Germany Sneezes, Hungary Catches a Flu – Is it True?

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Abstract:„When Germany sneezes, Europe catches a cold" – and this statement can often be heard. If Europe catches the cold it can be obvious that a small but still open to the world country being dependent on external demand, a country like Hungary inevitably gets pneumonia since the Hungarian economy is heavily dependent on German economy. The vast majority of economists agree that the global economic crisis of 2008 has finally ended by our time. Today it is an undeniable fact that the global crisis has left its traces on eastern and western economies for decades. The present study aims to assess the impact and the measures of difference of the impact caused by the crisis on the economies of developed and less developed nations such as Germany and Hungary analysing macro economic data using statistical methods.

Keywords: Hungary, Germany, GDP, GNI, GNDI,correlation

1 Introduction

The connection and the correlation of the Hungarian and German economies can be traced back for long. After the regime transition several German businesses were established in Hungary mostly due to cheap labour and the opportunity of low cost of ownership. In addition to that, cheap labour is relatively skilled and the proportion of skilled and educated unemployed people is very high (Lazányi, 2013, 2014; Tóth-Bordásné, 2011). The country's favourable tax environment also contributed to Hungary's turning to an attractive investment destination. After the end of the crisis a certain level of rise can be witnessed in some sectors of the economy, however the dynamics of this rise can not be regarded intensive yet, still, a positive long-term vision for the future can be experienced (Fodor – Medve, 2012). The situation has changed in a way since then as a significant

segment of the Hungarian enterprises function as a supplier of the German industry. On this basis it can be stated that the major part of the Hungarian exports is directed to Germany with the consequences of huge economic dependency for Hungary[1].

The comparison of these two economies can be conducted on the basis of several indicators. The limits of this current study, however, do not allow thorough comparisons of all these indicators taken one by one, so the method of the analysis is based on macro indicators, being the most important of all indicators. The Gross Domestic Product (GDP) is the most commonly examined indicator of the macro economy[2]. Decision and policy makers, politicians and economists consider the GDP as a miracle indicator, though its shortcomings have been known for years (Andor, 2000). The GDP has not always been such a central position indicator. 1991 was the first year when GNI was switched to GDP in general as prime measure of economy. According to Varga (2013) the economic growth is not an end in itself. It can contribute to materializing the most important goals of the individuals and the society. Economic growth is not only showing a value expressed by one index number (typically by GDP), but it might represent developmental goals too, because the welfare and well-being of the people cannot be determined only by the GDP either.

The GDP and its indicators derived from it are largely opposed by some economists as the GDP and indicators struggle with a number of shortcomings[3]. Nevertheless, the GDP has still its central role since the most important international and market decisions are linked to it. In their programmes the political formations focus their slogans on economic growth no matter this may have several limits: the amount of natural resources and also the consumers' low ability to pay the services (Bánfi, 2012). While the exceeded pursuit and greed for economic growth destroy the previous indicator and by doing that the chances for a possible future growth of the economy diminish, the latter indicator can be increased to a certain extent by using various methods.

The most popular and widely spread means of increasing consumption since the early 2000s has been credit expansion, the implementation of which has raised the detectable GDP value, but at the same time by our time it also can be blamed for the period of slower growth and also of a number of social problems.[4] The GDP is not only an indicator of the state of the economy but at the same time also

[1] The analysis of the changes of the economic conditions will have an impact on future investment decisions and thus indirectly on the GDP. (Szilágyi et al 2013; Szilágyi et al 2015).
[2] GDP can be also used for exploring and measuring economic poles of a country. (Szabó, 2014).
[3] It should be also noted, that the estimation of a certain region's GDP can be also as problematic, due to the lack of data (Koppány et al, 2014).
[4] The indebtedness of families and companies, pre-bankruptcy state of countries such as Greece or Spain and others, families losing their homes, social problems etc., although this is not an exhaustive list.

