009**). Requested income is closely related to particular investment. (**Sharpe, et al 1960**).

Capital Asset Pricing Model considered exposures as systematic risk and went further to classify them as Essential and Unessential Risks. **Ross, 1976** went further to classify risks as Systematic and Unsystematic as an extension of the capital Asset Pricing Model. A rule of thumb says; the level of return should be with the level of risk involved. But the risk could also define as the obtaining deviations, which can be same with line of forecasted results (**Aswath, 2002**).

Arbitraging

Arbitraging could be defined as the act of taking advantage of *price differences* between two or more separate markets by simultaneously buying the asset in the separate markets at a *lower price* and reselling them in the separate markets at a *higher price* (**Khan, et al 1996**).

The main idea behind this arbitrage is to capture the advantage resulted by *price differences* on two or more markets. This is usually being done by Arbitrageurs in the financial market.

Financial Control

Financial control could be defined as the act of establishing financial management and economic standards based on a firm's targets, measuring and reporting, as actual economic activities, thereby this financial controls comparing the two and taking corrective actions. (**Afolabi, 1999**).

Financial control does not stop deviations alone, but also this prevents subsequent deviations from occurring in the future.

Regression

Regression analysis is such method used in analysing with the relationship between one or two variables using a set of individual data points (**Sanda, et al 2006**). By convention, the y-axis is normally depicted as the dependent variable on a plot and the x-axis as the independent variable. Regression analysis provides the best fitting straight line through plots, which makes the estimates to be closer to reality and therefore more useful in predictions and forecasting (**Chillbreeze 2006**).

Test of quality

This measure unit of the quality of assurance which is resulted from a future estimation of given survey however could be named as the degree of correlation between the variables (**Sanda, et al 2006**).

Analysis of variance

By convention, analysis of variance can be defined as the simultaneous testing of two or more variables variation by examining the effect of the individual variable variance on the entire variation of the outcome (**Gujarati, 2003**). Therefore, ANOVA can be said primarily to be useful in testing the differences among group means.

3 MATERIAL AND METHOD

3.1 The research database, the test interval, and the methods used for the presentation

Earlier the internal structure building of the economy was formed by economic power, since 1990 the external influence has rapidly increased. Also globalization, foreign investments, the strategy of transnational companies in Hungary has become a creator to form the economic space (**Enyedi, 2000**).

PhD thesis emphasizes the foreign direct investment (FDI) with regional analysis. The analysis demand two kinds of different method-approaches linked with each other. First time I discovery the regional and district differences of Hungary with statistical data from point of view of FDI. Analysis based on these statistical data is satisfactory to determine role of regions and counties in the national economy.

Because of the available data series are very small number, so relatively simple statistical indices (correlation coefficient, the similarity index, the concentration index, and two-variable regression analysis) can be used in analysis.

2 factors in the relationship between the detection, determination of the intensity can discover by **correlation coefficient** (Sajtos and Mitev, 2007). I am looking for proofing certainty in the relationship between FDI per capita and GDP per capita, by data coming from investment, export, and the unemployment rate and the proportion of working population according to counties.

Analyses aim at examining invested working capital stock and changes of investment developments at county level from time to time by **Compare index**. This compare index may help to determine detect changes in the field of investment based on regional distribution. The values of compare index show the similarity of counties with Budapest or without Budapest.

The **similarity index** can be calculated by comparing the distribution of the two same elements being compared to two years of the PRC share; the little ones are taken and their amount are trained. Value of zero (completely different composition) and one (identical composition) can be.

It was calculated by the **Herfindahl-Hirschman's index of concentration** that how much investments were concentrated. In the economics the Herfindahl-Hirschman Index (HHI, or by the other commonly known Herfindahl index) is one of measures for market concentration, which concerns number of companies and their measure differences in the industry (I4).

The Herfindahl-Hirschman index of a given economic sector equals with market squares of a firm's market share. Calculation of the basic formula: $\mathbf{H} = \Sigma \mathbf{R}_i^2$.

The HHI is between zero and one; a value close to zero is a sign that many in the market, each with a market share in low, while a value close to one of monopolistic, oligopolistic or at least reflects the situation. The HHI of the various state administrative bodies are often used to determine if there is no threat to competition in the market.

The following mathematical derivation shows that Herfindahl index, $1 / N$ and 1 , varying between borders shows the degree of concentration. In case of lack of concentration when all units are equally share in the total value of the amount, $HI = 1 / N$, while the maximum possible concentration, $HI = 1$.

The index is between zero and one. The higher is value the greater is degree of concentration. Let "n" the number of market participants, and let the individual players' market share r_1, r_2, \dots, r_n . Then

$$\sum_{i=1}^n r_i = 1$$

The average market share

$$\frac{\sum_{i=1}^n r_i}{n} = \frac{1}{n}$$

Let us look at some of the r_i -k of the average square deviation, $(r_i - \frac{1}{n})^2$

This is obviously non-negative for all i, so

$$0 \leq \sum_{i=1}^n (r_i - \frac{1}{n})^2$$

Namely equality, is just as if $r_i = \frac{1}{n}$ all the i.

Discuss now on the right:

$$0 \leq \sum_{i=1}^n \left(r_i - \frac{1}{n}\right)^2 = \sum_{i=1}^n \left(r_i^2 + \frac{1}{n^2} - \frac{2r_i}{n}\right) = \sum_{i=1}^n r_i^2 + \sum_{i=1}^n \frac{1}{n^2} - \sum_{i=1}^n \frac{2r_i}{n}$$

On the right side of the first of just three members of the HHI, the second n times $\frac{1}{n^2}$, i.e. $\frac{1}{n}$,
the third one has the $-\frac{2}{n}$ times of $\sum_{i=1}^n r_i = 1$.

So

$$0 \leq H_n + \frac{1}{n} - \frac{2}{n}$$

Where H_n denotes the n -way market, the Herfindahl-Hirschman index, and thus

$$H_n \geq \frac{1}{n}$$

With equality if, and only then, if all participants have an equal share of the market.

Finally, the two-variable regression analysis method should be followed, in order that I describe the trend in context, or some functions in the nature of the relationship. In this case, the correlation coefficient calculated from the square. The r-square of the coefficient is determined in order to explain response to the independent variable, is the dependent variable is the percentage of variance (Sajtos and Mitev, 2007).

In the following phase of the research work based on data of the Central Statistical Office, Hungarian National Bank, UNCTAD, STATADAT and works of eminent researchers and experts, additionally to the previous test results; I have aim at providing extended more detailed overview of the real conditions by multivariate regression analysis.

There is a correlation between the economic indicators of regional development and the stock of working capital; it means that foreign investment became considerable factor for the Hungarian regional economic development. The research aims at examining the possible correlations between the foreign working capital investments and national regional economic development through the Hungarian example. I describe geographical distribution of foreign investments and their changes with regional tendencies in economic growth, investment, sales and exports.

Finally, by statistical indicators I examine contribution of the foreign working capital to the economic imbalances, and regional development of Hungary.

3.2 Hypotheses

Based on the overview for the scientific literature **the first hypothesis** is that on the analyzed regions - Hungarian districts and regions - the geographically volume distribution of FDI capital inflows provides possibility for the strong correlation between this geographic distribution and economic development level of the investigated areas (H1).

The premise of the hypothesis was set up partly by **Campos and Kinoshita** studies made in 2002, which strengthened a significant positive relationship between FDI and economic growth during the transition period of 1990 and 1998.

Further, basis for my hypothesis was given by **Gregorio and Lee's study made in 1998**, which said if the quality of human capital and capital absorption capabilities exceeded a certain level, in this case the foreign direct investment would significantly raise the rate of catching-up economy.

In contrast, research of **de Mello in 1999**, has contradicted the above mentioned statement, because he have not found a clear positive relation between FDI and economic growth in case of analyzing a number of countries based of national data.

The second hypothesis is that the *declining concentration* of the different kinds of investments and direct working capital investments from time to time, which could increase more important role of the domestic investment (H2). These probabilities in regional development research would be proofed by my researches by extending Hirschmann-Herfindahl's concentration index.

The following **hypothesis** was that correlation among foreign investments, sales and exports has the strong positive relationship with each other (H3).

In 2001, Aim of analyses prepared by **Hamar and Nagy** was correlation among the commodity structure of export and categories of the relationship, on which it was declared that the vast majority of Hungarian export growth was attributing to companies with foreign participation, in which the exports of machinery increased dominantly.

Additionally to above mentioned, it was probable that where there was a low unemployment rate; the share of the employed population was high from the total population, so in those places there was higher inflow of FDI - stock (H4).

4 RESULTS AND DISCUSSION

4.1 Situation analysis of the results of the Foreign Direct working capital

Foreign investment (FDI) stock in Hungary was estimated by the Ministry of National Development and Economy about more than EUR 60 billion per capita which was the highest in Central and Eastern European region. For recent years, the majority of the foreign working capital investment has flowed into service sectors and competitive manufacturing branches e.g. transport equipment, electrical machinery production. 77% of foreign direct investment in Hungary implemented from the European Union, and their 25% came from Germany. It was stated that in 2008, 3,067 million euro value of foreign direct investment implemented in Hungary. In the first three quarters of 2009, net 404 million euro value of foreign working capital was withdrawn from Hungary. In 2009 really the financial-economic crisis resulted in out flowing of foreign working capital from Hungary significantly less than the average of many years. In 2010, the non-foreign debt stimulating capital inflows can be similar measure than it was in last year. In the medium term annual average inflow of EUR 4 billion value foreign capital can be expected, which can be influenced by greatly high-value individual transactions, both of positive and negative direction.

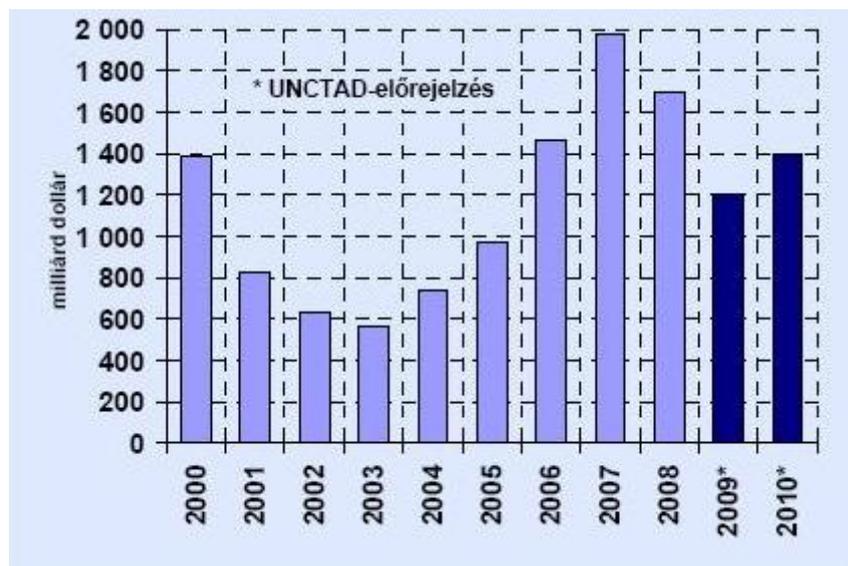
In figure 5 it can be observed according to the **UNCTAD data basis that the global FDI flows** decreased from the level of top value of **2007, from USD 1979 billion by 14.2% to USD 1697 billion in 2008**. According to autumnal forecast of UNCTAD in 2009, outlook for the financial and economic crisis in 2009, global FDI flows decreased to USD 1.2 billion, which could make unfavourable affect on capital inflow into Hungary. By the 2010, USD 1400 billion value of global FDI flows is expected by the UNCTAD.

In figure 6, it can be seen that, FDI inflows into Visegrád four countries in 2008 wholly decreased by 27% from the level of the previous year. The FDI inflow was almost same as value of 2007 into Slovakia; but capital inflow was less by 4% into Czech Republic, 27% into Hungary, and 42% into Poland than in former year. Our country's capital inflow position improved minimally compared to one of 2007; the **13.4% of the total capital inflow inflowed into Hungary. In first three quarters of 2009 the inflow wholly decreased by 50% into Visegrád four countries and Romania** in the same period the previous year. – Similarly to Hungary - in the same period of 2008 - the capital inflow into Slovakia and

Hungary was less than capital outflow from them. Capital inflow decreased by 63% into Czech Republic, 50% into Romania, into Poland and 17%. The other kinds of capital flows had dominant negative influences on the FDI - inflows into all countries of the region.

In 2009, based on the financial and economic crisis, significantly less working capital, namely euro 3.9 billion inflowed into Hungary.

Figure 5 Global FDI flows based on the forecast of UNCTAD



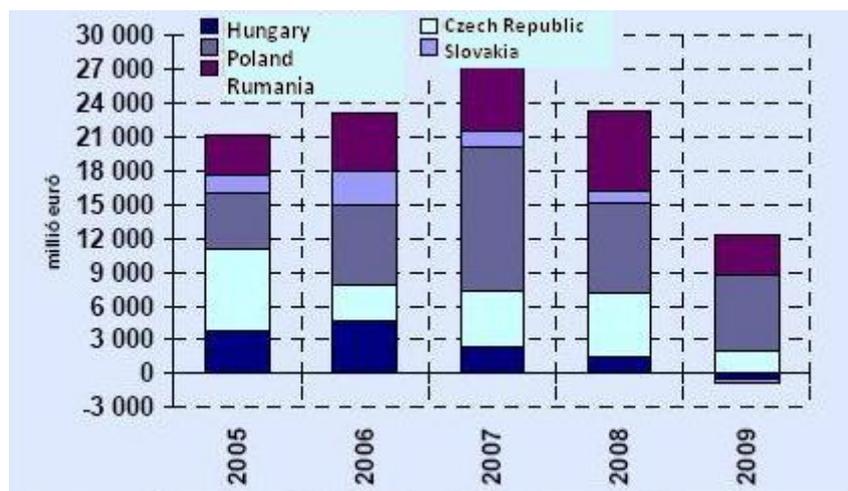
Note: * Forecast of UNCTAD (2009 and 2010)

Y axis: Billion dollars; X axis: years from 2000 to 2008

Source: National Bank of Hungary (NBH), UNCTAD, national bank of issues, 2009

The non-debt stimulating capital inflow inflowed into Hungary, which exceeded Euro 2.2 billion, the other kinds of capital inflow generating debt's balance can be hard estimated. In 2010, the non-debt capital inflow can be expected as similar to the last year. In the medium term annual average of Euro 4 billion value of foreign direct investment is expected, which can greatly make influence on individual highly-value transactions, both of positive and negative direction.

Figure 6 FDI inflows intending to V4 Countries

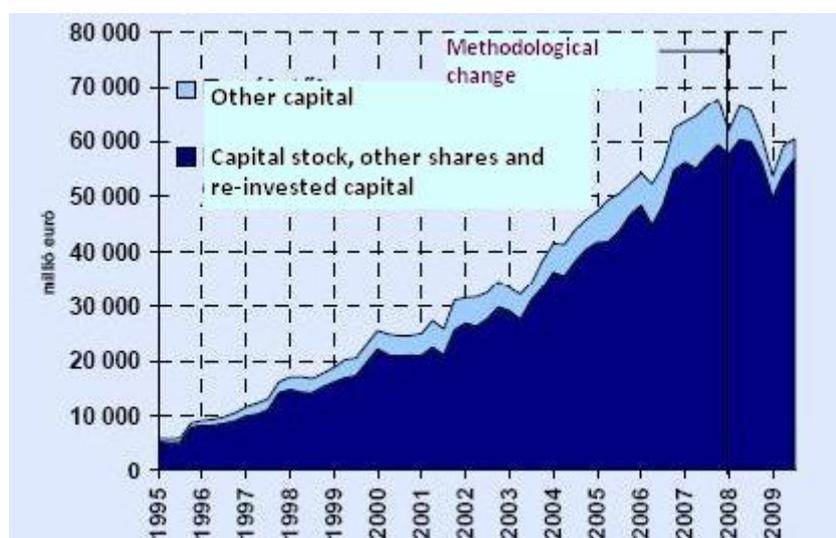


Note: First three quarterly data

Y axis: billion euros; X axis: years from 2005 to 2009

Source: National Bank of Hungary (NBH), UNCTAD, national bank of issues, 2009

Figure 7 Stocks of Foreign Direct Investments



Note:

Y axis: billion euros; X axis: years from 1995 to 2009

Source: National Bank of Hungary (NBH), UNCTAD, national bank of issues, 2009

Since the beginning of 1990s, *foreign direct capital investment has had dominant role in successful market-based privatization transition and structure changes in Hungary.*

Foreign direct investment (FDI) has continuously inflowed into Hungary, into economic performance, *implemented investments in new industrial facilities and increased their productivity, technological improvement, export capacity growth needed for unified economic structure and increased employment level.* Foreign direct investment (FDI) was non debt stimulating one, which has dominant role to create improving *external balance of payment.*

Figure 7 shows that since the beginning of the economic transformation in Hungary, the *foreign direct investment stock of the has increase to EUR 60.4 billion until the end of September in 2009*, of which Euro 56.8 billion was shares and reinvested earnings form of direct working capital investment stocks, Euro 3.6 billion was other capital stock. Comparably to significant decline of earlier years, this decline was resulted by weakening Hungarian forint which was 11% against the Euro. The FDI stock per capita was Euro 6018 in Hungary; Euro 8585 in Czech Republic; Euro 6228 in Slovakia at the end of the second quarter of 2009. It means that *Hungary was the third highest country in the Central European region, to where the FDI was the third highest per capita.* The FDI inflow per capita was Euro 3198 in Poland and Euro 2302 in Romania, where there was still a significant gap.

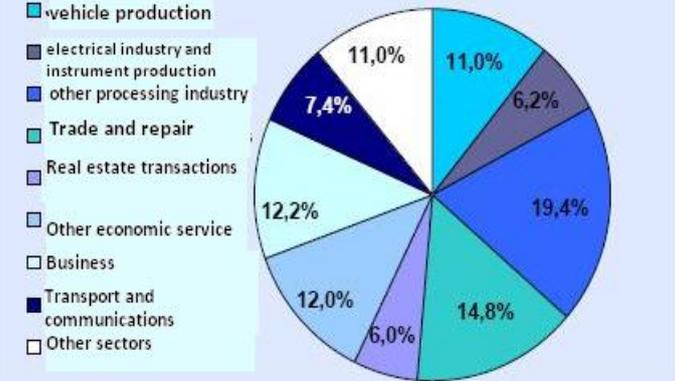
Also it can be mentioned that majority of foreign direct investment (FDI) inflowed into Hungary from Germany, which share was 24,9% equally to Euro 14,7 billion. Also I can declare that data concerning to geographical and origin distribution of working capital stock based on the end of data of the end of 2009 are valid for only for shares, portions, re-newly invested income form of working capital stock.

The Figure 8 shows that in CEE countries, foreign investors from the EU-15 countries have significant share investments, namely Euro 8,5 billion, as 14,3% from The Netherlands; Euro 7,8 billion as 13,1%, Euro 1 billion from Austria; Euro 3,1 billion, as 5,2%, from France; and from Euro 2,9 billion as 4,9% from USA. *Totally 77% of all foreign working capital originated from EU.*

The USA is the biggest foreign investor, non European one in Hungary, and also in The Netherlands, and other EU member states. Also foreign investors came from Japan and South-Korea in Hungary.

At the beginning of 1990s, the FDI activities, the FDI implemented considerable investments in manufacturing industry in Hungary. In 1995 the FDI started their investments in service sector thank for the partial privatisation process. In 1990s the Visegrád four countries opened their markets and started the privatisation process. Today the FDI appeared in several new branches in Hungary, as in neighbour countries.

Figure 9 Distribution of stocks of Foreign Direct Investments according to sectors



Source: National Bank of Hungary (NBH), UNCTAD, national bank of issues, 2009

Figure 9 well illustrates that *more than half of foreign investment flowed into the service sectors, according to the end of 2007, the data show that euro 32.5 billion, as 54.8% into the service sectors, in which detailed for example: Euro 8.8 billion, as 14.8% into trade and repairs branches; Euro 7.3 billion, as 12.2% into the financial activities; and Euro 7.1 billion, as 12.0% into other business services), the sector achieved in the most foreign direct investment.*

FDI invested into processing industry, as 36.5% of the whole working capital flow, namely Euro 21.6 billion, and within it the most competitive engineering industry sectors: motor vehicles in value of Euro 6.5 billion, as 11.0%, electric machines and manufacturing , namely Euro 3.6 billion, as 6.2% attracted the most investment.

4.2 Positioning Results - Foreign Direct Investment, Regional trends

Since 1989-1990 in Hungary, deregulation and liberalization have started, which already were going on in the world economy. Continuously trade in goods and capital flows became free. Previously the internal structure of the economy was formed by economic forces, but since 1990 external influences have rapidly increased, the globalization, foreign investment, the strategy of transnational companies in Hungary have also become a dominant factor for economic changes (**Enyedi 2000**). By the end of 2003 the stock of working capital invested in Hungary was total 42.9 billion dollars (UNCTAD [2004],). The domestic regional location and time periodically changes of foreign capital investments can be followed by either the number of foreign-owned companies, or their invested capital and described capital until the end of 2002.

