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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 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 MATERIAL AND METHOD

2.1 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: $\mathbf{H = \Sigma R_i^2}$.

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 $r_1, r_2, \ldots, r_n$. 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 ri-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:

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

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.

2.2 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).

3 RESULTS AND DISCUSSION

3.1 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 2009, based on the financial and economic crisis, significantly less working capital, namely euro 3.9 billion inflowed into Hungary.

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.

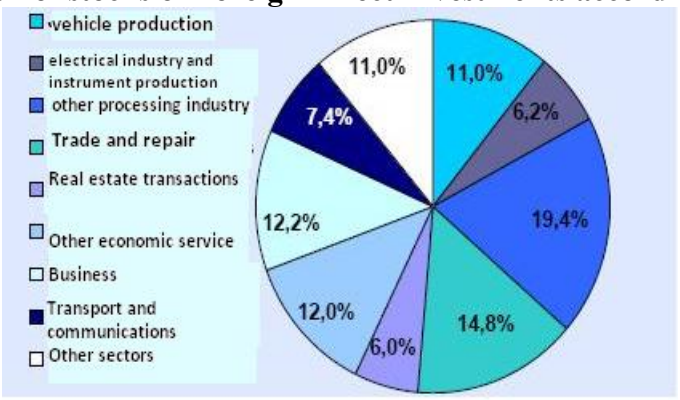
Since the beginning of 1990s, *foreign direct capital investment has had dominant role in successful market-based privatization transition and structure changes in Hungary*.
Foreign direct investment (FDI) has continuously inflowed into Hungary, into economic performance, *implemented investments in 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*.

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.

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.*

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.

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



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

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.

3.2 Positioning Results - Foreign Direct Investment, Regional trends

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 until the end of 2002.

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.

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.

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			***Nationwide average***	21.5
8.	**11**	Heves	8,37	**7.**	**10**	Heves	20.0
9.	**4**	Komárom-Esztergom	7,61	**8.**	**1**	Budapest	19.8
		Nationwide average	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 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.

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, Győr-Moson-Sopron, Vas, Budapest and Borsod-Abaúj-Zemplén, which were marked off in dark red on the map. The second group was the red-light coloured group created by the medium growth rate

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.

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**		**Per cent**	**C**	**D**		**Per cent**
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			***Nationwide average***	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
		Nationwide average	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

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 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.

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.

The 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.

3.2.1 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 wais 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.

Te 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.

3.2.2 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.

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.

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.

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 registrated in stock market.

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 significant growth of employment was in Pest County. The lowest employment was in Nógrád and Tolna Counties.

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).

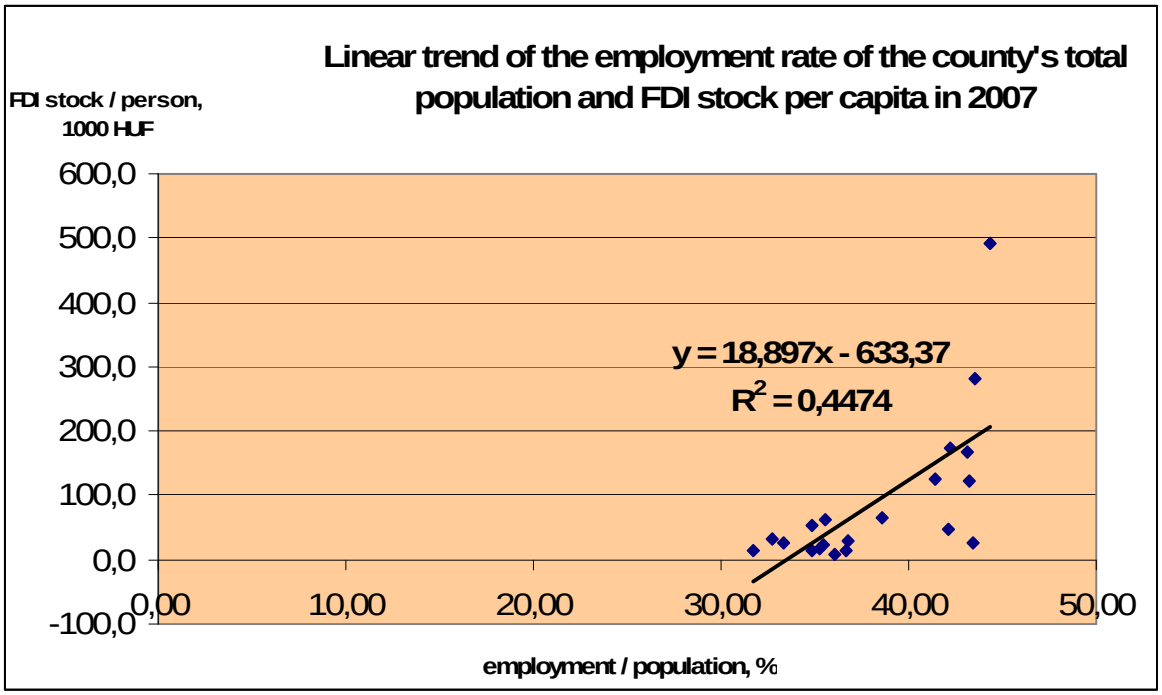
By 2007, based on my opinion, but the strong relationship can be seen as a weakened, in consequence of working capital FDI flow redistribution into Budapest. The working capital inflow flowed into new destinations, other counties. These regions were characterized by more backwardness, so that the direct 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.

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

4 NEW SCIENTIFIC RESULTS

Te 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 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.

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