an indicator of welfare for economic and political decision makers. In centre–periphery analyses there is correlation and direct link between urbanisation level, per capita GDP measured in purchasing power parities, unemployment rate and capital investment (Borzán, 2005; 2015). GDP measured in purchasing power parities is often applied in international comparative researches in order to compare prosperity in the analysed countries (e.g. Kelemen-Erdős, 2011). Often, present political decisions made today offer promises for possible future benefits, development or growth in the GDP (Pintér, 2010). At first sight we might think that any country with high GDP is a land of plenty. This is most probably not the case and can be questioned both based on regulatory norms and also empirically. The GDP growth does not necessarily reflect the real trends and volume of development of the economy as the GDP values are increased by various factors that clearly destroy prosperity (Győri, 2012). These factors include wars and clashes, arms race, extensive exploitation of natural resources, post-war economic reconstruction of war-thorn countries and economies, and it can be continued with other examples. Gergely Tóth (2009) combines the correlation of the GDP growth and the ecological footprint in relation to the tragedy of the commons and demonstrates the highest limits of the previous one. Therefore in his bionomy model the author suggests the dual usage of the GDP and the ecological footprint since the latter one has its limits of sustainability, i. e. it makes a good reason for a tight correlation (Tóth G. 2013).

Gordon (2013) highlights three main problems related to GDP and ranks them as follows:

- GDP suggests local communities that they should favour money (dollar) above all, they should make money and pursue it,
- GDP figures in general mask the territorial disparities within a country,
- GDP figures gloss over all externalities that cannot be handled by the market.

Furthermore, Dabóczi (1998) points out straightforwardly the Ten Commandments of GDP:

- „ Thou shalt not adore and serve anything but market!
- Thou shalt not take the name of grey or black economy in vain!
- Remember cash flow and keep it holy!
- Thou shalt covet all from nature!
- Thou shalt not behold costs!
- Thou shalt not look after benefits of public goods!
- Thou shalt forget thy neighbours!

- Thou shalt covet the capital of thy foreign neighbour!
- Thou shalt not covet family!
- Thou shalt not covet quality or content criteria!"

The listing of these commandments may seem a bit eccentric for the science of economics but still, when it comes to this „miracle indicator", the listing summarizes all the problems that should have been solved years ago.

Measuring the sacrifices caused by the crisis, can be conducted by using the indicators of the SNA system, despite the system's numerous deficiencies. The destructive impact of the crises on welfare can only be estimated or measured by diverse representative and non-representative research studies. (Csiszárik-Kocsir, 2012a, 2012b) For measuring these changes and to eliminate the GDP deficiencies several alternative methods have been developed, such as that shown in figure. (Farkas – Szigeti 2011; Tóth 2007) The widespread use of these methods have unfortunately not yet been spread and what makes the situation more difficult is that there is a high correlation between most alternative indicators and those of the GDP. (Szigeti 2013; Szigeti 2015) Unfortunately the application of these methods have not been spread yet either, so there's nothing left for the research, as the Hungarian proverb goes, „ if there is no horse, a donkey will do as well ", what remains is the good old GDP and its indicators.

2 Material and method

The current study attempts to present a comparison of the current state of the Hungarian and German economies based on macroeconomic measures and indicators of the Gross Domestic Product (GDP) and the Gross National Disposable Income (GNDI) "If we suppose, that in the course of a research we have to reveal different connections in the course of queries, statements, then recognition and knowing the connections between the available data is very important." (Pató, 2014) In the course of the research the most recent data available provided by the Eurostat have been used. All conclusions have been drawn by the author using available data provided and by own calculations. The data of the state of the macro economy can be accessed from the database in many forms. Because of the above mentioned deficiencies of the GDP in the study per capita values in Euro are used.