According to data of the Hungarian Central Statistical Office in 1994, 58 per cent of the foreign-owned companies operated in Central Hungary. 27 per cent of the foreign-owned companies operated in Central Transdanubia and Western Transdanubia Regions, and 75% of the foreign companies founded in this year in these three regions. Since 2002, the numbers showed hardly change, share of the Central Hungary has increased by 60 percent in Hungary.

According to described capital, greater concentration it can be seen, to be based on. In 1994, 71 percent of the fixed capital belonging to foreign companies concentrated on Central-Hungary; with foreign companies in Central and Western Transdanubia the all share of foreign companies became 84% by the end of 2001 percent. The same share was in 2001, namely 84%. Finally, the described foreign capital per capita based on the indicators, also has strongly concentrated in the same, the Central Hungary region's dominant role and the time periodically seemed as unchanged. This is illustrated by the Figure 10.

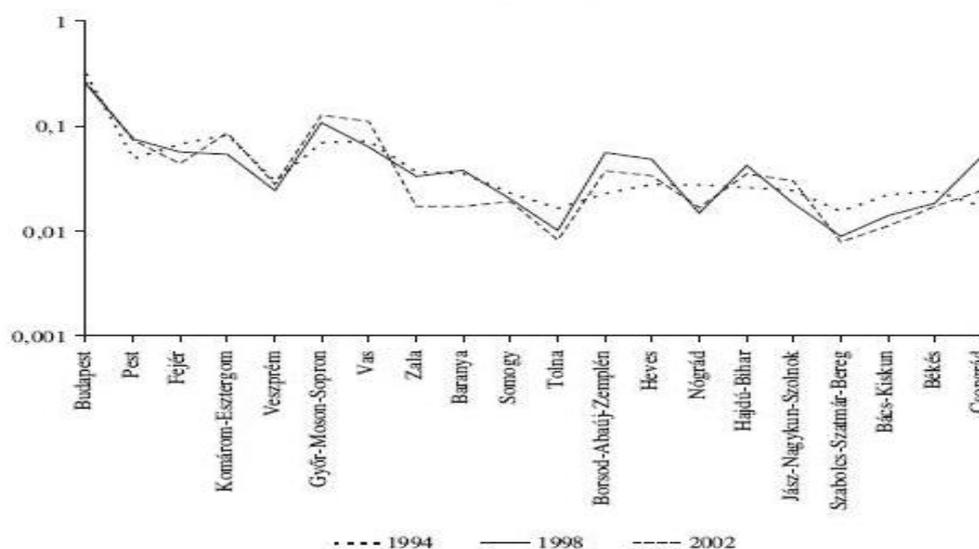
It is important to note that the data of the HCSO (HCSO = Hungarian Central Statistical Office) concerns that investments of foreign working capital emerge a lot of problems.

First, the share of foreign described capital can not necessarily illustrate the actual real capital investment, since describing share and buying share often accrue in non nominal value, but the method of accounting used by the HCSO could not publish the company's capital changes, even these to be measured until 2001. This last one was proofed by substantial difference between data published by either HCSO or MNB in field of all the stock of investment. Also

analyse the regional distribution of foreign investment are often not satisfactory by home classification, because many of the companies, for example banks, insurance companies, service providers – have their centres in Budapest, but their activities extend in all of the whole country (see more details **Diczházi 1997**).

This difficulty can be indicated that in many cases, data and value of the indicators were calculated without the Budapest. Finally, there are other problems, for example that many regional representatives are broken, or other accounting for the process in a time series, and no data are available.

Figure 10 Distribution of foreign owned companies according to counties in percent, in 1994, 1998, 2002



Source: own construction based on Antalóczy and Sass's calculations (2005)

If - to eliminate the data distorting effects of the capital - Budapest, without Budapest examine counties according to a ranking of investments in field of the stock, even it can be found that there was hardly a change in the year 2002 compared to 1994.

The Table 2 shows that although 1998 was above average category Borsod, Csongrád, Hajdú-Bihar Counties and actually without Zala County, in 2002 already – without Zala - the same three regions, namely Central Hungary, Western Transdanubia and Central Transdanubia have exceeded over the national average level in field of working capital stock.

In order to analyse successfully, this should be mentioned that data of 1994 about described capital indicated the real processes relatively well – because within the foreign investment the new investments were majority, but in 1998, however, significant capacity-building, capital increase could have been implemented. Thus, in the 1998 order based on described capital provided plans for future new investments of foreign owned companies. Since 2002, FDI stock has not experiences this problem for longer, so the real situation can be shown in the statistical data.

Table 2 Hungarian counties without Budapest featured with FDI stock per capita below and above the national wide average

FDI stock per capita	1994	1998	2002	2007
Below the nationwide average	Baranya, Bács-Kiskun, Békés, Borsod-Abaúj-Zemplén, Csongrád, Hajdú-Bihar, Heves, Jász-Nagykun-Szolnok, Nógrád, Somogy, Szabolcs-Szatmár-Bereg, Tolna, Veszprém	Baranya, Bács-Kiskun, Békés, Jász-Nagykun-Szolnok, Nógrád, Somogy, Szabolcs-Szatmár-Bereg, Tolna, Veszprém	Baranya, Bács-Kiskun, Békés, Borsod-Abaúj-Zemplén, Csongrád, Hajdú-Bihar, Heves, Jász-Nagykun-Szolnok, Nógrád, Somogy, Szabolcs-Szatmár-Bereg, Tolna, Veszprém, Zala	Baranya, Bács-Kiskun, Békés, Borsod-Abaúj-Zemplén, Csongrád, Hajdú-Bihar, Heves, Jász-Nagykun-Szolnok, Nógrád, Somogy, Szabolcs-Szatmár-Bereg, Tolna, Veszprém, Zala
Above the nationwide average	Fejér, Győr-Moson-Sopron, Komárom-Esztergom, Pest, Vas, Zala	Borsod-Abaúj-Zemplén, Csongrád, Fejér, Győr-Moson-Sopron, Hajdú-Bihar, Heves, Komárom-Esztergom, Pest, Vas	Fejér, Győr-Moson-Sopron, Komárom-Esztergom, Pest, Vas	Fejér, Győr-Moson-Sopron, Komárom-Esztergom, Pest, Vas

Source: Own calculations, 2010 based on database of Hungarian Central Statistical Office (1994-2007)

After that I analysed, by calculation of similarity indices, the evolution of invested working capital stock changes based on the county distribution over time periods.

Table 3 shows how the regional distribution of foreign direct working capital investment considerably changed between 1994 and 2007. In 2007 the regional distribution of foreign direct working capital investment was similar by 93% with Budapest, comparably to one of 1995, and was only 39% without Budapest comparably to one of 1994. This indicates shows that Budapest remains the target key destination for foreign working capital investors. The capital flow was between several "winners" and "losers", and also the size and shares are about the same.

It should be noted in the lot "losing" departments – for example Békés, Baranya, Tolna and Nógrád – in which the FDI stocks decreased under the average level by half by 2007.

Table 3: Similarity indexes in examined years

Name	1998/1994	2002/1998	2007/2002	2007/1994
with Budapest	0,862	0,937	0,884	0,936
without Budapest	0,829	0,874	0,392	0,397

Source: Own calculation and construction based on Antalóczy's study, 2005

Moreover, I analyse how nominal growth rate of foreign direct investment of in each all tested test region. In which county the foreign direct investment was higher than the national average, relatively positions, leading to improvements, or where it was lower than it the resulted in deterioration in relative position? Generally the same order was found for all the stock of FDI and the FDI stock per capita basis. In the Table 4 and 5 it can be observed that Győr- Moson- Sopron County was the first over the average level of the country by two times more national nominal growth from 1994 to 2002. In addition, in Győr- Moson- Sopron County the FDI working capital stock became more than the national average, and thus this County was in the third position. However, later over the next period (2000-2007) based on levels, the growth rate of working capital was so quickly in some counties, for example Komárom-Esztergom County, and Csongrád County. For two tested periods, increasable extending working capital inflow into Pest Country has decided the stable position for Pest County in the growing centralization and fulfilling inflows respectively.

Table 4 Sequence of counties based on growth of FDI stock from 1994 to 2007

Sequence from 1994 to 2002		County	Growth scale from 1994 to 2002	Sequence from 2000 to 2007		County	Growth scale from 2000 to 2007
A	B	-	Per cent	A	B	-	Per cent
1.	3	Győr-Moson-Sopron	13,29	1.	5	Komárom-Esztergom	43.9
2.	2	Pest	12,16	2.	2	Pest	36.0
3.	5	Borsod-Abaúj-Zemplén	11,48	3.	8	Csongrád	31.7
4.	6	Vas	10,62	4.	3	Győr-Moson-Sopron	26.1
5.	12	Csongrád	9,90	5.	7	Hajdú-Bihar	21.7
6.	7	Hajdú-Bihar	9,51	6.	4	Fejér	21.7
7.	9	Jász-Nagykun-Szolnok	8,64			<i>Nationwide average</i>	21.5
8.	11	Heves	8,37	7.	10	Heves	20.0
9.	4	Komárom-Esztergom	7,61	8.	1	Budapest	19.8
		<i>Nationwide average</i>	6,23	9.	13	Szabolcs-Szatmár-Bereg	18.7
10.	10	Veszprém	6,20	10.	16	Zala	17.6
11.	13	Somogy	5,82	11.	19	Nógrád	17.1
12.	1	Budapest	5,23	12.	11	Veszprém	17.0
13.	14	Békés	4,94	13.	14	Somogy	14.3
14.	8	Fejér	4,61	14.	6	Vas	11.5
15.	19	Nógrád	4,24	15.	12	Jász-Nagykun-Szolnok	10.2
16.	17	Szabolcs-Szatmár-Bereg	3,69	16.	15	Bács-Kiskun	8.4
17.	15	Bács-Kiskun	3,60	17.	9	Borsod-Abaúj-Zemplén	5.5
18.	20	Tolna	3,51	18.	17	Békés	2.8
19.	16	Baranya	3,46	19.	18	Baranya	2.8
20.	18	Zala	3,33	20.	20	Tolna	-2.7

Notes: In 1994 and 1998 according to subscribed capital, in 2002 according to own capital

A) Sequence based on growth scale

B) Sequence based on FDI stock per capita in the last year of examined period

Source: Own composition based on Antalóczy – Sass's calculations from 1994 to 2002 and own calculation based on database of HCSO from 2000 to 2007

The Table 4 shows that the FDI inflows have grown four times more than the average country level in several counties for period of 2000 - 2007. But oppositely Borsod-Abaúj-Zemplén County decreased extremely, as the most noticeable drop county in Hungary, which was resulted by several reasons, including the industrial companies discontinued and the extending migration of their population.

Some relatively less developed eastern counties were, for example Borsod-Abaúj-Zemplén, Hajdú-Bihar, Heves, Csongrád, Jász-Nagykun-Szolnok Counties, which achieved above-average growth rates. The reason was for above-average growth of several countries, namely that FDI has extended since the time before 1994 and implemented foreign investment. But there were other capital inflows into the other Hungarian Countries also before 1994, which

resulted in growth rate below the national average level, for example in Budapest and Fejér County. The slower growth in investment in Budapest was resulted by less foreign capital inflow into the City.

The concentration of foreign investment was very intensive. In 2001, about 85% of described capital owned by foreign companies was concentrated in three regions, than in 2002 foreign companies also invested majority of their profit about its 81% into Budapest and four counties.

Table 5 Sequence of counties based on growth of FDI stock per capita from 1994 to 2007

Sequence from 1994 to 2002		County	Growth scale from 1994 to 2002	Sequence from 2000 to 2007		County	Growth scale from 2000 to 2007
C	D			C	D		
1.	2	Győr-Moson-Sopron	12,88	1	4	Komárom-Esztergom	44.2
2.	10	Borsod-Abaúj-Zemplén	11,55	2	7	Csongrád	32.4
3.	4	Vas	10,83	3	3	Pest	31.7
4.	5	Pest	10,7	4	2	Győr-Moson-Sopron	25.4
5.	13	Csongrád	9,95	5	9	Hajdú-Bihar	22.2
6.	7	Hajdú-Bihar	9,48			<i>Nationwide average</i>	21.9
7.	8	Jász-Nagykun-Szolnok	8,78	6	5	Fejér	21.6
8.	9	Heves	8,5	7	1	Budapest	21.0
9.	3	Komárom-Esztergom	7,55	8	8	Heves	20.8
10.	11	Veszprém	6,35	9	18	Szabolcs-Szatmár-Bereg	19.5
		<i>Nationwide average</i>	6,29	10	15	Nógrád	18.3
11.	12	Somogy	5,87	11	14	Zala	18.3
12.	1	Budapest	5,87	12	10	Veszprém	18.0
13.	14	Békés	5,05	13	13	Somogy	15.1
14.	6	Fejér	4,58	14	6	Vas	12.1
15.	16	Nógrád	4,33	15	12	Jász-Nagykun-Szolnok	11.1
16.	20	Szabolcs-Szatmár-Bereg	3,61	16	17	Bács-Kiskun	8.9
17.	18	Bács-Kiskun	3,58	17	11	Borsod-Abaúj-Zemplén	6.4
18.	19	Tolna	3,51	18	16	Békés	3.6
19.	15	Baranya	3,46	19	19	Baranya	3.2
20.	17	Zala	3,33	20	20	Tolna	-2.3

Note: In 1994 and 1998 according to subscribed capital, in 2002 according to own capital

C) Sequence based on growth scale

D) Sequence based on FDI stock per capita in the last year of examined period

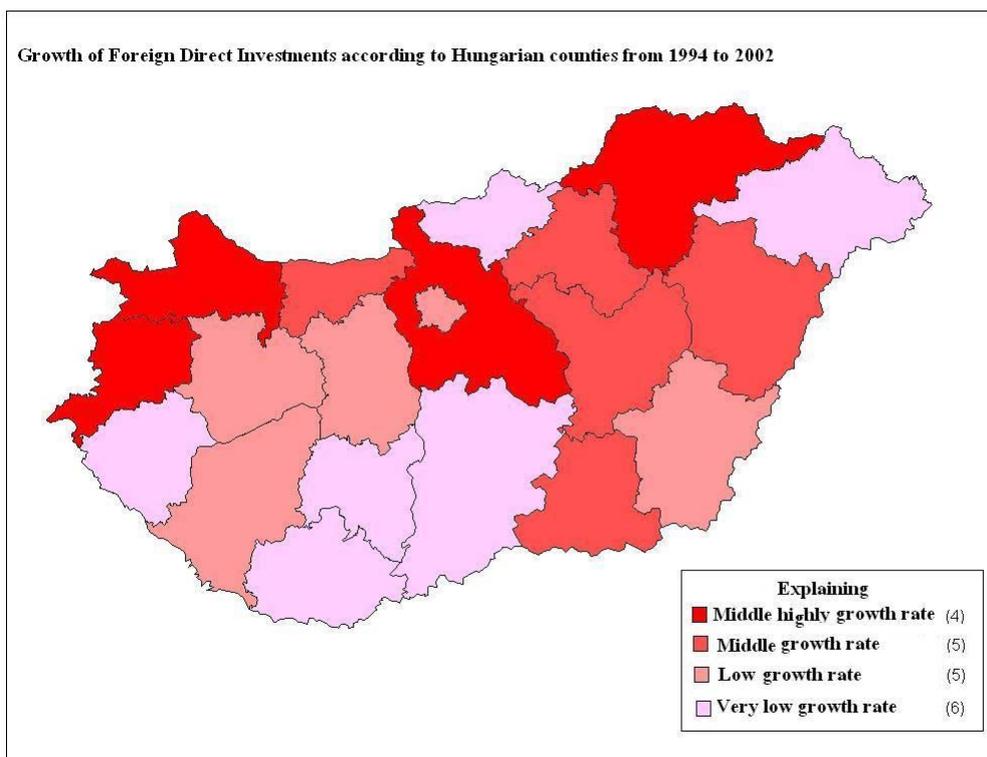
Source: Own composition based on Antalóczy – Sass's calculation from 1994 to 2002 and own calculation based on database of HCSO from 2000 to 2007

According to Map 1, four groups of FDI stock based on growth rate can be distinguished. The first group was characterized by a moderately high-growth implemented by counties, namely,

Nagykun-Szolnok, Hajdú-Bihar and Csongrád Counties. The low growth rates depicted in pink four counties and the city, which were as follows: Veszprém, Fejér, Somogy and Békés Counties and Budapest.

Finally, the fourth group included six counties with the very low growth rates, which were as follows: Zala, Baranya, Tolna, Bács-Kiskun, Nógrád and Szabolcs-Szatmár-Bereg Countries. This category was coloured by pale pink.

Map 1: Growth of Foreign Direct Investments according to Hungarian counties from 1994 to 2002



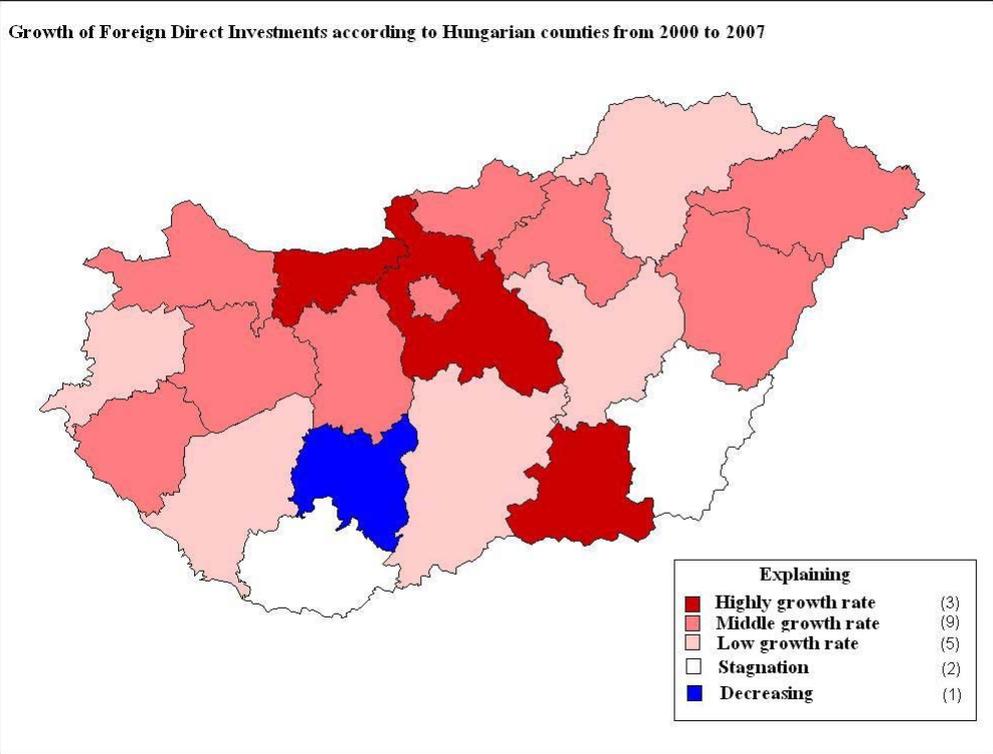
Source: Own construction, 2010 (based on Antalóczy's study from 1994 to 2002 and database of Hungarian Central Statistical Office from 2000 to 2007)

Analyse the next period from 2000 to 2007, I illustrated the developmental differences concerning the growth rate of FDI on the Map 2.

Based on the data analyses there were 5 groups forming characteristics of the tested period. The first - red-county group 3 (Komárom-Esztergom, Pest and Csongrád) consists of a high growth pace of his team, which has been at the forefront. They are followed by moderate growth rates in counties with a combination, and the city has a total of 8 pieces. In this - pink - is a group of creators, the following: Győr-Moson-Sopron, Veszprém, Zala, Fejér, Nógrád, Heves, Szabolcs-Szatmár-Bereg and Hajdú-Bihar counties and Budapest.

The slight increase of FDI inflows to the next - a pale pink-and-go item reflected five carriages, namely Vas, Somogy, Bács-Kiskun, Jász-Nagykun-Szolnok and Borsod-Abaúj-Zemplén. It can be said that in case of two counties of five one, the capital inflows did not increase in tested period, the stagnation occurred. These counties (Baranya and Békés) differentiated in white.

Map 2: Growth of Foreign Direct Investments according to Hungarian counties from 2000 to 2007



Source: Own construction, 2010 (based on Antalóczy's study from 1994 to 2002 and database of Hungarian Central Statistical Office from 2000 to 2007)

The data strengthened that the blue colour was only shown in case of Tolna county last referenced in this classification, since the downward trend was in FDI inflows.

It can be summarized; therefore, the regional distribution of foreign direct working capital investment in Hungary has slightly changed for the tested period of 1994 - 2007. The foreign firms kept the location choices of in the views in mind, tried to control the capital inflow into the country. The location choices and considerations of foreign firms, which were as follows: the natural environment, the factors of production, transportation, and demand for relations, technology, and finally the organizational, political, social point of view.

The location choice was one of the most strategic corporate decisions and typical cases, because the number of location choices increases based on the economic growth. Actually, more location choices should be considered, than earlier, as ten, twenty or even fifty years.

Therefore, good economic and technical foundation of the deployment decisions get more and more growing importance because the number of the given location choices of factors are growing increasingly in parallel with progress.

While previously the raw material and energy, market relations, labour, and two-volume demands for basic utilities are usually in the location choices have been exhausted, a series of factors, which are now much more sophisticated and more nuanced from the requests of the consumers or against infrastructure supplying systems. In case of this last one, the basic human infrastructure utilities additionally to a wide range can be reckoned to be ineffective in the labour force, more effective employment opportunities can be provided.

4.2.1 Regional economic effects of Foreign Direct Investment

After the examination regional location working capital direct investment, I examined how various regional indicators of the evolution of regional inequalities, economic growth and development and employment were going on in Hungary, and any relationship can be shown between changes of FDI and economic indicators.

The general fact is that the changing value of GDP of has an important impact on the whole economy for during that period, when all the household and government consumption, the results of investments, and net exports (i.e. exports minus the total value of all imports)

According to available data the transformation downturn discounted in 1993, and since 1994 at the national economic level and from 1994 to 2010 the GDP has started to grow (Table 6).

In 1994 and 1996, even a modest expansion has been going on since 1997, and took off 4-5% growth of GDP from year to year until 2001. In 2002, data showed the dynamics fell about 3.5%.

According to the HCSO data, it can be noted that Hungary's gross domestic product decreased by 4% in the last quarter of 2009 comparably to the same period of last year. The seasonally and calendar adjusted data as the previous quarter the Hungarian GDP decreased by 0.4%. The Hungarian output decreased by 6.3% in 2009 comparably to the same period of last year.

Table 6 Changes in Gross Domestic Product in comparative prices

Years	Previous year is 100 per cent
1990	96,5
1991	88,1
1992	96,9
1993	99,4
1994	102,9
1995	101,5
1996	101,3
1997	104,6
1998	104,9
1999	104,2
2000	105,2
2001	104,3
2002	104,4
2003	104,2
2004	104,6
2005	103,7
2006	104,1
2007	101,0
2008	100,4
2009	93,8

Source: Own construction based on Antalóczy – Sass's (2005) calculation (1990-2002) and own addition based on database of HCSO (2003-2009)

The GDP growth at national size is seemed 100% of which Budapest and Pest County including the Central Hungary region shared in 1994, nearly 42% in formed, including determining the Budapest was only 34.4% (Table 7).

About 11-11% was share for each region averagely, in the Northern and the Southern Great Plains region, 9-10 percent in Central and Western Transdanubia, and finally 8-9 percent in the Southern Transdanubia and Northern Hungary. The concentration was then already strong.

For the period of 1995- 2001, GDP growth rate has reached in the middle and western parts of the country.

In 2001, three leading regions, namely Central Hungary, Central Transdanubia and Western Transdanubia gave 64% of the whole GDP of Hungary. This ratio in 1994 was 60.8%. there was a decrease in the share of GDP produced in the Southern Transdanubia, Northern Great Plains and Southern Great Plains. The concentration is increased by this simple information.

Table 7 Distribution of GDP by region, by county from 1994 to 2007

Region, County	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Budapest	34.4	33.9	34.5	34.5	34.1	34.6	35.0	35.0	36.0	34.6	34.8	36.0	37.3	36.7
Pest	7.2	7.0	7.1	7.7	7.9	8.2	8.1	9.0	9.4	9.8	10.0	10.2	10.0	10.4
Central Hungary	41.6	40.9	41.6	42.2	41.8	42.8	45.1	44.0	45.5	44.4	44.7	46.2	47.3	47.2
Fejér	4.0	4.1	4.3	4.9	5.2	4.8	5.4	4.0	4.0	4.0	4.1	4.1	4.1	4.1
Komárom-Esztergom	2.5	2.6	2.7	2.6	2.6	2.5	2.6	4.0	2.8	3.3	3.5	3.6	3.2	3.4
Veszprém	2.9	3.1	3.0	3.0	3.0	3.0	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.8
Central Transdanubia	9.4	9.9	10.0	10.5	10.8	10.3	11.1	10.0	9.7	4.8	10.4	10.3	9.9	10.2
Győr-Moson-Sopron	4.3	4.5	4.6	4.6	5.1	5.5	5.7	5.0	5.0	5.2	5.0	4.8	5.0	5.0
Vas	2.7	2.8	2.9	3.0	3.1	3.1	3.0	3.0	2.6	2.8	2.6	2.5	2.6	2.5
Zala	2.8	2.7	2.7	2.7	2.6	2.6	2.5	2.0	2.5	2.7	2.7	2.5	2.3	2.3
Western Transdanubia	9.8	10.1	10.1	10.3	10.8	11.3	11.2	10.0	10.2	10.7	10.3	9.8	9.9	9.7
Baranya	3.4	3.2	3.1	3.2	3.1	3.1	3.0	3.0	3.0	3.0	2.9	2.9	2.9	2.9
Somogy	2.5	2.5	2.5	2.3	2.3	2.3	2.2	2.0	2.3	2.3	2.3	2.2	2.0	2.0
Tolna	2.3	2.3	2.2	2.1	2.1	2.2	2.0	2.0	1.9	1.7	1.7	1.7	1.6	1.7
Southern Transdanubia	8.2	8.0	7.8	7.6	7.5	7.5	7.3	7.0	7.1	7.1	6.9	2.1	6.5	6.5
Borsod-Abaúj-Zemplén	5.1	5.7	5.2	5.1	5.0	4.9	4.7	5.0	4.6	4.6	4.8	4.9	4.7	4.7
Heves	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.0	2.3	2.4	2.3	2.2	2.2	2.3
Nógrád	1.3	1.3	1.3	1.1	1.2	1.2	1.2	1.0	1.2	1.2	1.1	1.1	1.0	1.0
Northern Hungary	8.8	9.4	8.8	8.5	8.6	8.4	8.2	8.0	8.1	8.2	8.3	8.2	8.0	7.9
Hajdú-Bihar	4.4	4.2	4.2	4.1	4.1	3.9	3.8	4.0	4.0	4.2	4.1	4.0	3.9	3.9
Jász-Nagykun-Szolnok	3.2	3.2	3.1	3.1	3.0	2.8	2.7	3.0	2.8	2.7	2.6	2.5	2.6	2.6
Szabolcs-Szatmár-Bereg	3.4	3.4	3.3	3.3	3.2	3.1	3.1	3.0	3.2	3.3	3.2	3.1	3.0	3.1
Northern Great Plain	11.1	10.8	10.6	10.5	10.3	9.7	9.6	10.0	10.0	10.2	10.0	9.7	9.6	9.5
Bács-Kiskun	4.1	4.2	4.0	3.9	3.8	3.7	3.6	4.0	3.7	3.7	3.7	3.6	3.5	3.6
Békés	3.1	3.1	3.0	2.8	2.7	2.7	2.6	3.0	2.5	2.4	2.4	2.3	2.2	2.2
Csongrád	4.0	3.9	3.9	3.8	3.7	3.6	3.4	3.0	3.3	3.3	3.3	3.2	3.1	3.2
Southern Great Plain	11.2	11.2	10.9	10.4	10.2	10.0	9.6	10.0	9.5	9.3	9.3	9.1	8.8	8.9
Country sum total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own construction based on Antalóczy – Sass's (2005) calculation (1994-2002), and own addition (2003-2007) based on database of Hungarian Central Statistical Office [1999]; [2009]

Table 8 Changes in GDP per capita by region, by county from 1994 to 2007

Region, County	GDP per capita in thousand HUF						In the nationwide average					
	1994	1998	2001	2003	2004	2007	1994	1998	2001	2003	2004	2007
Budapest	765	1858	2977	3801	4250	5493	180	186	204	205	207	217
Pest	324	773	1213	1651	1833	2233	76	78	83	89	89	88
Central Hungary	619	1474	2304	2953	3283	4153	144	148	158	159	160	164
Fejér	410	1234	1497	1757	2006	2415	97	124	103	95	97	96
Komárom-Esztergom	341	838	1343	1942	2275	2738	80	84	92	105	111	108
Veszprém	339	803	1218	1474	1604	1929	80	81	84	79	78	76
Central Transdanubia	367	978	1360	1716	1950	2348	86	98	93	92	95	93
Győr-Moson-Sopron	440	1204	1750	2209	2359	2838	104	121	120	119	115	112
Vas	439	1162	1461	1957	2061	2373	103	117	100	105	100	94
Zala	401	901	1234	1737	1885	2032	94	90	85	94	92	80
Western Transdanubia	428	1102	1518	2002	2140	2480	101	110	104	108	104	98
Baranya	356	783	1102	1395	1512	1834	84	79	76	75	73	73
Somogy	325	686	1000	1306	1418	1558	76	69	69	70	69	62
Tolna	401	861	1219	1326	1438	1767	94	86	84	71	70	70
Southern Transdanubia	357	770	1097	1347	1462	1724	84	77	75	73	71	68
Borsod-Abaúj-Zemplén	299	690	936	1178	1368	1662	70	69	64	63	66	66
Heves	310	726	1093	1376	1511	1828	73	73	75	74	73	72
Nógrád	263	565	819	1022	1101	1162	62	57	56	55	53	46
Northern Hungary	296	678	956	1201	1358	1619	70	68	66	65	66	64
Hajdú-Bihar	353	754	1085	1418	1555	1805	83	76	74	76	76	71
Jász-Nagykun-Szolnok	335	720	1012	1228	1321	1643	79	72	69	66	64	65
Szabolcs-Szatmár-Bereg	262	567	826	1067	1159	1352	62	57	57	57	56	54
Northern Great Plain	314	675	967	1235	1344	1591	74	68	66	67	65	63
Bács-Kiskun	329	713	999	1265	1418	1686	77	71	69	68	69	67
Békés	338	691	962	1152	1257	1462	80	69	66	62	61	58
Csongrád	402	889	1180	1448	1605	1891	95	89	81	78	78	75
Southern Great Plain	354	761	1045	1289	1430	1688	83	76	72	69	69	67
Country sum total	425	997	1458	1857	2058	2527	100	100	100	100	100	100

Source: own construction based on Antalóczy – Sass's (2005) calculation (1994-2001) and own addition (2002-2007) based on database of Hungarian Central Statistical Office [2000a]; [2001a]; [2002]; [2009]

Regions, counties and their population have different kinds of economic conditions, so it is demanded to calculate specially index for each county, which it can be observed in Table 8, 9 and 10. Hungary's economic indicators are in terms of per capita GDP (Table 8) in 2007, the previous year's value was 4% higher, and slightly more than 2.5 million forint, comparably to previous year. The range of GDP per capita in 1994, which was as follow Central Hungary, Western Transdanubia, Central Transdanubia, Southern Transdanubia, Southern Great Plain, Northern Great Plain, and Northern Hungary. By 2001, the same range occurred. Already in the initial year of research, in 1994, there were significant differences in the range lists of counties.

In Central Hungary, the national average of GDP per capita was 144 percent, while in Northern Hungary, it was only 70 percent. The difference was even greater when we compared these data with one of Budapest (144 percent), Nógrád and Szabolcs-Szatmár-Bereg counties (62-62 percent).

For period of 2003-2007, differences of GDP per capita have grown even more in Budapest , which was by 217% against by 54% of Szabolcs-Szatmár-Bereg and by 46% of Nógrád County.

Table 9 Growth of GDP per capita by region, by county (1994 is 100 per cent)

County, Region	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Budapest	100	130	164	206	243	285	342	389	469	497	556	609	682	718
Pest	100	123	152	202	239	276	312	374	457	510	566	601	627	689
Central Hungary	100	128	160	203	238	276	325	372	447	477	530	576	633	671
Fejér	100	133	170	240	301	313	374	365	388	429	489	508	555	589
Komárom-Esztergom	100	139	177	212	246	269	316	394	454	570	667	728	710	803
Veszprém	100	137	161	199	237	266	320	359	395	435	473	479	502	569
Central Transdanubia	100	135	169	220	266	286	342	371	407	468	531	557	580	640
Győr-Moson-Sopron	100	136	170	209	274	329	393	398	450	502	536	549	612	645
Vas	100	133	169	219	265	300	336	333	380	446	469	469	528	541
Zala	100	126	157	191	225	247	270	308	365	433	470	467	472	507
Western Transdanubia	100	132	166	207	257	298	343	355	407	468	500	505	551	579
Baranya	100	123	148	189	220	244	274	310	352	392	425	443	478	515
Somogy	100	129	156	182	211	234	266	308	358	402	436	441	450	479
Tolna	100	126	153	177	215	244	262	304	331	331	359	374	395	441
Southern Transdanubia	100	125	152	183	216	241	268	307	348	377	410	423	446	483
Borsod-Abaúj-Zemplén	100	140	160	195	231	246	277	313	353	394	458	499	521	556
Heves	100	132	161	196	234	260	295	353	399	444	487	489	520	590
Nógrád	100	124	147	168	215	230	265	311	354	389	419	418	442	442
Northern Hungary	100	135	158	191	229	247	279	323	365	406	459	483	508	547
Hajdú-Bihar	100	121	150	182	214	225	260	307	354	402	441	456	481	511
Jász-Nagykun-Szolnok	100	127	153	189	215	222	255	302	341	367	394	406	461	490
Szabolcs-Szatmár-Bereg	100	127	153	186	216	228	263	315	358	407	442	453	477	516
Northern Great Plain	100	125	152	185	215	225	260	308	351	393	428	441	474	507
Bács-Kiskun	100	132	156	187	217	234	260	304	357	384	431	443	474	512
Békés	100	127	153	178	204	222	250	285	317	341	372	384	401	433
Csongrád	100	128	156	188	221	236	264	294	327	360	399	415	437	470
Southern Great Plain	100	129	155	185	215	231	259	295	336	364	404	418	442	477
Country sum total	100	129	159	198	235	262	304	343	399	437	484	513	555	595

Source: Own construction based on Antalóczy – Sass's (2005) calculation and own addition based on database of Hungarian Central Statistical Office [2000]; [2002]; [2009]

Table 9 shows that GDP per capita increased by 3.43- times more by 2001, and 7.18- times more by 2007 comparably to data of 1994 nominally.

The growth in all regions was averagely 5.95 times more by 2007, but in distribution of each region there were a little difference (Nógrád, Tolna, and Pacific). The one of the fastest economic growth of Győr-Moson-Sopron County has reached almost 6.5 times more in GDP per capita for examined 14 year long period. Komárom-Esztergom county exceeded this increase by 8.03- times more within the same period.

This table shows data until 2002, the growth was faster than the national average increase in unit GDP per capita in Fejér, Veszprém, Heves and Pest Counties, and also in Budapest. Three slowest growing counties were Békés, Csongrád and Jász-Nagykun-Szolnok.

By 2007, however, this trend has changed significantly, because only 3 counties, namely, Pest, Komárom-Esztergom, Győr-Moson-Sopron and also Budapest implemented faster and higher increase over the national average level. These data again emphasized the increase of regional concentration in Hungary, in spite that the Government tried to moderate the difference between counties and regions and to eliminate the disparities between regions.

Table 10 clearly shows that in 1994, between the most highly developed Budapest and the least developed Nógrád in the GDP growth, which resulted in a wide side gap, which was almost four-times more.

By 1998, the gap growth has accelerated, which than in this year increased to HUF 1 million 293 thousand, and became almost three and a half times more between least developed Nógrád county and most advanced Budapest. Further by 2001, the gap increased to HUF 2 million 158 thousand, 3.6- times more. While in 1994, the most backward regions in GDP per capita were 34% comparably to the most developed areas. By 2001 this gap decreased 28% percent. Contradiction by 2007, between the most advanced Budapest and the weakest Nógrád country the difference became 4.7- times more. So in the GDP calculated, the regional difference have increased significantly for the period of 1994 - 2007 in Hungary.

The tables clearly show that the regional disparities in GDP are quite high and the trend is rising, so the spatial concentration of foreign direct investment is very high.

Table 10 Changes in differences between the most developed and the less developed area according to Gross Domestic Product

Name	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
The most developed area; GDP per capita in thousand HUF	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest	Budapest
	765	993	1254	1575	1858	2182	2615	2977	3587	3801	4250	4660	5220	5493
The less developed area; GDP per capita in thousand HUF	Szabolcs-Szatmár-Bereg	Nógrád	Nógrád	Nógrád	Nógrád	Szabolcs-Szatmár-Bereg	Szabolcs-Szatmár-Bereg	Nógrád						
	262	326	387	443	565	598	690	819	931	1022	1101	1099	1163	1162
Difference in thousand HUF	503	667	867	1132	1293	1584	1925	2158	2656	2779	3149	3561	4057	4331
The less developed area in per cent of the most developed area	34	33	31	28	30	27	26	28	26	27	26	24	22	21
Changes in difference 1994 is 100 per cent	100	133	172	225	257	315	383	429	528	552	626	708	807	861

Source: Own construction based on Antalóczy – Sass's (2005) calculation (1994-2001), and own addition (2002-2007) (database of Hungarian Central Statistical Office [2000]; [2002]; [2009])

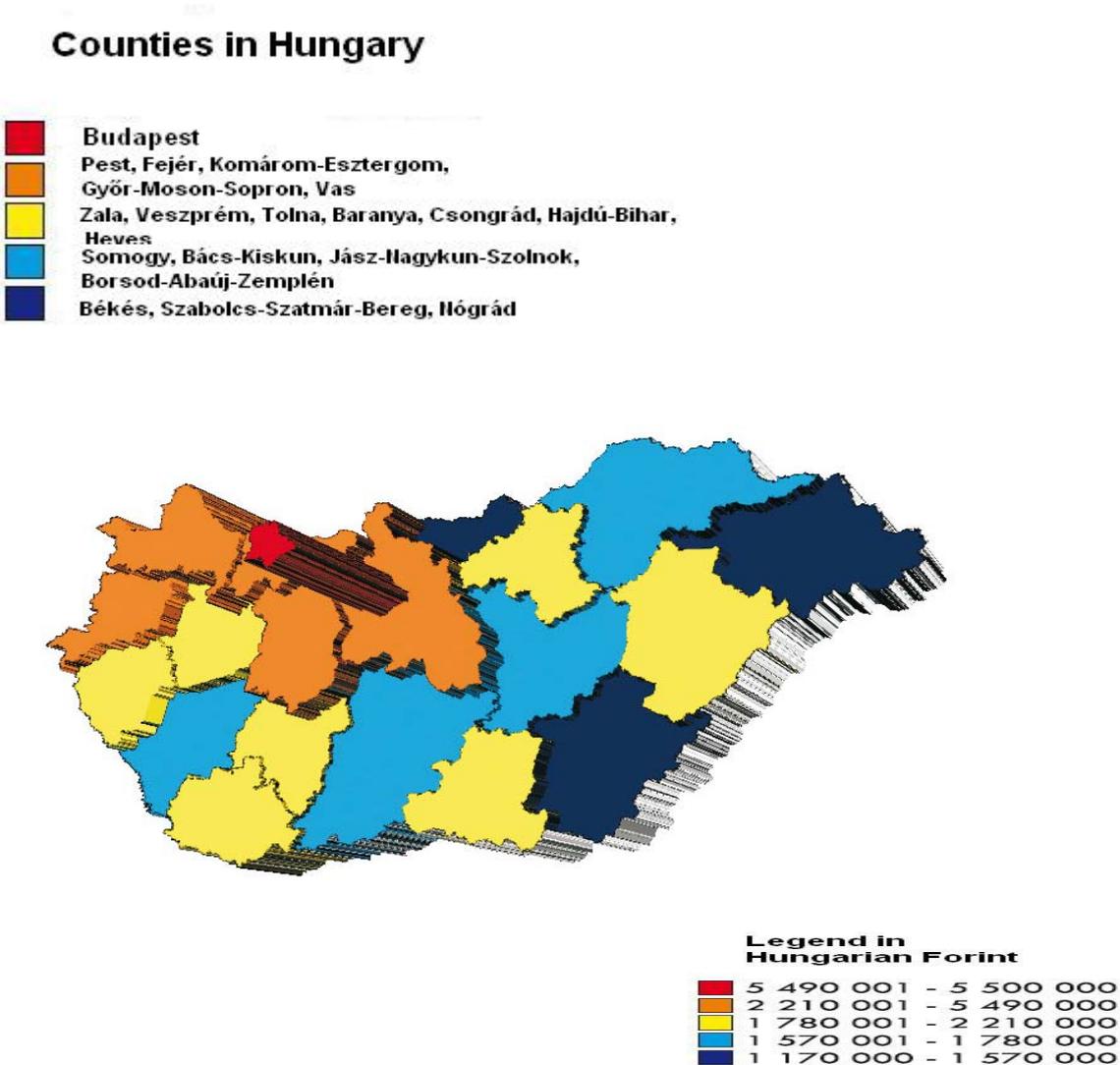
It seems, that in Hungary based on the GDP calculation, the regional differences are quite high, and increasing tendency, by which resulted that the foreign working capital became highly concentrated at regional level.