3 Results

3.1 GDP, GNI and GNDI per capita in the two analysed countries

Recovering from the crisis has often been dealt with in economic literature, both during and also after the end of the crisis. Basically three scenarios have been outlined in the discourse and they are as follows:

- optimistic (V-shaped macro variables): based on the successful adjustment of the government, which will not only alleviate the effects of the crisis, but, at the same time, will carry out the reform of the big supply chains, creating the foundations of a long-term growth model which will be able to exceed the growth rate of the European Union by even a hundred percent.
- realistic (U-shaped macro variables): the government successfully manages the problems caused by the crisis and the budget, but does not change the problematic big supply systems, which does not alleviate the present dependency of the country on external factors, only provides momentary solutions.
- pessimistic (L-shaped macro variables): the government is unable to alleviate the effects of the crisis both momentarily and in the long run, with the consequence of state bankruptcy or a currency crisis.

The following figures show the value of the Hungarian and the German economy's gross domestic product, before and after the crisis. It can be seen that the Hungarian economy's figures prove the fears that were rightfully verified during the crisis that the country's economy is unable to operate the optimistic scenario. The pessimistic scenario had been narrowly averted but the optimistic version wasn't achieved completely, either. The Hungarian economy of the last year was not capable enough yet to reach its pre-crisis level. The Hungarian GDP reached its peak in 2008, ever since year 2000 (105.535,8 m€), while it hit its lowest level in the next year with a figure of 86,6% compared to the previous year (91.415,4 m€). Even the recent value of 2013 is a mere 93% of the 2008 level. On the contrary, recession hit Germany in 2009 with a 4% decrease (the Hungarian figure is 13,4%) and in the subsequent years Germany bounced back and the GDP of the country now exceeds the 2008 level.[5].

[5] The value of 2013 equals 110,7% of the value of 2008.

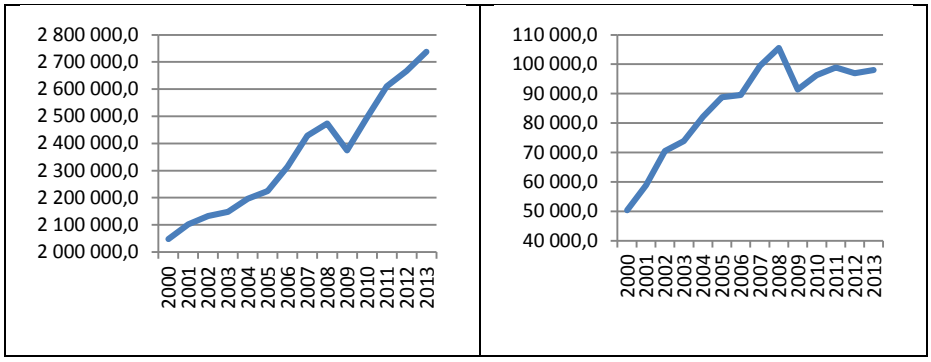

Figure 1.
The increase of the GDP of the German and Hungarian economies between 2000 and 2013 (data in million Euros)
Source: Own compilation, on the basis of Eurostat data, 2014

The following figure demonstrates the GDP per capita during the period considered. It is apparent that the values for the German GDP are far above the EU level while the Hungarian data are well below it. This difference is sharply visible relating all indicators. The German GDP through the period of 14 years examined has increased from 24.900 Euros per capita to 33.300 Euros per capita, by 34 %. On the contrary, the GDP of Hungary over the same period of time examined has just doubled, from the value of 4.900 Euros per capita to 9.900 Euros per capita. When the GDP figures of the two countries are compared to the EU average it can be seen that in year 2000 the GDP of Germany exceeded the EU average by 30% while the Hungarian GDP data is only 26% of the average. These data refer to enormous disparities in development of the two countries. The two economies were continuously approaching the EU average since 2000, while the German economy continuously worsened its position versus EU average the Hungarian economy was catching up to it.

Considering the data regarding Hungary, the country's best year of its GDP value was in 2008 (!), the same year of the pass-through of the crisis, when Hungary reached the 42% level of the EU average. In the period of decrease that followed, the Hungarian GDP levelled off at a value of 38-39% of the EU average. The German economy has continuously improved its value after the peak year of the crisis and its figures are again approaching the 2000 value of the EU average.