Map 3 shows that the *capital Budapest remained outstanding role*, because Euro 5.5 million per capita of Budapest became double more than one of the national average, four times more than GDP per capita of Szabolcs-Szatmár-Bereg county, and by nearly five times higher than GDP per capita of Nógrád county. Besides them, Békés, Somogy and Jász-Nagykun-Szolnok County can be considered as the most underdeveloped region based on the GDP per capita, because their GDP per capita was below the 2/3 of average level in 2007.

The gross added value related to number of employees, which means that the productivity was also highly developed in the Budapest capital. In 2007 Budapest was the only one which exceeded over the national average by HUF 5.6 million higher, almost double. Also the level

of average productivity of Győr-Moson-Sopron and Komárom-Esztergom Counties reached the country side wide level of productivity, but the lowest productivity Nógrád County reached only half of the national average level.

Map 3 Changes in Gross Domestic Product per capita in 2007

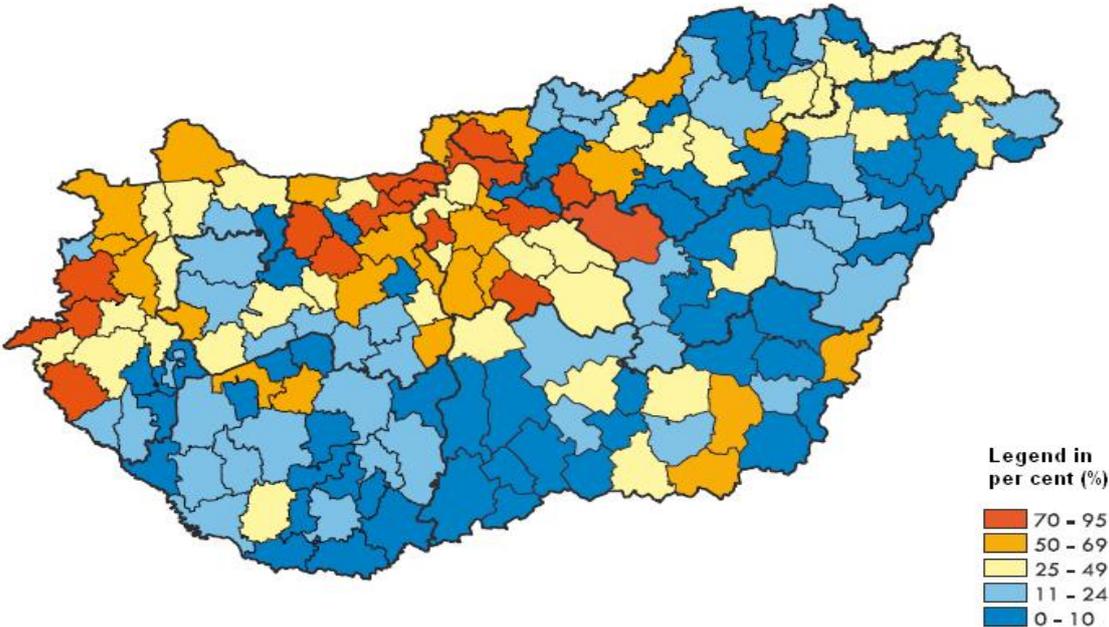


Source: own construction, 2010

Map 4 represents clearly that more than half, 57% of subscribed capital belonging to corporations came from abroad of slightly in the capital. The regional distribution of foreign capital showed very highly regional difference. In 2007, more than 90% foreign capital equity ratio in Szentgotthárd, Szombathely, Dabas, small establishments of Esztergom was opposite to just 1-2% of ones in Mezőcsát, Sellye, Mórahalom, and Nyírbátor.

The dominant participation of foreign capital, it means more than 50% was in agglomeration of Budapest and the northern and western areas of Transdanubia; northern and western small areas of the Lake Balaton. The highly regional concentration of foreign capital also indicates that the foreign major investors favour more developed regions in Hungary. In 2007 concentration of businesses was favour in Hungary.

Map 4 Rate of Foreign Direct Investments in subscribed capital of joint enterprises in 2007



Source: own construction, 2010

4.3 Examination with Correlation

4.3.1 The relationship between FDI and GDP

Thereafter, the trends of linkages between FDI and GDP are analysed. The first question is that how GDP and the FDI distribution by counties are similar to each other? Three pairs of linear regression analysis was performed based on my calculations, because of I do these tests with and without the Budapest show.

It was necessary to analyze the situation without Budapest capital, because the literature declared that the detailed calculations with ones of Budapest can cause a significant distortion in the final results.

Due to three years, I analysed the linear regression test, exactly for 1994, 2001 and 2007 years. The first step, I implemented correlation testing, because it was important to look for estimated values during regression calculation, which were critical conditions to show the relationship between the variables analysed (Sajtos and Mitev, 2007).

The calculations were implemented with and without capital.

Table 11 Correlation of FDI stock per capita and GDP per capita with Budapest in 2007

Correlations			
		GDP per capita	FDI stock per capita
GDP per capita	Pearson Correlation	1	,952(**)
	Sig. (2-tailed)	,	,000
	N	20	20
FDI stock per capita	Pearson Correlation	,952(**)	1
	Sig. (2-tailed)	,000	,
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation with SPSS program, 2010

Table 12 Correlation of FDI stock per capita and GDP per capita without Budapest in 2007

Correlations			
		GDP per capita	FDI stock per capita
GDP per capita	Pearson Correlation	1	,871(**)
	Sig. (2-tailed)	,	,000
	N	19	19
FDI stock per capita	Pearson Correlation	,871(**)	1
	Sig. (2-tailed)	,000	,
	N	19	19

** Correlation is significant at the 0.01 level (2-tailed).

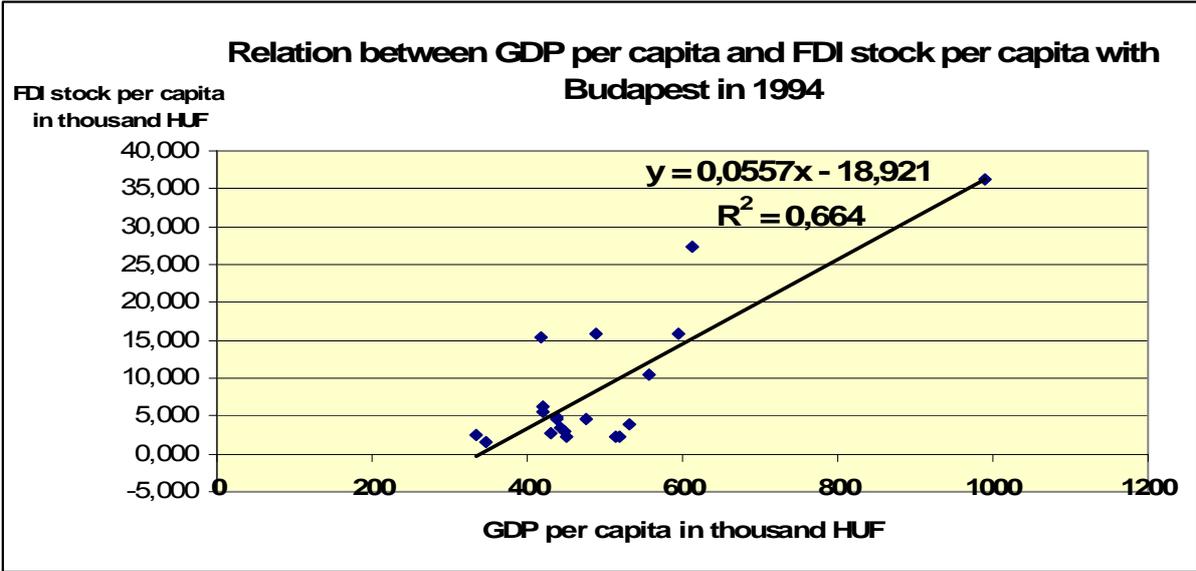
Source: own calculation with SPSS program, 2010

In table 11, the correlation coefficient (r) value of the stock of FDI and the economic development of a very close, 0.95. The number of observations is 20, with data of Budapest.

In the 12th table the strength of the connection shows lower values (0.87) without Budapest.

The Figure 11/a illustrates, - the relationship can be seen between FDI per capita and GDP per capita. This point chart is also included data of Budapest with data of 19 Hungarian counties. The capital had an extremely emerging value outlier in 1994, both of GDP per capita, and FDI per capita. It can be mentioned that a large percentage of the counties showed a significant backwardness, which intimately approximated 400 thousand HUF according to the value of GDP per capita, while the tendency of the FDI per capita was around 5 million HUF.

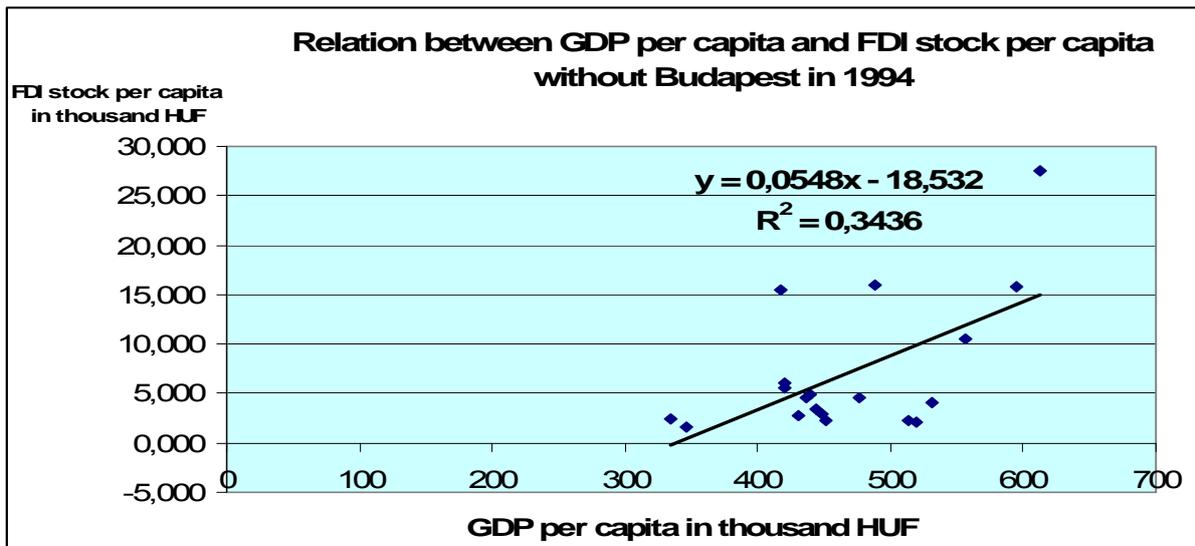
Figure 11/a



Source: Own calculation and construction based on database of Hungarian Central Statistical Office, 2007

Figure 11 / b shows analysis without Budapest in which wider variation can be seen, which can focus on the diversified territorial location of counties, and their economic level. Also it can be seen, a low value in the coefficient of determination ($R^2 = 0,3436$), which proves my previous opinion according to geographical dispersion of data of counties with correlation of foreign investments' geographical distribution. Those elements which are located away from the regression line cause this low value.

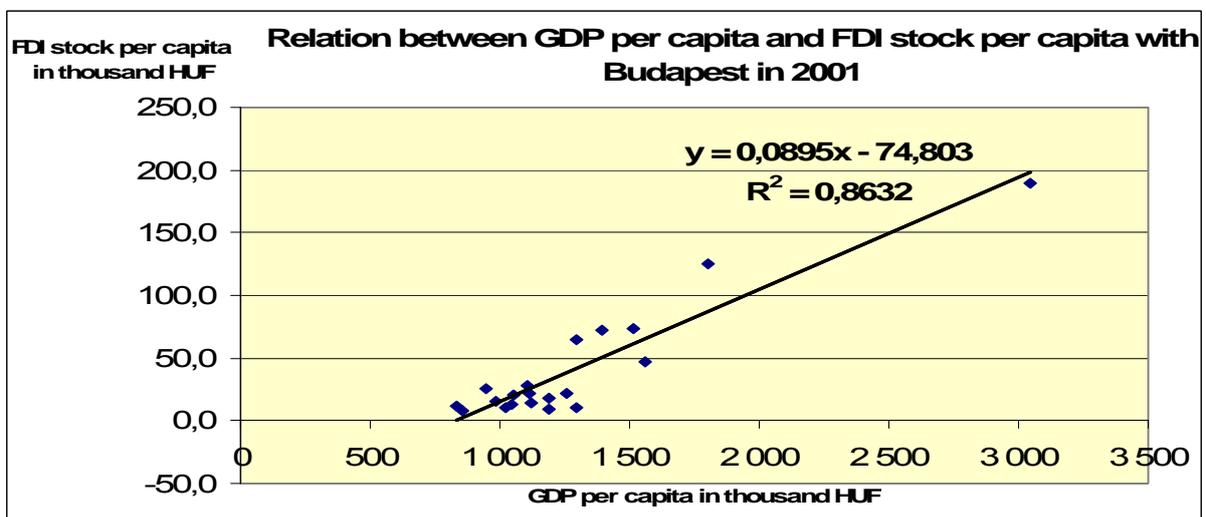
Figure 11/b



Source: Own calculation and construction based on database of Hungarian Central Statistical Office, 2007

Analysing the economic conditions of counties in 2001, it was similar for their data of 1994, but the difference was not more than the difference with data of Budapest or without once.

Figure 12/a

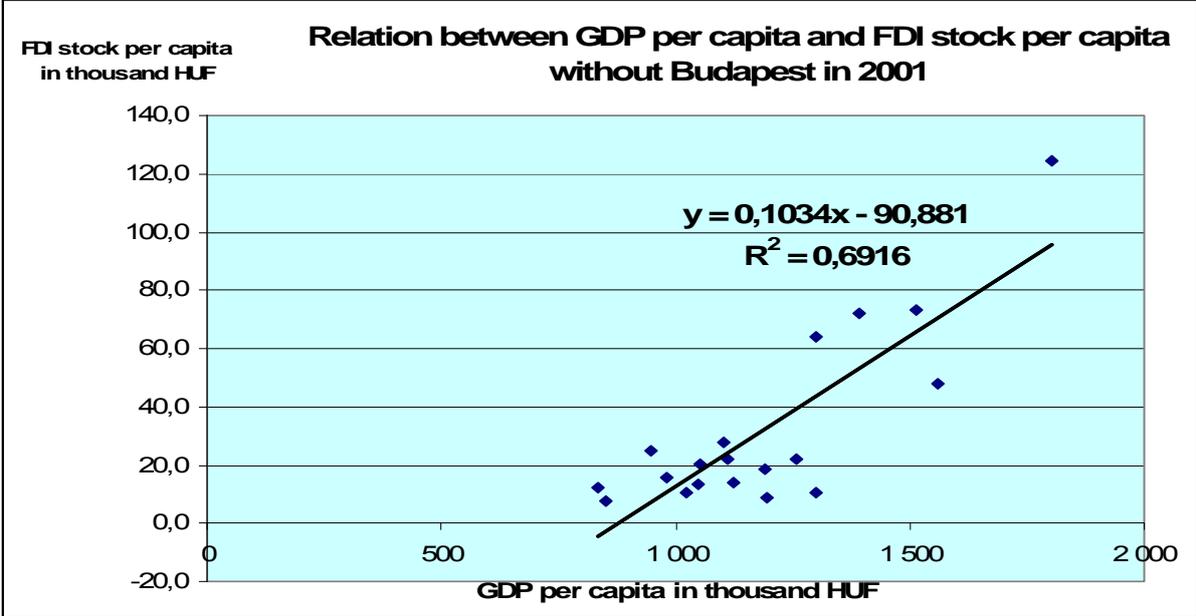


Source: Own calculation and construction based on database of Hungarian Central Statistical Office, 2007

In Figure 12 /b represents a moderate improvement by 2001 comparably to 1994 without Budapest, but it can be mentioned that only in a county, GDP per capita and FDI per capita had a very high value, and namely this was Pest.

These data strengthen the highly centralized distribution of foreign development working capital FDI in Hungary. The value of R^2 has already narrowed, because its value was 0.6916 close to one.

Figure 12/b



Source: Own calculation and construction based on database of Hungarian Central Statistical Office, 2007

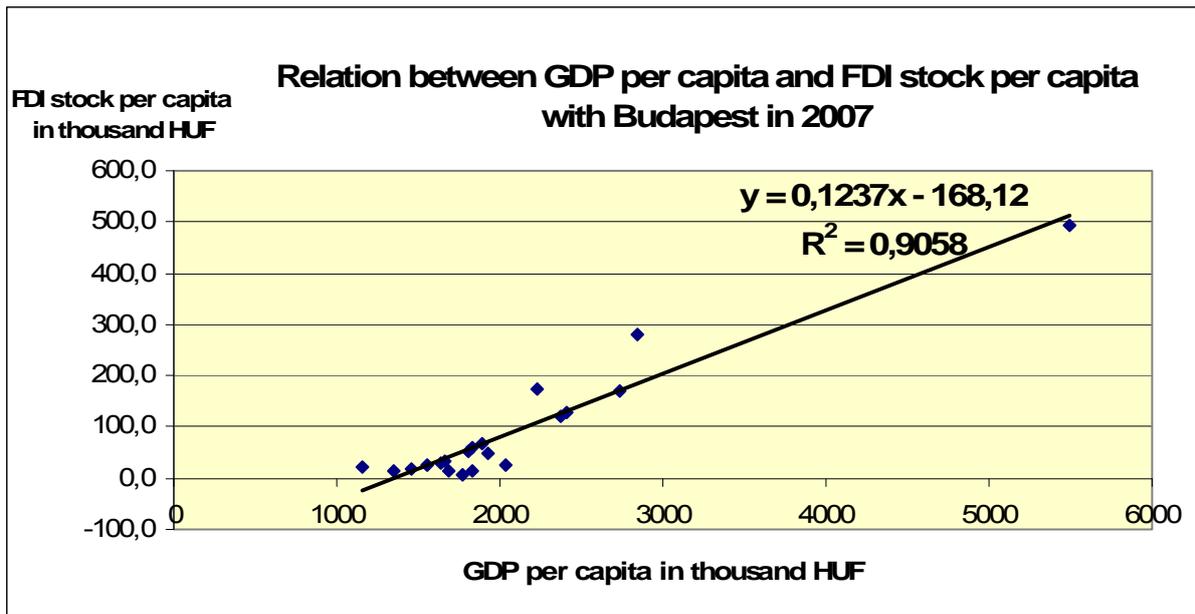
13/a and 13/b diagrams illustrate the result for correlation test based on data of 2007 in fields of FDI per capita and GDP per capita. 13/a scatter diagram clearly emphasize emerging position of Budapest in the aggregate state of counties.

It can be seen that by 2007 working capital per capita of Budapest increased approximately 14-times, but opposite to GDP per capita, it was 5.5-fold comparably to 1994. In relation to economic conditions of counties could not be able to realize such kind of drawing FDI growth in Budapest.

On the 13/b scatter diagram the distribution of counties in 2007 shows a more positive view for the regression line comparably to 1994, because there was not a so much variation. This is also reflected by R^2 , of value was 0.7582. Based on this one, it can be mentioned that the GDP per capita had role by 76% in the changes of FDI per capita.

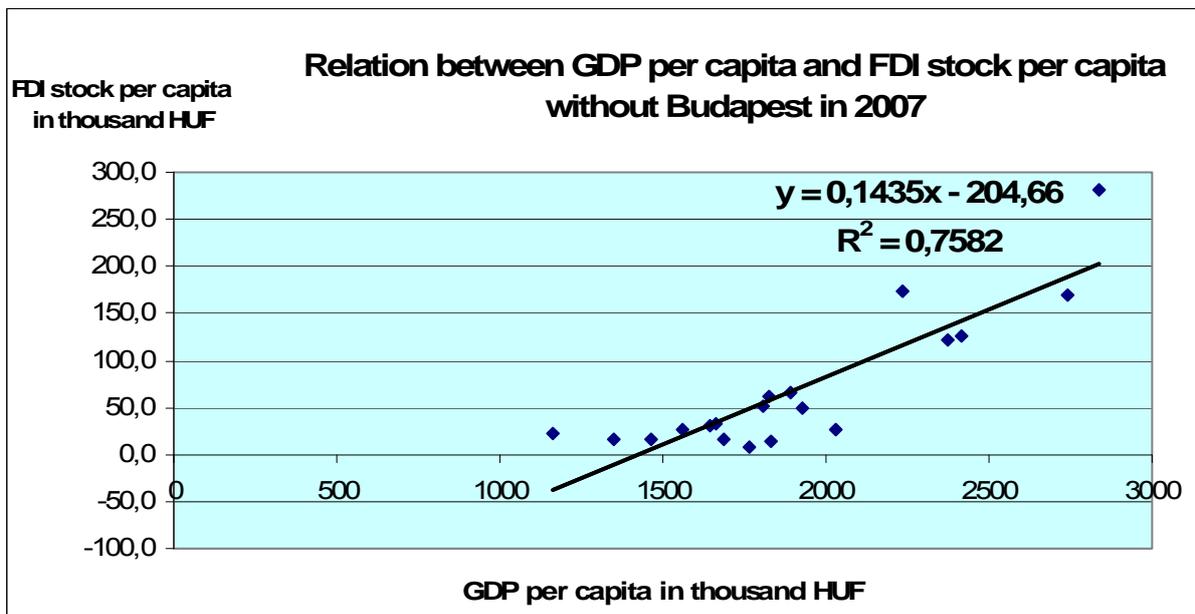
Earlier opinion according to calculations with data of Budapest, which can resulted in a significant distortion, now it became proved true based on the calculations, and also it can be seen well on the diagrams.

Figure 13/a



Source: Own calculation and construction based on database of Hungarian Central Statistical Office, 2007

Figure 13/b



Source: Own calculation and construction based on database of Hungarian Central Statistical Office, 2007

It can be seen from 11th – 12th – 13th diagrams that the relationship was quite strong; and also it can be clearly seen that the relationship was stronger in 2007 than comparably to 1994, in terms of foreign working capital per capita and the GDP per capita at county level. The causal relationship can be defined difficultly, but also this shows that how much investment and FDI

were more in higher developed areas, and their relationship became stronger between 1994 and 2007 (in particular, without Budapest).

This makes it likely that the FDI investment played a significant role in the growth of regional differences. This view was strengthened by analysing the role of working capital in the economy of each county.

It can be seen from Table 13 that in Budapest, Pest county, as well as some Trans-Danubian counties (Vas, Győr-Moson-Sopron and Komárom-Esztergom) the portion of the working capital (FDI) stock measured in GDP was higher than the national average.

Finally I checked that whether correlation can be shown by statistical indicators between the economic growth of county and FDI working capital per capita?

Correlation shows a strong contact without Budapest, and also there is a relatively close correlation in case of the rank correlation without Budapest. The above indicators with Budapest show a weaker relationship, which can be considered middle.

According to my opinion this latest one emphasizes, that in many cases Budapest remains only centre of companies, but their real activity is going on in the rural sites. Therefore, the statistics show a strong centralisation in Budapest, but really, this has less economic importance.

The hypothesis (H1) has been proofed, because there is a close relationship between quantitative distribution of FDI and economic development. Assumption is confirmed by these calculations open road.

Table 13: Ranking list of counties in the rate of FDI per GDP (2002 and 2007)

2002			2007		
Sequence	County	FDI/GDP (%)	Sequence	County	FDI/GDP (%)
1.	Budapest	96,1	1	Győr-Moson-Sopron	98.9
2.	Vas	82,9	2	Budapest	89.4
3.	Győr-Moson-Sopron	79,2	3	Pest	77.0
4.	Pest	72,1	4	Komárom-Esztergom	61.6
5.	Komárom-Esztergom	66,5		<i>Nationwide average</i>	59.7
	<i>Nationwide average</i>	58,9	5	Fejér	52.5
6.	Borsod-Abaúj-Zemplén	43,6	6	Vas	51.1
7.	Hajdú-Bihar	35,1	7	Csongrád	35.2
8.	Heves	33,5	8	Heves	33.5
9.	Jász-Nagykun-Szolnok	32,6	9	Hajdú-Bihar	29.0
10.	Fejér	32,1	10	Veszprém	25.2
11.	Veszprém	23,9	11	Nógrád	20.0
12.	Nógrád	22,4	12	Borsod-Abaúj-Zemplén	19.2
13.	Csongrád	22,4	13	Jász-Nagykun-Szolnok	18.3
14.	Somogy	21,0	14	Somogy	16.9
15.	Békés	19,68	15	Zala	12.9
16.	Baranya	17,1	16	Szabolcs-Szatmár-Bereg	11.6
17.	Zala	15,2	17	Békés	11.4
18.	Bács-Kiskun	12,2	18	Bács-Kiskun	9.3
19.	Szabolcs-Szatmár-Bereg	10,5	19	Baranya	7.9
20.	Tolna	7,48	20	Tolna	4.0

Note: own capital data of FDI from 2002; GDP data from 2001

Source: own composition based on Antalóczy – Sass's (2005) calculation (2002) and own calculation and addition based on database of Hungarian Central Statistical Office (2007)

4.3.2 The relationship between Foreign Direct Investments and Investments

Between 1994 and 2002 the distribution of investments – comparably to once of the working capital investment - showed a strong geographical concentration based on distribution of ratios (Table 14). In 1994 the total investment of 67.5% was implemented in three regions, namely Central Hungary, Central Transdanubia, and Western Transdanubia. Decisive share of investments - nearly 46 percent - was in the Central Region in Hungary, including Budapest. By 2002 the share of investments in the three regions declined slightly, but still it remained above 60% of the total investment share.

In particular, the Central Hungary region was characterized by a decrease, including the considerable decline in Budapest. By 2002, for the tested period under review was extremely low Nógrád County's share of investments, which in 2007 showed a further decline.

For the years after accession to the European Union, Budapest and Pest County have shown a large increase. It can be mentioned that Central Transdanubia was not decrease from investments in shares, but this participation rate is not increased. The above-mentioned region, namely Central Hungary in large increases in the other, namely, but at the expense of Northern Great Plain, Northern Hungary, Southern Transdanubia and Western Transdanubia. Based on the observed values in the table is not surprising, because investors have found these regions at first since the beginning of privatization. These investors finding Hungary were stimulated by possible investment conditions and policy. The foreign investors choosed Hungary, because the country has satisfactory regional distribution and also there are comparative advantages of each region.

The investors generally collect information separating to *five adequate conditions* for investment incentives in any country, which are as follows:

- In most cases, competitiveness of human labour;
- adequate portion of cost-effectiveness;
- access to European markets;
- the domestic market size, diversity;
- the extent of available state aid.

It is well known that the investment activities of firms and companies have an important role to create developing differences between regions, since regional growth theory of the post-Keynes declared that productivity differences between regions resulted by different industry structure, capital intensity, investment and government subsidies (to create public goods) can be turned. Prices and wages partly are inflexible, so the markets are not in normal balance. The productivity of regions can not automatically develop, in consequence of market process rather the regional difference increases, which needs governmental intervention.

The region's productivity does not improve automatically, the result of market processes rather grow the regional differences that are necessary to reduce government intervention.

Table 14 Distribution of regional investments from 1994 to 2007 in per cent

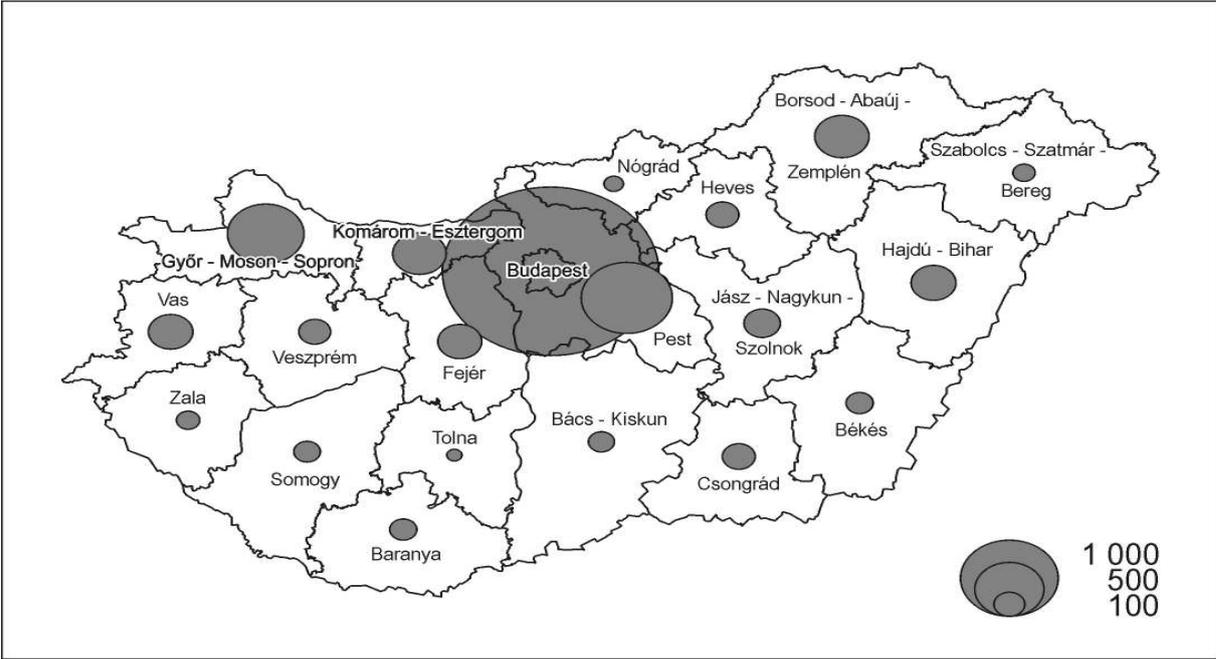
Regions, Counties	Years												
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2004	2005	2006	2007
Budapest	36,6	6,5	5,5	1,6	1,5	8,8	0,5	9,1	8,2	41,3	44,1	47,7	45,9
Pest	9,2	8,5	7,1	10,6	9,6	9,3	9,2	10,0	10,1	8,4	7,9	7,8	8,1
Central Hungary	45,8	45,0	42,6	42,3	41,1	38,1	39,7	39,2	38,2	49,8	52,0	55,5	53,9
Fejér	4,2	5,7	5,3	6,4	6,1	4,9	5,2	6,4	4,6	4,0	4,1	4,0	6,9
Komárom-Esztergom	3,3	2,9	4,3	3,5	2,6	3,5	4,3	3,0	4,0	6,0	4,9	3,9	5,1
Veszprém	2,7	2,5	2,6	4,1	3,7	3,0	3,0	3,1	3,1	2,1	2,0	2,3	1,9
Central Transdanubia	10,2	11,1	12,2	14,0	12,4	11,4	12,5	12,5	11,6	12,0	11,0	10,3	13,9
Győr-Moson-Sopron	6,4	5,4	6,7	6,0	5,5	6,3	6,6	5,9	4,8	4,9	4,7	5,0	4,6
Vas	2,5	4,2	3,5	3,2	2,6	3,3	3,4	4,4	3,3	2,3	2,0	1,8	2,1
Zala	2,7	2,3	2,0	2,2	2,7	2,9	2,9	2,7	2,6	1,4	1,3	1,3	1,2
Western Transdanubia	11,6	11,8	12,1	11,4	10,9	12,6	12,9	12,9	10,7	8,6	8,1	8,1	7,9
Baranya	2,6	2,7	2,0	2,3	2,5	3,0	2,7	2,4	2,5	2,8	2,2	2,3	2,0
Somogy	2,0	1,6	1,6	1,8	1,9	2,0	1,8	1,9	2,3	1,8	1,6	1,7	1,8
Tolna	2,1	2,0	2,2	2,2	2,0	2,2	1,9	2,2	4,1	1,2	1,2	1,1	1,1
Southern Transdanubia	6,8	6,3	5,7	6,2	6,5	7,2	6,3	6,5	9,0	5,9	4,9	5,2	5,0
Borsod-Abaúj-Zemplén	5,4	5,2	6,4	5,1	6,1	7,1	6,7	6,4	6,0	6,3	5,0	4,3	3,5
Heves	2,0	1,9	2,2	2,6	4,2	3,6	3,2	2,3	3,4	2,2	2,1	2,3	1,9
Nógrád	1,0	1,0	1,1	1,1	1,0	0,9	1,1	1,2	1,4	0,7	0,7	0,8	0,7
Northern Hungary	8,4	8,0	9,7	8,8	11,2	11,6	11,0	9,9	10,8	9,2	7,8	7,4	6,1
Hajdú-Bihar	3,2	3,5	2,8	3,2	4,0	3,8	3,4	4,1	3,7	3,9	5,7	3,4	3,5
Jász-Nagykunszolnok	2,4	3,6	2,9	2,4	2,4	2,7	3,1	3,1	3,3	2,0	2,1	1,9	1,7
Szabolcs-Szatmár-Bereg	3,3	2,5	2,2	2,7	3,2	3,2	3,1	3,3	3,1	1,9	2,3	1,8	1,7
Northern Great Plain	8,9	9,6	8,0	8,3	9,6	9,6	9,6	10,5	10,1	7,7	10,0	7,2	7,0
Bács-Kiskun	2,9	3,4	3,4	3,0	2,8	2,8	2,7	2,8	3,2	2,2	2,3	2,4	2,5
Békés	2,3	1,8	2,3	2,3	2,1	2,0	1,9	2,4	2,4	2,0	1,5	1,4	1,4
Csongrád	2,9	2,9	3,8	3,2	3,2	2,6	2,5	2,6	3,0	2,7	2,5	2,6	2,2
Southern Great Plain	8,1	8,1	9,5	8,6	8,2	7,4	7,1	7,9	8,7	6,9	6,3	6,3	6,2
Country sum total	100												

Source: Own construction based on Antalóczy – Sass's (2005) calculation from 1994 to 2002 and own calculation and addition based on database of Regional Statistical Yearbook (Hungarian Central Statistical Office from 2004 to 2007)

The undeveloped regions aimed at increasing the capital intensity, because some investments can improve productivity. Lower productivity level regions also can develop faster, so they can decrease the difference between their developed levels. By the other words the appropriate regional economic development in low-productivity regions can develop faster, thus reducing regional disparities.

Since the beginning of appearing foreign investment the foreign investments have not changed the geographical distribution of the indicators (Map 5). Budapest and its agglomeration, as the most attractive area are for foreign investors, where foreign capital is concentrated in the nearly two-thirds. The FDI investments used to be more active naturally in cities and their agglomeration, and the capital cities, especially if they also have major economies, they are main focuses for investors everywhere. This appears either in West Europe (Brühlhart 2001) or in Central and Eastern European countries, where often the only system of this Capital City of the big cities, metropolis (Carter 2000, Domanski 2003, Kukely 2006, Pavlin 2004). In some Southern European countries, the concentration is even greater than in East-Central Europe (regions of Portugal from Lisbon to foreign investment 80, Madrid and Barcelona in Spain to 70%).

Map 5 Spatial structures of Foreign Direct Investments in Hungary, 2005 (billion HUF)



Source: Construction by Kukely, Gy., 2008

In Hungary priority area became for foreign investors, for example Budapest, Pest county and Northern Transdanubia, the West European market is closed to Hungary, and relative prosperity of this region (in a long time was the only highway leading out of the country, there was a more skilled workforce, and high-quality industrial culture, and not least, was

attractive to the local hosting) (Barta, 2002). In the 1990s the first half, more than two-thirds of green field investment industry came to North Transdanubia (Diczházi 1997).

The trans-national automakers, electronics companies and their suppliers settled here. The agglomeration of Budapest and the North-Trans Danubian region have received 80-85% of the international working capital for the last 15 years.

The regional structure of FDI, despite this has relative stability, also there is some movement. From the mid-1990s till 2004, Budapest, attractions are relatively decreased. This is basically related to the completion of privatization, and also this connected to the increasing average cost of investment. The agglomeration of Budapest metropolitan area, including but not attractive fading, just outside the borders of the administrative areas have also appreciated for the investors. But in 2005, share of Budapest also significantly increased, thanks to the expansion in tertiary investments. It can be experienced that regional share has also changed within Northern Transdanubia: at the northern Slovakian border region (mainly Komárom, Esztergom and Győr) position has been strengthened, while the previously high Székesfehérvár somewhat weakened. Northern Hungary and the Northern Great Plain region also increased the share of a few per cent, while the country's southern regions - Southern Transdanubia and Southern Great Plain - lost the previous dominance constantly. These areas can not develop, in spite of increasing infrastructure (e.g. highway construction). The factors of the infrastructure in the 1990s contributed to the backwardness of these areas, but the improvements have not resulted in significant development in these regions, and their ability to attract foreign capital investments because of these factors decreased role in the Hungarian investment decisions.

The geographical location of industrial investment is also quite unequal, and this has not changed inequality in recent years (Table 15). In 1994, in Central Hungary Central Transdanubia Western Transdanubia 64% achieved by industrial investment in 2002, this ratio was 63 percent, and the period examined in these three areas of industrial investments, the share has never fallen below 60 percent. This trend did not change between 2004-2008, neither the above-mentioned three regions of the shares of industrial investments. It can be seen that the industrial investment decreased in Budapest.

The investments and direct investments (Table 16) were found when comparably to the share of investments in Budapest they were much smaller than the foreign share of working capital.

Table 15 Distribution of industrial investments by region, by county in per cent

	1994	1996	1998	2000	2002	2004	2006	2008
Budapest	22	17	13	15	18	17	19	14
Pest	12	9	11	14	12	11	12	10
Central Hungary	36	26	24	29	30	28	31	25
Fejér	6	9	10	6	8	9	9	10
Komárom-Esztergom	5	6	4	5	7	8	7	8
Veszprém	3	3	5	4	4	3	3	3
Central Transdanubia	14	18	21	15	19	20	19	21
Győr-Moson-Sopron	8	11	8	9	7	6	5	8
Vas	3	5	4	8	4	4	4	4
Zala	3	2	4	3	3	2	2	2
Western Transdanubia	14	18	16	20	14	12	11	14
Baranya	2	2	2	2	2	3	2	3
Somogy	1	1	2	2	2	1	2	2
Tolna	3	4	3	2	3	3	3	2
Southern Transdanubia	6	7	7	6	7	7	7	6
Borsod-Abaúj-Zemplén	8	9	9	8	6	9	7	9
Heves	2	3	4	3	3	4	3	4
Nógrád	1	1	1	1	2	3	2	1
Northern Hungary	11	13	14	12	11	16	12	13
Hajdú-Bihar	3	3	4	4	3	3	3	3
Jász-Nagykun-Szolnok	3	4	3	3	3	3	4	3
Szabolcs-Szatmár-Bereg	3	2	3	3	3	3	3	3
Northern Great Plain	9	9	10	10	9	9	10	9
Bács-Kiskun	3	3	3	3	3	2	2	3
Békés	3	2	2	2	2	2	2	2
Csongrád	4	4	3	2	2	4	4	2
Southern Great Plain	10	9	8	7	7	8	8	8
Country sum total	100							

Source: Own construction based on Antalóczy – Sass's (2005) calculation from 1994 to 2002 and own calculation and addition based on database of Regional Statistical Yearbook (Hungarian Central Statistical Office from 2004 to 2008)

Table 16 Distribution of Foreign Direct Investment by region, by county in per cent

	1994	2002	2007
Budapest	53,9	52,0	55,0
Pest	11,1	11,3	13,4
Central Hungary	65,0	63,3	68,4
Fejér	3,3	2,7	3,6
Komárom-Esztergom	3,7	4,1	3,5
Veszprém	1,3	1,4	1,2
Central Transdanubia	8,3	8,2	8,3
Győr-Moson-Sopron	8,7	8,3	8,2
Vas	3,2	2,9	2,1
Zala	0,5	0,5	0,5
Western Transdanubia	12,4	11,7	10,8
Baranya	0,9	0,9	0,4
Somogy	0,7	1,0	0,6
Tolna	0,4	0,3	0,1
Southern Transdanubia	2,0	2,2	1,1
Borsod-Abaúj-Zemplén	3,1	3,0	1,5
Heves	1,5	1,3	1,3
Nógrád	0,4	0,4	0,3
Northern Hungary	5,0	4,7	3,1
Hajdú-Bihar	2,0	2,8	1,9
Jász-Nagykun-Szolnok	1,4	1,7	0,8
Szabolcs-Szatmár-Bereg	0,7	0,7	0,6
Northern Great Plain	4,1	5,2	3,3
Bács-Kiskun	0,9	0,9	0,6
Békés	1,0	0,9	0,4
Csongrád	1,3	1,2	1,9
Southern Great Plain	3,2	3,0	2,9
Country sum total	100,0	100,0	100,0

Source: Own calculation and construction based on database of Regional Statistical Yearbook (Hungarian Central Statistical Office)

By analysing the investment growth, it appears that counties have been over average growth in field of per capita investment between 1994 and 2002, which are less successful in the capital attraction, and turning to Tolna, Heves, Nógrád, Jász-Nagykun-Szolnok, Vas and the lowest growth Győr-Moson-Sopron Districts, Budapest, Hungary, Szabolcs-Szatmár-Bereg, Pest, Baranya District are shown. Approximately 35-40 percent of investments in the business sphere bound (budget, social security, population), are therefore able to compensate for the economic policies of the central market trends, the growth differences that emerge.

Table 17 Herfindahl-Hirschman Index of FDI and Investments

	1994	2002	2007
Foreign Direct Investments	0,330	0,304	0,332
Investments	0,161	0,112	0,233

Source: Own calculations based on database of Hungarian Central Statistical Office

Generally the total investment concentration is low and decreasing, i.e., and the counties have shares as differences. The degree of concentration is the **Herfindahl-Hirschman's index of concentration** calculated. Table 17 shows that the test of years of concentrated investment is considerably lower and declining trend, also as direct investment. But, by 2007 this value and FDI, both in relation to investments have started to grow. The index value is between 0 and 1. The value is higher, so concentration is greater.

Herfindahl index: a measure of market concentration is, which both of companies in the industry, both of them in size into account. The index of each company's market share is obtained by adding together square. $H = \sum Ri^2$.