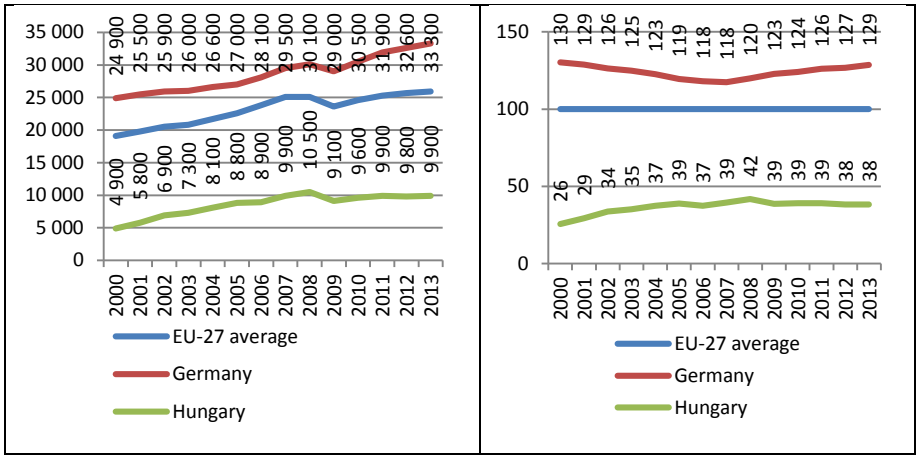

Figure 2.
GDP per capita (Euros/capita) and GDP per capita of the EU-27 average (%) in Germany and Hungary between 2000 and 2013
Source: Own compilation based on Eurostat data, 2014

Since the GDP capture only the value a country produces in terms of products and services for final consumption on its own territory and at the same time it also represents those values produced by non-Hungarian residents, respectively it does not contain the data of products and services produced or manufactured by Hungarian companies and citizens residing abroad.

Therefore, the GNI is a much better indicator as it corrects these errors. However, GNI would only be a slightly better indicator than GDP, yet all data are connected with the GDP. Even the GNI values show a very similar picture in the examined period of years to the values of the GDP. It is interesting to notice that in the case of Germany from 2004 onwards the GNI values exceed those of the GDP by 1-2%, that is to say, the incoming transfer revenues from abroad exceed the outgoing flow of revenues. This is due to the substantial number of German enterprises that carry out their business activities in foreign countries. If we take the value in relation to the EU average of the indicator, it can be seen that in the case of Germany we get a higher value than the value of the GDP calculated using similar methods.[6] In Hungary, contrary to this, the situation is reversal in these years examined, as the outgoing revenue flow exceeds the incoming transfer revenues conducted by Hungarian nationals and enterprises from abroad. Thus,

[6] In 2008 for example the GDP of Germany exceeded the EU average by 20% while the GNI measured 22%. Similarly to this, in 2013 the two data were 29% for the GDP and 39% for the GNI.

the Hungarian GNI shows an average 4-6% lower values, than the values of the per capita GDP ones. These data are demonstrated in the following table.

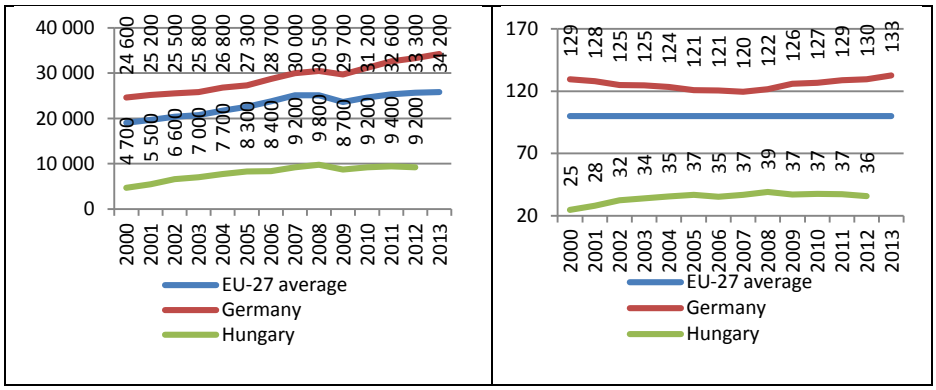

Figure 3
GNI per capita (Euro/capita) and GDP per capita of the EU-27 average (%) in Germany and in Hungary between 2000 and 2013
Source: Own compilation based on Eurostat data, 2014