Herfindahl index is that, which is $1 / N$ and 1, varying between border measures the degree of concentration. In the case of concentration lack, when all units are equally share in the total value of the amount of S, $HI = 1 / N$, while the maximum possible concentration, $HI = 1$

Table 18 Similarity indexes of investments in examined years

Years Name	2002/1994	2007/2002	2007/1994
with Budapest	0,893	0,787	0,857
without Budapest	0,611	0,505	0,491

Source: Own calculation and construction, 2010

It is also examined by calculating the similarity index of county investment trends over time. Table 18 shows that between 1994 and 2007 there was a significant change in the geographical distribution of investments. 86% of Budapest, or without Budapest, there was only 49% without a similar breakdown of the 2007 comparably to 1994. This shows that Budapest remains a key target for the foreign investors.

Table 19 Similarity index between distribution of FDI and Investments in 1994 and 2007

	with Budapest	without Budapest
Similarity index between distribution of FDI and investments from 1994 to 2007	0,756	0,387

Source: own calculation with SPSS program, 2010

19 Table shows index of foreign direct investment and investment in the similarity one for the 1994 and 2007. These calculations also demonstrated that without Budapest the counties have 39% share, which are similar to share of FDI and investment, while with Budapest, the data is much higher in the index, namely 76%.

Table 20 Correlation of FDI and Investments with Budapest in 2007

Correlations			
		FDI	Investments
FDI	Pearson Correlation	1	,869(**)
	Sig. (2-tailed)	,	,000
	N	20	20
Investments	Pearson Correlation	,869(**)	1
	Sig. (2-tailed)	,000	,
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation with SPSS program, 2010

However, assuming it can be mentioned, Budapest (Table 20) that within the investments, the foreign direct investment has dominant role, by both of the investment and direct investment, substantially similarity of geographical distribution, as well as, a stronger correlation (0.87) is proved. This relationship is strong and positive. Note that the correlation is less than 1% significance can be accepted. This can be seen in the cell to read significance levels, which is less than 0.01.

Table 21 Correlation of FDI and Investments without Budapest in 2007

Correlations			
		FDI	Investments
FDI	Pearson Correlation	1	,716(**)
	Sig. (2-tailed)	,	,001
	N	19	19
Investments	Pearson Correlation	,716(**)	1
	Sig. (2-tailed)	,001	,
	N	19	19

** Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation with SPSS program, 2010

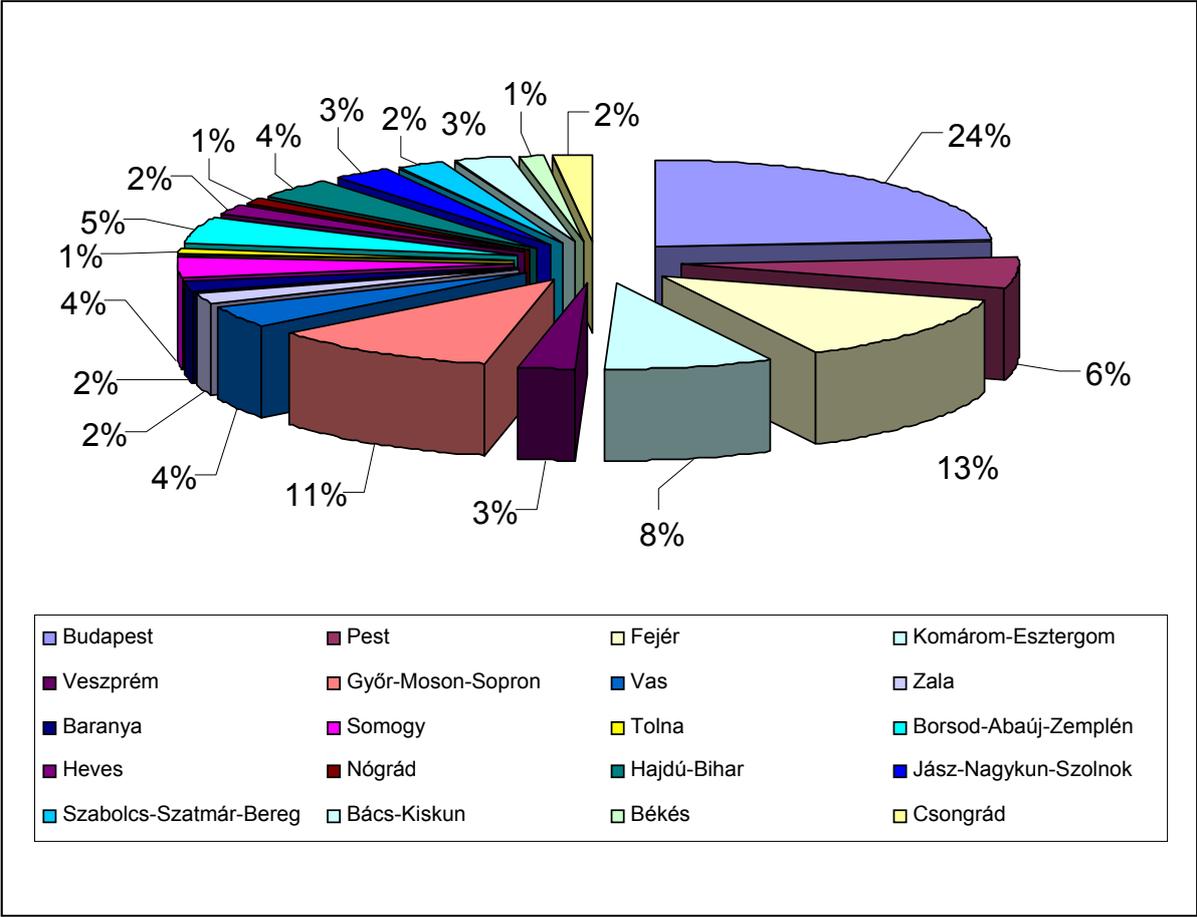
Without Budapest correlation analysing shows a weak positive correlation with a value of 0.72, which is strong in itself. Overall, both of the Herfindahl-Hirschman concentration index and similarity index based on the correlation study suggests that without Budapest, the results reflect more realistic calculations.

The hypothesis (H2) declared that concentration of the investment and working capital direct investment, and their temporally decline can result in possible increasing role of the national investments in Hungary. But these *hypothesis* were partly real, because the foreign investment concentration inflowing into districts would decrease, which result in comparably increase in role of the national investments at the relatively stabile level of national capital amount. The national working capital will not so active more after decline of foreign working capital investments in counties.

4.3.3 Relationship between Foreign Direct Investment and export sales

The 14th Diagram shows the distribution of the sale trend by counties in 2002. Also in this year Budapest, Fejér, Komárom-Esztergom and Győr-Moson-Sopron counties had share 62% of the export. These counties are the main FDI-receiving areas, which therefore have significant trade connections with foreign investments.

Figure 14 Export performances of joint enterprises according to spatial areas in 2002



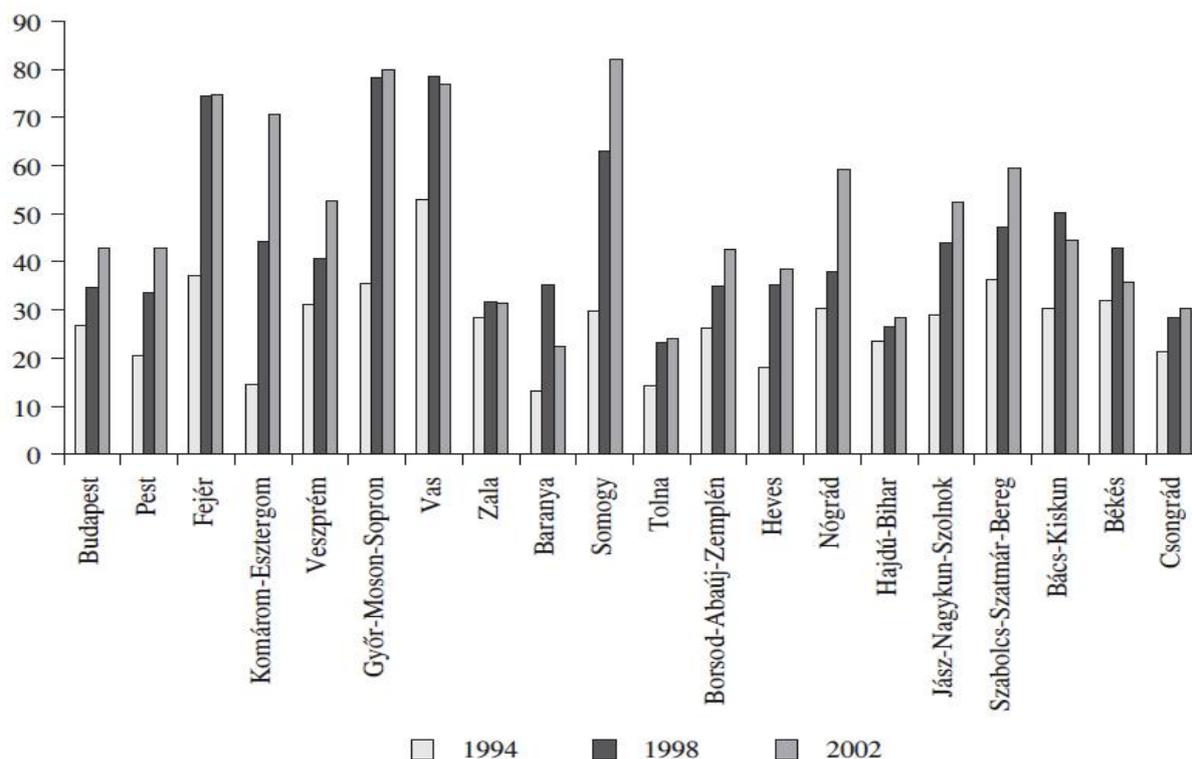
Source: Own construction, 2010, ITD Hungary

The CSO does not publish data about the export by counties at national level. Thus, either the dynamics or geographical distribution can not be determined.

But, there are some periodical data at the county level for export of industrial sector. The Figure 15 shows export share of industry between 1994 and 2002 at the national level, which has substantially increased, almost exactly doubled (from 27.7% to 55.1%). The increasing export was typical of all regions, but its rates were sharply different. In 2002, two most export-oriented regions, namely West Transdanubia and Central Transdanubia Regions had export rate above 70% for the same period. The lowest share of industrial export was in case of the Southern Great Plain Region. The differences were larger in case of the other counties. In 2002, 82% of industrial export share was in case of Somogy County. Also export games of Flextronics, which company later deported child-play industry to China. Share of industrial

sector was 75-80% in case of Győr-Moson-Sopron, Vas and Fejér counties, but this share was only over 24% in Tolna and 31% in Zala.

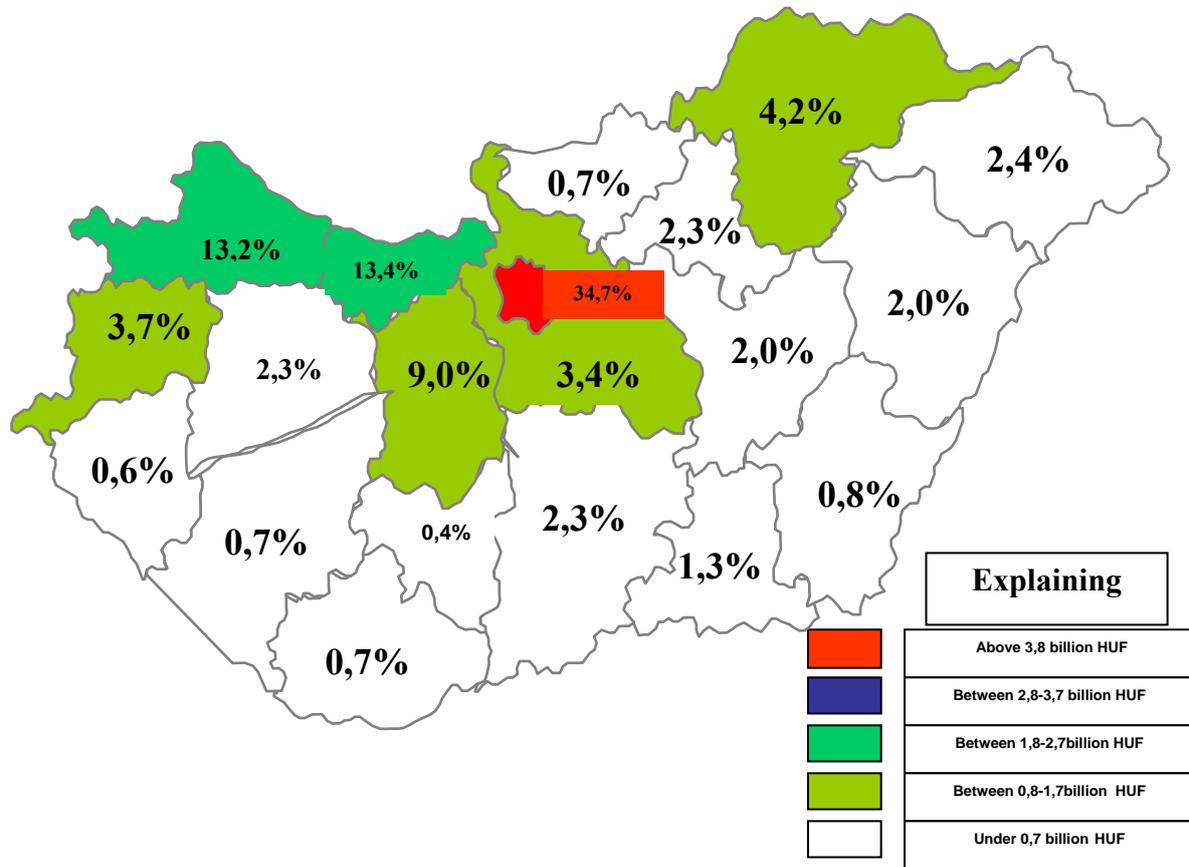
Figure 15 Export shares of sales by industry in per cent



Source: Own construction based on Antalóczy, Sass's study, 2005

The export was 75.6 percent in 2002 in case of three regions (Central Hungary, Central Transdanubia, and West Transdanubia). The largest exporter was Central Transdanubia with considerable share, as 30% of Hungarian exports. Three largest exporter counties, namely Fejér, Győr-Moson-Sopron and Komárom-Esztergom counties gave 35.6% of all national industrial export. The Hungarian industrial export had highly concentrated based on geographical distribution similarly to domestic sales on the national market (Map 6).

Map 6 Export performances of joint enterprises according to spatial areas in 2008



Source: own construction, 2010

The first 100 largest exporting firms based on ECOSTAT data in 2009, can ensure general review about the geographical distribution of exports. The first twenty exporters gave 45% share in the total Hungarian exports in 2002, but by 2008 this share decreased to 39%. Exports became strongly concentrated, which can be proved by example of some companies with geographical distribution of their exports. This is illustrated in Table 22. Almost all largest companies work with foreign significant participation, and some of them are registered in stock market.

**Ranking list
of ECOSTAT
according to
GDP**

		Company's name	Sector	Head office of the company;	Gross Added Value		Number of employees		Own assets		Value of export Billion HUF	Rate of export in net sales returns By 25 % stripes	Rate of foreign capital in quoted capital 3)
2007	2008				Billion HUF	Note	Person	Rank according to this	Billion HUF	Rank according to this 2)			
1	1	MOL Magyar Olaj- és Gázipari Nyrt.*	Energy supply	Budapest, national networks	600	b	15 990	4	1 231,40	1	2 211,30	62,6	C
2	2	Magyar Telekom Távközlési Nyrt.*	Telecommunications	Budapest	362,2	b	10 439	7	537,3	3	1183	11	B
3	3	AUDI Hungaria Motor Kft.	Vehicle industry	Győr	260,8		5 939	14	-	2	1 479,50	99,7	A
4	4	GE Hungary Ipari és Kereskedelmi Zrt.	electronics, engineering industry	Budapest, Ózd, Veresegyház, Vác	232,2		12 008	6	-	44	638,3	95,6	
5	5	MVM Csoport*	Energy supply	National networks	150	b	8 592	9	451,3	4	14,2	2	F
6	6	Szerencsejáték Zrt.	Other services	Budapest, national networks	135,9		1 296	52	17	70	0	30	F
7	7	Magyar Posta ZRT.	Post service	Budapest	129,7		35 973	1	73,8	26	0,6	0,3	F
8	9	E.ON Hungária Energetikai Zrt.*	Energy supply	Győr	126,5	b	4 724	18	340,5	6	26,8	4,2	A
9	8	Richter Gedeon Vegyészeti Gyár Nyrt.*	Pharmaceutical industry	Budapest, Dorog	119,4	b	10 382	8	336,5	7	206	87,1	C
10	10	ISD Dunafer Zrt. *	Metal working	Dunaújváros	92,7	b	7 868	10	148,3	12	203,7	61	B
11	14	TESCO Global Áruházak Zrt.	Retail trade	Budaörs	89,2		19 756	3	231,4	8	0,4	0,1	A
12	12	Pannon GSM Távközlési Zrt.	Telecommunications	Törökbálint	87,1		1 169	59	118,3	17	2,5	1,3	C
13	16	sanofi-aventis/Chinoin*	Pharmaceutical industry	Budapest	85,8	b	2 304	39	143	14	229,4	81,1	B
14	15	Magyar Államvasutak Zrt.	Carrying trade	Budapest	81,8		20 566	2	125,4	15	0	0	F
15	-	Bosch csoport*	Producing of spare parts	Hatvan	71,1	b	7 205	13	120,7	16	323,1	90,8	A
16	17	Magyar Suzuki Zrt.	Vehicle industry	Esztergom	59,3		5 664	15	115,9	20	521,9	85,6	A
17	13	Sanmina-SCI Magyarország Elektronikai Gyártó Kft.	Elektronic industry	Tatabánya	51,1	b	2 565	34	6,6	91	92,9	44,1	A
18	19	TEVA Magyarország Gyógyszerforgalmazó Zrt.*	Pharmaceutical industry	Debrecen	50,2	b	2 376	38	385,4	5	80,2	44,4	
19	21	Vodafone Magyarország Mobil Távközlési Zrt.	Telecommunications	Budapest	46,6	b	1 269	54	150,7	11	6,6	4,6	A
20	23	Mátra Erőmű ZRT.	Energy supply	Visonta	43,6		2 401	36	64,4	31	0,3	0,4	C
21	22	EGIS Gyógyszergyár Nyrt.	Pharmaceutical industry	Budapest	42,4	b	2 626	32	116,6	18	67,5	69,7	
22	28	Fővárosi Gázművek Zrt.*	Energy supply	Budapest	41,9	b	1 184	58	35,2	48	0	0	D
23	-	Continental cégcsoport* Flextronics International	Vehicle industry	Veszprém	40,1	b	4 202	22	114,4	21	165	79,5	A
24	39	Termelő és Szolgáltató Kft.	Elektronics	Zalaegerszeg, Sárvár, Nyíregyháza, Tab	40,1		7 825	12	43,2	42	389,9	98,6	A

25	18	BorsodChem Nyrt. Samsung Electronics Magyar	Chemical industry	Kazincbarcika	39,8	2847	29	73,5	27	162,4	74,2	
26	24	Zrt. INVITEL Távközlési	Elektronics Telecom-	Göd, Jászfényszaru, Szigetszentmiklós	39,4	2 444	35	76	25	584	89,8	A
27	44	Szolgáltató Zrt. ALCOA-KÖFÉM	munications	Pest megye	39,2	1 192	56	21,7	61	0	0	A
28	30	Székesfehérvári Könnyűfémmű Kft.*	Metal working	Székesfehérvár	38,5	4 652	19	151,8	10	194	89,6	B
29	25	E.ON Földgáz Storage Földgáztároló Zrt.	Energy supply	Budapest	35,3	176	93	71,3	29	0	0	A
30	29	MAVIR Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zrt.	Energy supply	National networks	34,9	592	78	225,3	9	0,1	0,1	F
31	37	UPC Magyarország Telekommunikációs Kft.	Telecom-	Budapest	34,6	854	68	57,3	32	1,3	2,1	A
32	33	Budapest Airport Zrt. Electrolux Lehel Hűtőgépgyár	Air carriage Machine	Budapest	32,9	1 479	48	78,1	24	0,1	0,2	C
33	32	Kft. AKA Alföld Koncessziós	working	Jászberény	31,6	4 348	20	45,2	41	160,8	74,1	A
34	35	Autópálya Zrt. Waberer's Holding	Public road treatment	Budapest	31,6	14	96	41,2	43	0	0	A
35	36	Zrt./Waberer's Cégcsoport*	shipping	Budapest	29,6	3 853	23	6,8	90	0	0	F
36	34	Videoton Holding Zrt.* Danubius Szálloda és	Electronic industry	Székesfehérvár	28,8	7 862	11	69	30	47	58,8	F
37	38	Gyógyüdülő Nyrt.* Denso Gyártó Magyarország	Other services Producing of	Budapest	27,1	5 338	16	52,9	35	0	0	F
38	31	Kft. Budapesti Közlekedési Zrt.	spare parts Carrying trade	Székesfehérvár Budapest	26,9	-	-	31,6	53	110,4	99,6	A
39	40	Fővárosi Csatornázási Művek Zrt.	Other services	Budapest	26,5	12 339	5	116,3	19	0	0	F
40	41	Délmagyarországi Áramszolgáltató Zrt.*	Energy supply	Szeged	23,6	1 524	46	55,1	34	10,8	6,5	A
41	48	Bunge Növényolajipari Zrt. Fővárosi Közterület-fenntartó	Food industry	Budapest	21,8	397	83	11,3	83	49,2	47,9	A
42	-	Zrt.	Other services	Budapest	21,6	2 877	28	38,6	45	0	0	F
43	49	Elcoteq Magyarország Kft. Dunapack Papír és	Electronic industry	Pécs	21,5	3 086	25	5,5	93	44,6	99,4	A
44	53	Zrt.* Lear Corporation Hungary	Paper making and printing industry	Budapest	21,3	2 038	42	31,2	54	16,1	20,9	A
45	47	Autóipari Gyártó Kft.	Producing of spare parts	Gödöllő, Gyöngyös	20,8	4 388	97	34,7	50	131,4	91,9	A
46	43	Construction Duna-Dráva Cement Kft. Észak-Magyarországi	industry	Vác	20,6	464	82	47	39	4,3	9,5	A
47	52	Áramszolgáltató Nyrt.*	Energy supply	Miskolc	19,7	257	90	47,6	38	0	0	A
48	54	MÁV-GÉPÉSZET	Other services	Budapest	18,9	4 298	21	10,8	85	0,8	2	F
49	-											

Vasúti jármű Fenntartó és Javító Zrt.												
50	83	Nitrogénművek Vegyipari Zrt.	Chemical industry	Pétfürdő	18,9	508	81	11,1	84	17,1	26,3	F
51	80	COLAS Hungária Építőipari Kft.*	Construction industry	Budapest	18,6	1 983	43	12,7	79	0,1	0,1	A
52	51	Coca-Cola Beverages /Magyarország/ Kft.	Food industry	Dunaharaszti	18,3	1 390	49	24,2	59	10,2	12	A
53	57	General Motors Powertrain-Magyarország Autóipari Kft.	Vehicle industry	Szentgotthárd	18,1	659	73	21,6	62	26,5	98,7	A
54	46	MICHELIN Hungária Abroncsgyártó Kft.	gumi-, és műanyagipar	Budapest	17,5	1 720	45	12,3	81	69,5	62,8	A
55	58	HENKEL Magyarország Termelési és Kereskedelmi Kft.	Chemical industry	Budapest	17,3	641	75	13,7	78	35,4	44,6	A
56	66	Budapesti Távhőszolgáltató Zrt.*	Energy supply	Budapest	17,2	833	69	36,8	47	0	0	F
57	67	ERICSSON Magyarország Kommunikációs Rendszerek Kft.	Telecommunications	Budapest	17,2	1 018	62	1,8	98	25,1	54	A
58	62	NESTLÉ Hungária Kft.	élelmiszeripar	Budapest, national networks Répcelak, Budapest, Dunaújváros,	16,6	1 341	50	3,9	96	47,6	55,4	A
59	63	Linde Gáz Magyarország Zrt.	Other services	Kazincbarcika, Miskolc	16,2	548	80	34,6	51	3,1	8,3	A
60	64	Fővárosi Vízművek Zrt.	Other services	Budapest	16,1	1 279	53	71,9	28	0	0	E
61	65	Magyarországi Siemens-csoport*	Electronic industry	Budapest	15,7	2 099	41	16,2	72	40	46,6	A
62	42	IBM Data Storage Systems	Electronic industry	Budapest, Székesfehérvár,	15,6	1 192	57	47,9	37	164,3	99,6	A
63	69	Információtechnológiai Kft.	Other services	Vác	15,6	353	85	15,2	76	0,6	1,8	A
64	50	Magyar RTL Televízió Zrt.	Producing of spare parts	Budapest	15,4	1 220	55	-	33	95	91	A
65	68	Luk Savaria Kuplunggyártó Kft.	Electronic industry	Szombathely	15	953	65	102,8	22	56,7	100	A
66	59	NI Hungary Kft. Dunamenti Erőmű zártkörűen működő Részvénytársaság	Energy supply	Százhalombatta	14,8	368	84	49,7	36	0,01	0	C
67	70	Metro Kereskedelmi Kft.	Wholesale trade (mixed)	Budapest, országos hálózat	14,6	2 934	26	-	13	2,3	1,1	A
68	72	PICK SZEGED Szalámigyár és Húsüzem Zrt.*	Food industry	Szeged	14,3	2 891	27	15,9	74	14,5	24,3	B
69	56	MÁV Cargo Áru fuvarozási Zrt.	Carrying trade	Budapest	14,2	3 252	24	26,2	57	17,6	20,3	B
70	89	HungaroControl Zrt.	Carrying trade	Budapest	14,2	642	74	20,6	64	19,9	99	F
71	73	AUCHAN Magyarország Kereskedelmi és Szolgáltató Kft.	Retail trade	Budapest	14,1	5 098	17	38	46	0	0	A
72	84	VISTEON Hungary Termelő és Értékesítő Kft.	Producing of spare parts	Székesfehérvár	13,9	1 319	51	28,2	55	81,6	99,2	A
73	74	Rába Járműipari Holding	Vehicle	Győr	13,8	2 582	33	11,5	82	37,1	63,3	F

74	79	Nyrt.* Holcim Hungária Cementipari Zrt. MTM-SBS Televízió Zrt. (TV2)	industry Construction industry	Budapest, Lábatlan, Hejőcsaba	13,6	615	76	17,3	69	0,1	0,3	B
75	76	AES Tisza Erőmű Kft.	Other services	Budapest	13,4	344	87	14,1	77	1,2	4,4	B
76	-		Energy supply	Tiszaújváros	13	187	92	19,8	65	0	0	A
77	61	Vegyépszer Zrt.	Construction industry	Budapest, Salgótarján, Tiszakécske	12,9	777	70	16,4	71	3	4,4	F
78	100	Grundfos Hungária Kft.	Machine working	Törökbálint	12,8	1 847	44	18	66	65,4	95,3	A
79	81	Csepeli Áramtermelő Kft.	Energy supply	Csepel	12,8	-	98	8,1	88	0	0	F
80	82	Jász-Plasztik Kft.*	Machine working	Jászberény, Eger, Pécs, Sülysáp, Nyíregyháza	12,5	2 634	31	34,8	49	4,6	7,6	F
81	92	Budapesti Erőmű Zártkörűen Működő Részvénytársaság	Energy supply	Budapest	12,5	350	86	27,7	56	0	0	B
82	95	Zollner Elektronik Gyártó és Szolgáltató Kft.	Elektronic industry	Vác, Szügy	11,9	2 388	37	24,3	58	8,8	17,1	A
83	71	Hungrana Keményítő- és Izocukor Gyártó és Forgalmazó Kft.	Food industry	Szabadegyháza	11,8	282	88	23,9	60	29,9	44,9	C
84	78	Wienerberger Téglaiipari Zrt.	Construction industry	Solymár, Órbottyán, Sopron stb.	11,6	705	72	9,1	87	9,4	33,4	A
85	77	General Motors Southeast Europe Autóforgalmazó Kft.	Vehicle industry	Budaörs	11,4	267	89	1,7	99	193,6	77,1	A
86	-	Magyar Aszfalt Keverégyártó és Építőipari Kft.	Construction industry	Budapest	11,3	1 523	47	2,3	97	0	0	A
87	55	Hídépítő Zrt.	Construction industry	Budapest	10,7	556	79	6	92	1,2	1,8	F
88	-	Knorr-Bremse Vasúti Jármű Rendszerek Hungária Kft.	Vehicle industry	Budapest	10,7	766	71	9,3	86	15,4	47,1	A
89	85	Állami Autópálya Kezelő Zrt.	Public road treatment	Budapest	10,6	1 023	61	46,9	40	0	0	F
90	-	Hungaropharma Gyógyszerkereskedelmi Zrt. Hammerstein	Pharmaceutica l industry, wholesale trade	Budapest	10,4	963	64	17,8	68	0,3	0,1	F
91	-	Autórészegységgyártó és Fejlesztő Bt.	Vehicle industry	Mór	10,3	1 018	63	-	100	57,5	100	A
92	97	Knorr-Bremse Fékrendszerek Kft.	Vehicle industry	Budapest	10,3	890	66	7,3	89	32,9	96	A
93	93	Penny Market Kereskedelmi Kft.	Retail trade	Alsónémedi	10,1	2 195	40	31,8	52	0	0	B
94	96	PHOENIX Pharma Gyógyszerkereskedelmi Zrt.	Pharmaceutica l industry	Zalaegerszeg, Győr, Fót, Kecskemét, Szeged, Polgár	10,1	607	77	15,2	75	0,7	0,3	A
95	-	ZF Hungária Ipari és Kereskedelmi Kft.	Vehicle industry	Budapest	10,1	882	67	15,9	73	47,7	98,1	A
96	-	GlaxoSmithKline Gyógyszer-	Pharmaceutica	Budapest	9,9	217	91	12,4	80	14,8	35,9	A

		és Egészségvédelmi Termékek Kft.	I industry								
97	-	T-Kábel Magyarország Kábeltelevíziós Szolgáltató Kft.	Telecommuni- cations	Budapest	9,4	176	94	5	95	0,1	0,5 F
98	-	Linamar Hungary Autóipari és Gépgyártó Nyrt.	Vehicle industry	Orosháza	9,3	17	95	17,9	67	25,8	82,7 C
99	45	Jabil Circuit Magyarország Szerződéses Gyártó Kft. BAYER Hungária	Elektronic industry	Tiszaújváros	9,3 b	2 653	30	21,3	63	109,4	96,6 A
100	-	Kereskedelmi és Szolgáltató Kft.	Pharmaceuti- cal industry	Budapest	9,3	-	-	5,1	94	2,6	7 A

Table 22 The geographical distribution of exports

Source: own construction based on ECOSTAT, 2009

Notes:

- 1.) The ranking of the enterprise companies are included (some one asked to leave the data).
- 2.) The list included hundreds of business relative ranking.
- 3.) The share of exports and foreign capital per track classification:

- A: 100,0 %
- B: 75,0-99,9 %
- C: 50,0-74,9 %
- D: 25,0-49,9 %
- E: 0,1-24,9 %
- F: 0%

* Consolidated figures

b: Estimated data. -: Did not contribute to the communication of information

Antalóczy and Sass 2005 study estimates that in 2002, the **correlation ratio was about 0.891** between annual export and the stock of foreign direct working capital investment per capita, also **the correlation ratio was about 0.863** between annual export and the stock of all working capital.

The export indicates a very strong **correlation** between annual export and the stock of foreign direct working capital investment per capita, and also strong **correlation** between annual export and the stock of all working capital. The data proves that where the FDI is higher, also sales and export are higher.

These data concerning the correlation values has confirmed my third hypothesis (H3), which declares that there is a strong positive relationship between the export and foreign direct investment. Then, I had also correlation analyses in 2007 in order to strengthen my hypothesis.

The 23 table gives overview about positive strong correlation between foreign direct working capital investment stock and export, of which value is **r = 0.870 in 2007**.

The 24 Table provides data, which present a very close relationship between export and the foreign direct working capital stock per capita, of which the value is **r = 0.926**.

In sum, I conclude that in 2007 the strengthening of the connection is reflected by data, comparably to 2002, which thanks to the propensity of firms for the higher export capacity.

It is important to note that the Hungarian economy has the development strategy to increase the export (market expansion, improving the product-structure, extending domestic knowledge content in products), which may be one of the most important crisis management for the positive solution of the crisis.

Table 23 Correlation between FDI stock and Export sales in 2007

Correlations			
		FDI stock	Export sales
FDI stock	Pearson Correlation	1	,870(**)
	Sig. (2-tailed)	,	,000
	N	20	20
Export sales	Pearson Correlation	,870(**)	1
	Sig. (2-tailed)	,000	,
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation with SPSS program, 2010

Table 24 Correlation between Export sales and FDI stock per capita in 2007

Correlations			
		Export sales	FDI per capita
Export sales	Pearson Correlation	1	,926(**)
	Sig. (2-tailed)	,	,000
	N	20	20
FDI per capita	Pearson Correlation	,926(**)	1
	Sig. (2-tailed)	,000	,
	N	20	20

** Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation with SPSS program, 2010

It is important to use fully all the development opportunities, which could help expand the volume of exports and the reduction of sectoral unbalanced rates. The production sectors should share more than before in EU funding and bank financing. But not in such a way, as actually, when the SMEs share only 3% of the developing sources. Also it is important that the higher education should follow the changes and needs of the world economy in order to keep with challenges.

4.3.4 Relationship between unemployment, employment and Foreign Direct Investment

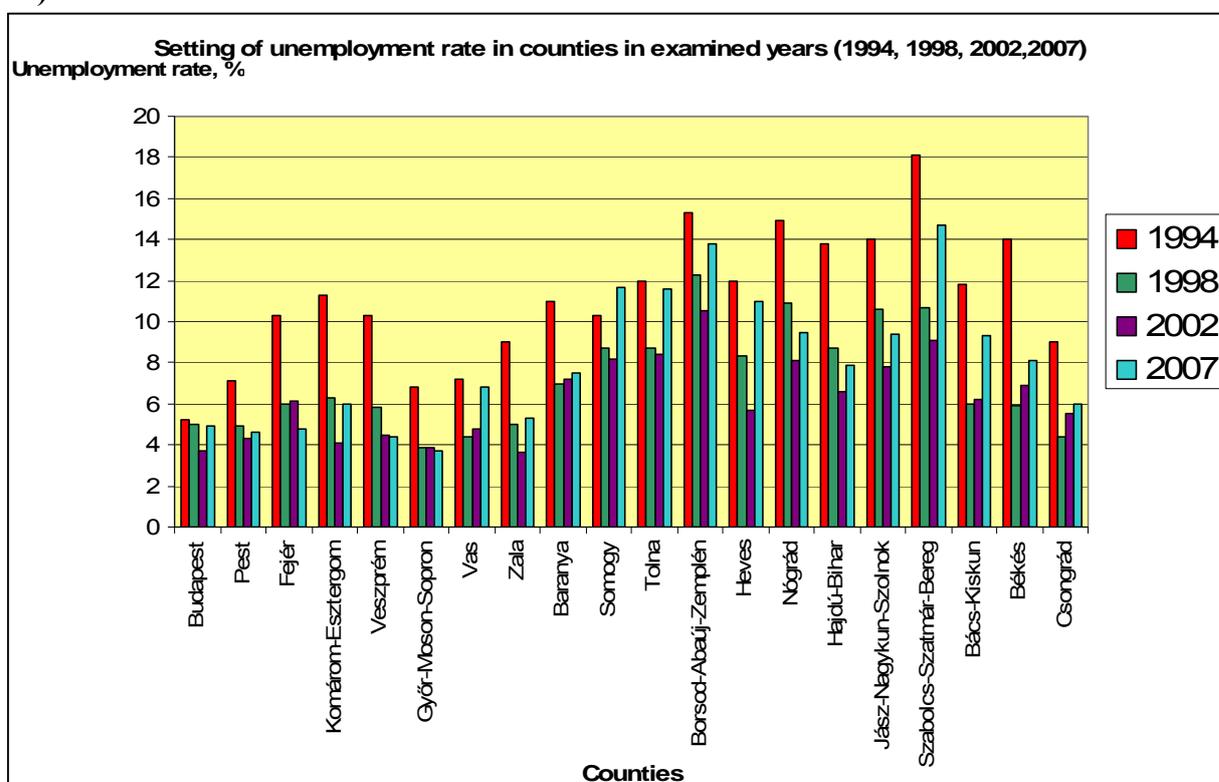
The unemployment rate has started to decline since 1997 in Hungary, where it was more than 10%. The all the regions were characterized by improving trends by the end of 1999, in spite that the rates and dynamics showed significant differences in each county and region, which can be seen in the 16th Figure. The most considerable improvement was in this period in the Central Transdanubia, where by 2002 the unemployment rate declined to 4.8% from 10.6% in 1994. Also significant decline occurred in the West Transdanubia and Southern Great Plain. In 2002, unemployment rate was only under 5% in two regions, namely West Transdanubia, Central Transdanubia, and also three counties, namely Veszprém, Győr-Moson-Sopron, and Vas based on the statistical data. In 2001-2002 this unified trend was broken in some regions and counties.

The unemployment rate increased in South-Transdanubia, North Hungary, South Great Plains and Central Transdanubia including Komárom-Esztergom County, where it increased, but it decreased in Veszprém and Fejér counties for 2007.

Unfortunately the unemployment rate increased over 10% in Borsod-Abaúj-Zemplén County. In 2002, the unemployment conditions separated into two main independent regions in all Hungary. Lower rate of unemployment than the national average one was in Central Hungary and West Transdanubia significantly lower, and also in Budapest and its surroundings, Central and Western Transdanubia concentrated. Higher rate of unemployment than the national average one was in the southern part of Transdanubia, the Great Plains and North Hungary. It can be mentioned that by 2007, this division into two parts concerning the unemployment has not changed; therefore the classification of two groups remained the same.

The next step was to examine, whether any contact could be shown between unemployment and the size of foreign direct working capital investment?

Figure 16 Setting of unemployment rate in counties in examined years (1994, 1998, 2002, 2007)



Source: own construction based on database of HCSO, in examined years

Table 25 Relation between unemployment rate and FDI stock per capita in the examined years

Name	1994	1998	2002	2007
Strength of correlation with Budapest	-0,564**	-0,395	-0,549*	-0,548*
Strength of correlation without Budapest	-0,581**	-0,491*	-0,555*	-0,623**

Notes: * Correlation is significant at 0.05 level

** Correlation is significant at 0.01 level

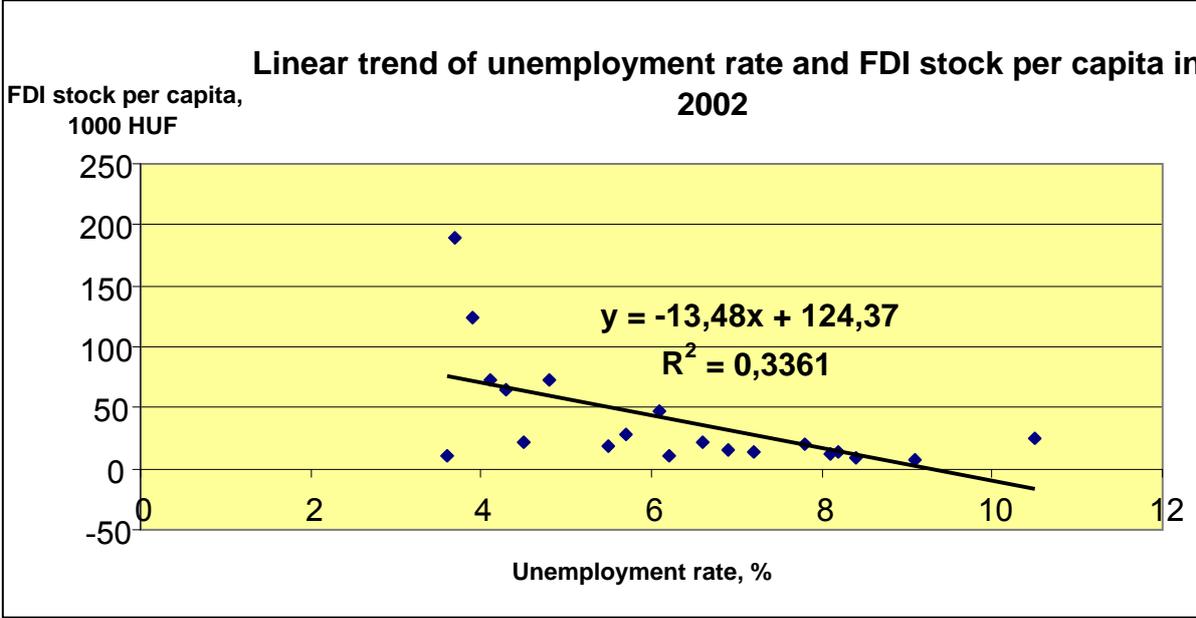
Source: Own calculations based on database of Hungarian Central Statistical Office (1994, 1998, 2002, 2007)

Table 25 shows the correlation between the unemployment rate by the county and foreign direct working capital stock per capita, which the correlation is based on my hypothesis expecting negative sign, which this last one was medium-strength either with Budapest or without one.

This means that counties have a higher foreign direct working capital investment, they have lower unemployment rate. According to results of my research, I conclude my hypothesis (H4) of transactions.

However, concerning the strong correlation, there was not any change in 2007 comparably to 1994. By the end of 1998 the correlation values were lower, probably at the end of the tested period rather the less new investment played significant role in job creation, than a capacity expansion.

Figure 17 Linear trend of unemployment rate and FDI stock per capita in 2002



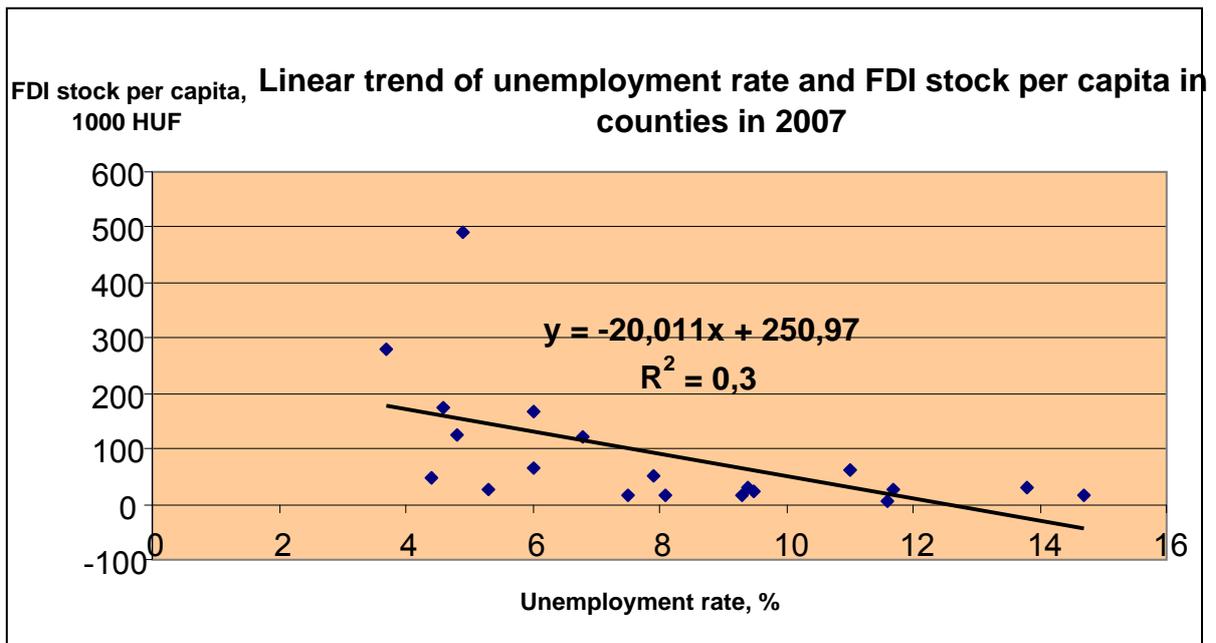
Source: Own calculation and construction, 2010, based on database of Hungarian Central Statistical Office (2002)

By the regression analysis I looked for the answer that how much the foreign direct working capital inflows affect to create the unemployment rate?

Figure 17 illustrates the separation is in Budapest in 2002. The R^2 value of 0.3361, which means that the regression line of the total deviation of 33% is able to explain; that the unemployment rate was changed by FDI per capita has played a role in 33%.

Figure 18 show that in 2007 the correlation weakened, but it was limited, with strength of 0.3.

Figure 18 Linear trends of unemployment rate and FDI stock per capita in counties in 2007



Source: Own calculation and construction, 2010 based on database of Hungarian Central Statistical Office, 2007

To what actually in employment, the employment rate is to answer, which was very simple, as an important for labour market index of one economy-wide.

In an economy, the low employment could sign serious structural problems, but also it can show that one country has mobilizing labour force reserves, which depends on reasons for low employment rate.

The reason of low employment rate can be due to the high unemployment rate, which can be resulted by many things, such as low labour skills, the poor economic structure, regulatory environment and inadequate infrastructure, high taxes, etc. due to foregone investment.

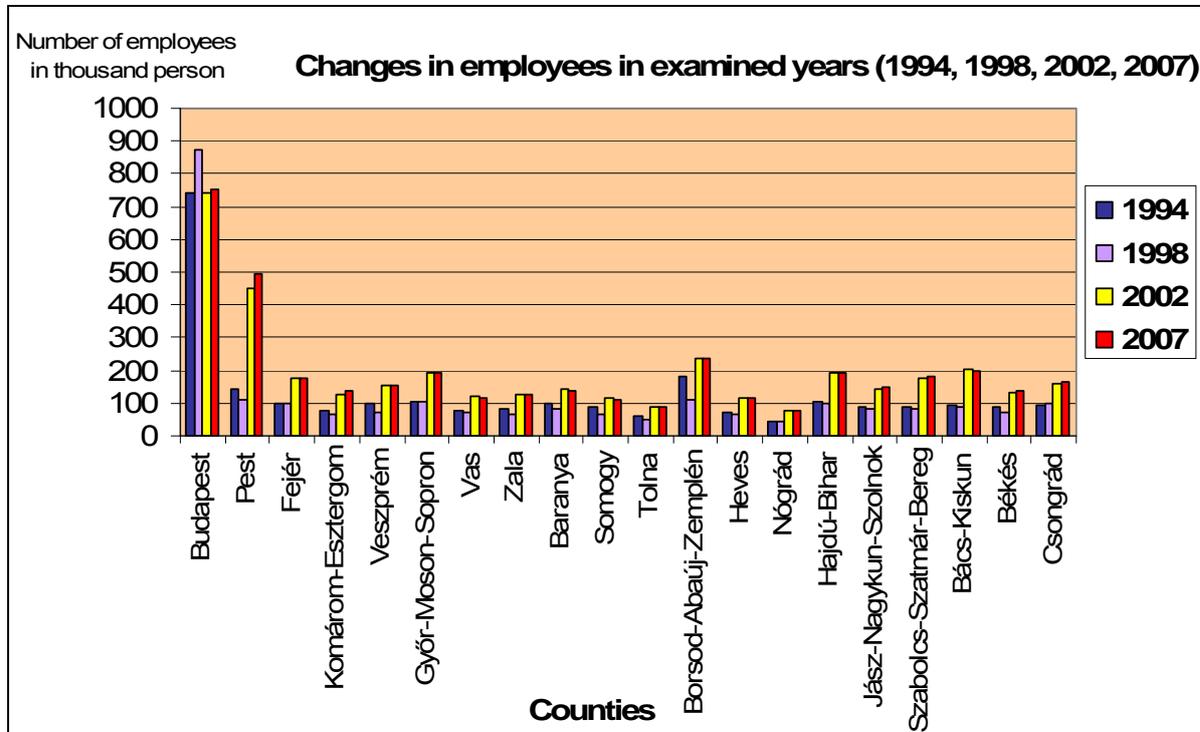
Reason of high unemployment rate can be the black economy, widespread tax evasion, the lowest level of labour income is too generous social benefit system (such as the relatively high level of social assistance, supports, or very good conditions for early retirement).

There is an interesting overview of employment trends between 1994 and 2007. 19 Figure proving that the employment declined in all counties, except to Budapest for 1998 comparably to 1994. The employment level again increased for 2002, which showed the same data comparably to data of 2007, but in many counties this increased over level of 1998.

But relationship was varies in each county between 1994 and 2007. The employment increased in most of the counties, even at national level between 1994.-2007. The most

Nógrád and Tolna Counties.

Figure 19 Changes in employees in examined years (1994, 1998, 2002, 2007)



Source: Own construction, 2010 based on database of Hungarian Central Statistical Office, 1994, 1998, 2002, 2007

Further examination aims at analysing whether there is any correlation between share of employees from the total population (such an activity rate) and foreign direct working capital stock per capita at the county level? The calculation results have appointed that there is a strong correlation indicator strengthening the relationship between the two characters in Budapest for time period of 1994-2002, shows a (Table 26).

By 2007, based on my opinion, but the strong relationship can be seen as a weakened, in consequence of working capital FDI flow redistribution into Budapest. The working capital inflow flowed into new destinations, other counties. These regions were characterized by more backwardness, so that the direct foreign working capital investment could play a more significant role in improving employment. This relationship has shown more growing value in rural areas for the last four years of testing.

Table 26 Relation between employment rate of the county's total population and FDI stock per capita in the examined years

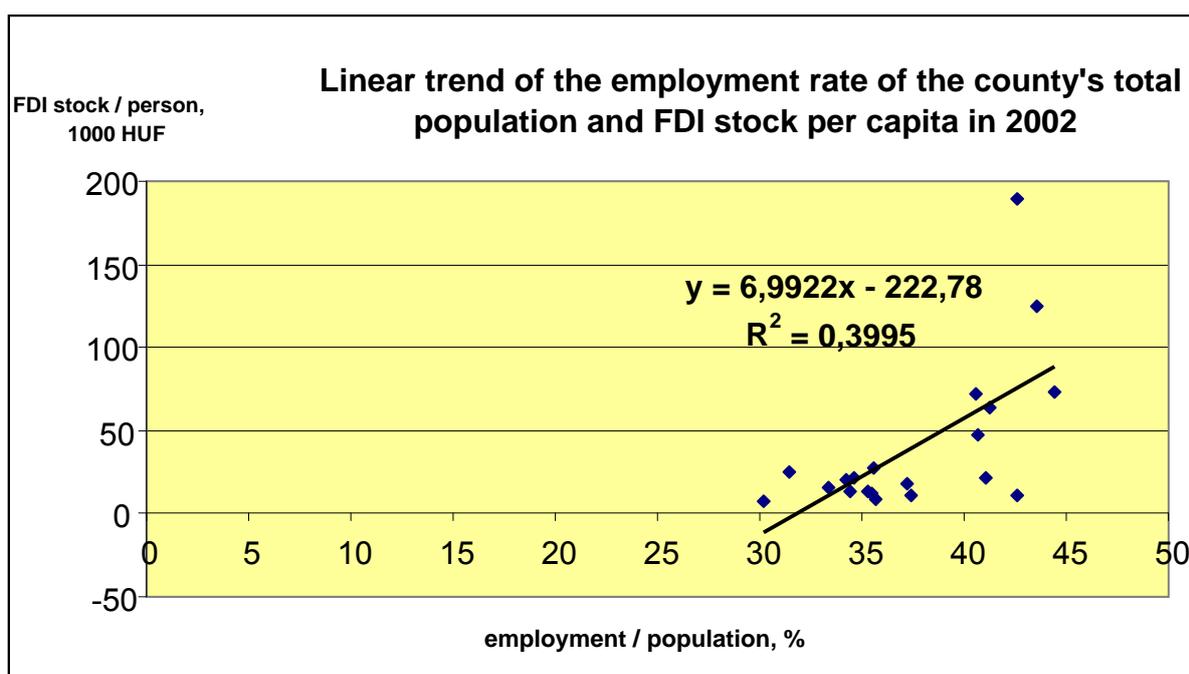
Name	1994	1998	2002	2007
Strength of correlation with Budapest	0,772**	0,882**	0,86**	0,669**
Strength of correlation without Budapest	0,32	0,446*	0,581**	0,701**

Notes: * Correlation is significant at 0.05 level

** Correlation is significant at 0.01 level

Source: Own calculations based on database of Hungarian Central Statistical Office (1994, 1998, 2002, 2007)

Figure 20 Linear trend of the employment rate of the county's total population and FDI stock per capita in 2002



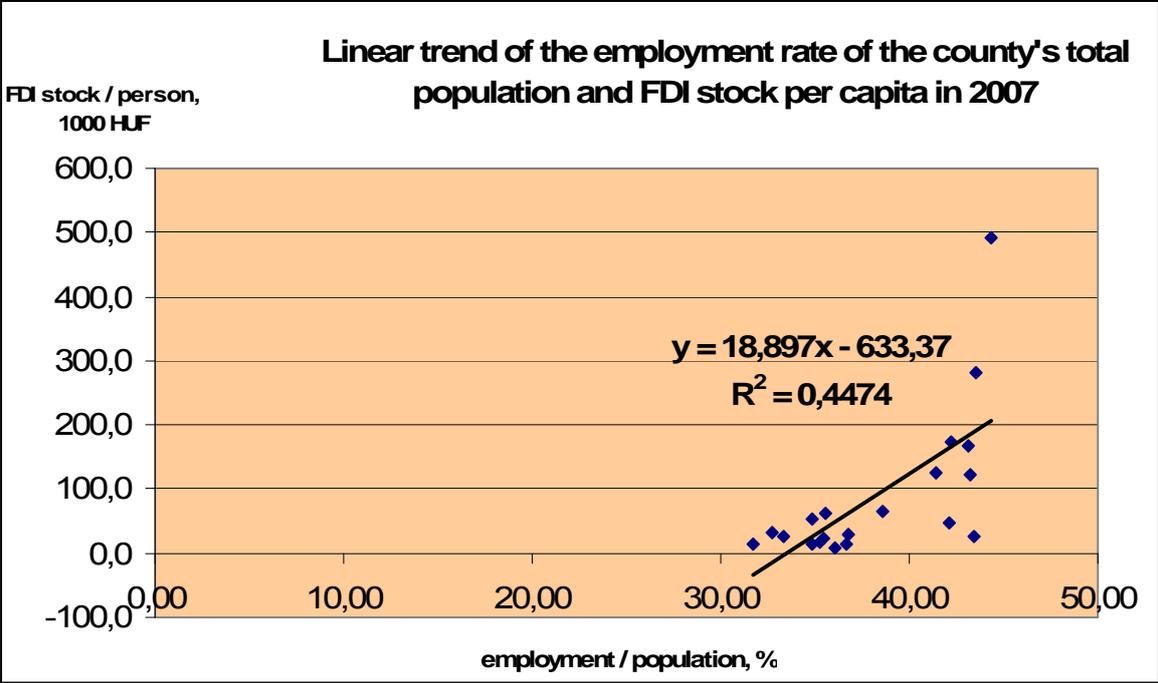
Source: Own calculation and construction, 2010 based on database of Hungarian Central Statistical Office, 2002

Also by the regression analysis, it was aim at determining that how much the foreign direct working capital (FDI) stock makes affect on change of the employment rate in whole population of a county. Figure 20 illustrates the significant changes of Budapest.

The R^2 value was 0.3995, which means that the regression line can explain nearly 40% of total deviation, which means that working capital per capita can change such a 40% of employment' change.

Figure 21 shows that in 2007 relationship strengthened, of which strengthens was 0.4474. The figure can suggest that the FDI inflow per capita stock can make influence for 45% of the changing employees within the whole population of each department.

Figure 21 Linear trend of the employment rate of the county's total population and FDI stock per capita in 2007



Source: Own calculation and construction, 2010. Based on database of Hungarian Central Statistical Office, 2007

5 CONCLUSIONS AND SUGGESTIONS

5.1 New scientific results

The Central Hungary region was characterized by a decrease, including the considerable decline in Budapest. By 2002, for the tested period under review was extremely low Nógrád County's share of investments, which in 2007 showed a further decline.

The investors generally collect information separating to *five adequate conditions* for investment incentives in any country, which are as follows:

- In most cases, competitiveness of human labour;
- adequate portion of cost-effectiveness;
- access to European markets;
- the domestic market size, diversity; and
- the extent of available state aid.

The region's productivity does not improve automatically, the result of market processes rather grow the regional differences that are necessary to reduce government intervention.

The undeveloped regions aimed at increasing the capital intensity, because some investments can improve productivity. Lower productivity level regions also can develop faster, so they can decrease the difference between their developed levels. By the other words the appropriate regional economic development in low-productivity regions can develop faster, thus reducing regional disparities.

Since the beginning of appearing foreign investment the foreign investments have not changed the geographical distribution of the indicators (Map 5). Budapest and its agglomeration, as the most attractive area are for foreign investors, where foreign capital is concentrated in the nearly two-thirds. The FDI investments used to be more active naturally in cities and their agglomeration, and the capital cities, especially if they also have major economies, they are main focuses for investors everywhere. In some Southern European countries, the concentration is even greater than in East-Central Europe (regions of Portugal from Lisbon to foreign investment 80, Madrid and Barcelona in Spain to 70%).

The regional structure of FDI, despite this has relative stability, also there is some movement. From the mid-1990s till 2004, Budapest, attractions are relatively decreased. This is basically related to the completion of privatization, and also this connected to the increasing average cost of investment. The agglomeration of Budapest metropolitan area, including but not attractive fading, just outside the borders of the administrative areas have also appreciated for the investors.

However, assuming it can be mentioned, Budapest (Table 20) that within the investments, the foreign direct investment has dominant role, by both of the investment and direct investment, substantially similarity of geographical distribution, as well as, a stronger correlation (0.87) is proved. This relationship is strong and positive. Note that the correlation is less than 1% significance can be accepted. This can be seen in the cell to read significance levels, which is less than 0.01.

The export indicates a very strong **correlation** between annual export and the stock of foreign direct working capital investment per capita, and also strong **correlation** between annual export and the stock of all working capital. The data proves that where the FDI is higher, also sales and export are higher.

The counties have a higher foreign direct working capital investment, they have lower unemployment rate. However, concerning the strong correlation, there was not any change in 2007 comparably to 1994. By the end of 1998 the correlation values were lower, probably at the end of the tested period rather the less new investment played significant role in job creation, than a capacity expansion.

The reason of low employment rate can be due to the high unemployment rate, which can be resulted by many things, such as low labour skills, the poor economic structure, regulatory environment and inadequate infrastructure, high taxes, etc. due to foregone investment.

Reason of high unemployment rate can be the black economy, widespread tax evasion, the lowest level of labour income is too generous social benefit system (such as the relatively high level of social assistance, supports, or very good conditions for early retirement).

5.2 Conclusions and proposals

The economic activities, some economic branches, the economic development from the end of the 19th century, everyday experiences, also based on the statistical analysis - show a strong regional concentration. The concentration was resulted between large economic areas, large countries including regions by union of regional disparities and the world economy, widespread deregulation and liberalization process, the acceleration in FDI flows continued to grow, not only in the major economic regions, countries and counties, but also within individual countries. International trends also have occurred in Hungary for the last decade and a half in the economic and regional development. The role of working capital investment in economic changes is appreciable.

In Hungary, foreign direct investments were heavily concentrated in either number of established companies or in number and value of the invested capital in Central Hungary - including Budapest - Central and West Transdanubia Regions. However, the role of Budapest does not have significant share as such 57% share of foreign investment, concerning such as Portuguese, Spanish similar data, more the Hungarian level, where foreign investments had 70-80% share of all investments by the international standards comparably case of Budapest was not considerable in the international comparison.

The geographical location of foreign direct investment had only less slightly changes, which I studied at the same time, the foreign location has hardly changed between 1994 and 2007. Examining the economic impact of foreign investment, it was found that strong statistical link can be demonstrated in the regional, county level FDI stocks and GDP growth, size and value per capita. The analysis GDP per capita clearly shows that in Hungary between 1994 and 2001 the regional differences were large and growing. But, by 2007 these differences seemed to decrease. The statistical analysis shows that – in spite that the causal relationship is difficult to determine - this appears that the direct investment are significantly higher in more developed areas and the relationship grew stronger between 1994 and 2007.

There is also a strong correlation between the county's economic growth and FDI stock per capita. This makes it likely that in Hungary for the past twenty years, the regional differences have played a significant role in the growth of direct investment.

There were also found strong statistical correlations between the investment, sales and industrial exports, unemployment and employment trends, as well as working capital for the regional and county levels.

Within the investments, the role of foreign direct investment was the most dominant; also the foreign investment was crucial for the impact on sales and industrial exports. The clear statistical correlations indicate that where higher investments in the stock, in that place the lower unemployment are, and foreign investment are likely to play a significant and increasing role in improving employment.

It is important to conclude that Budapest is the most economic indicators, and without a direct link between poorer than Budapest set up together, that is really of Budapest has a greater economic role based on the statistics. In many cases, the capital only is centre for foreign-owned company's headquarters, but the real economic actions are not here, but in rural areas going.

According to my analysis, the total foreign direct working capital investment contributed to the growth of regional differences that stronger economic growth was going on in selected regions, investments, sales and exports increased investment, while unemployment level reduced.

The aim of economic policy was on this basis at attracting foreign direct investments into counties, which were belonging to the less developed regions avoided, and to ensure that the already invested projects have to influences on economic growth of whole region. Also it is very important to get the EU regional aid successfully for the territorial closing up.

6 SUMMARY

Such open economic country, for example Hungary with lack of capital needs more inflow of continued FDI presence, which is essential to sustain economic growth. The foreign capital is a key element for entire national economy's integration into global systems of the world economy and for strengthening the economy of regions. Nevertheless, in recent years, the foreign working capital inflows into Hungary was contradiction resulted by the world economic crisis, for example less employment level, negative balance of national payment.

This was due to the world economy since the 1970s, the growing international capital flows have been considerably, but in 2001 this process decreased sharply. Also there was a decline in domestic absorption capacity following the world economic process. Because of this limited operating capital inflow abroad, there was increasing competition in our region and globally. Expanding the number of countries (e.g. China, India, Brasilia), which provided favourable conditions to attract foreign capital to inflow into these countries, and they became also strong competitors in Central and Eastern Europe.

However, within the East-Central European region the competition sharpens. Hungary lost an early privatization, foreign capital flows before the dismantling barriers coming from the initial advantage. The economic growth experienced last to recover and the country's accession to the European Union, however, gave impetus to the country for foreign investments.

In recent years I have overviewed the literature and personal opinion based on the image formed in my mind that Hungary's economy is highly geographically centralized. The course also has written a thesis I looked to the working capital investment in terms of whether there is centralization. During the analysis, the working capital inflows of the Central Hungary region, including the capital, is in fact highly preferred. However, on the other regions and counties also benefited from significant investments in working capital, on the other disadvantaged regions have received substantial state aid for social infrastructure development. All these factors may carry the possibility of the emergence of the backward regions.

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