The GNDI value gives a more accurate picture of the state of the national economy since the GNI value is corrected by transfer flows. When analysing GNDI values we can also notice the peak and low point fluctuations similar to the previous two observed values as they depend on each other. The GNDI of the German economy compared with the GNI shows an average 1% lower value and from 2004 onwards exceeds the GDP value, just like the one of the GNI. In Hungary the difference between GNI and GNDI remains minimal, in most cases dos not reach 1%, that is to say, transfer related cash flow remains non-significant.

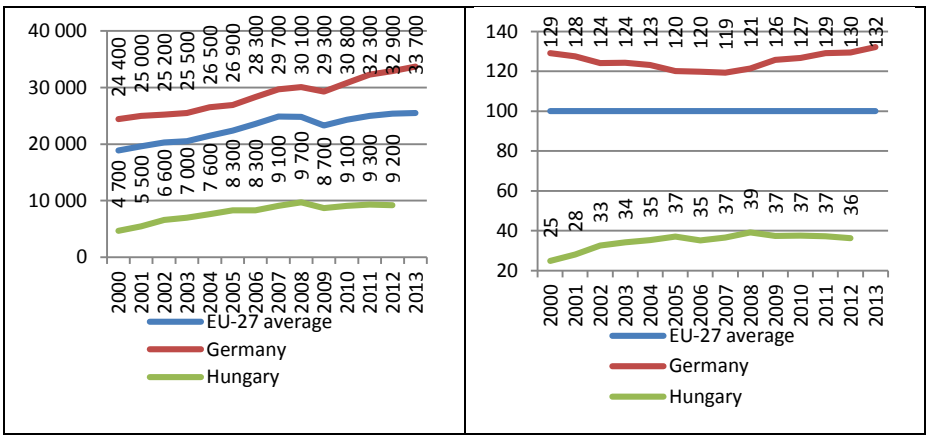

Figure 4
GNDI per capita (Euro/capita) and the GDP of the EU-27 average (%) in Germany and in Hungary between 2000 and 2013
Source: Own compilation based on Eurostat data, 2014

3.2 The rates of change of the examined indicators before and after the crisis

In the previous sub-section the values of the macro indicators per capita have been compared to the values of the EU average. In this current sub-section the rate of change is to be examined. The changes are examined from a perspective of year 2000 (when not a single sign of a possible future crisis could be foreseen) and from 2004 (when the signs of crisis could already be seen and also analysed in certain professional circles).

Examining the change of the values of the GDP from its base point taken in year 2000, it can be established that it was Hungary producing the highest rate of increase in the reference period. This is partly due to the fact that the values of Hungary were at a very low level compared to the EU and also to Germany. Despite the fact that the low GDP has doubled during this reference period, it can unfortunately still be considered low when compared with the EU average. This is also due to the enormous credit expansion in the Hungarian economy. After the end of this credit expansion Hungary suffered by far the largest downturn between 2008 and 2009 from 214% to 186%. In the light of the most recent GDP data, it is apparent that Hungary was unable to reach its pre-crisis GDP level yet, the country's value is still 12% below that value.

On the other hand, the GDP of Germany increased in the examined period below the EU average, however, the nominal value of this indicator is by far above the

average. This increase process was much smoother and steadier than that was in Hungary so the crisis did not cause such a dramatic fall (5% points) It is also a good indicator reflecting the healthiness of the German economy: after the crisis the GDP of the country is continuously increasing by 3 % points, contrary to the equivalent value for Hungary, which is well below 2%, in fits and starts (2012). When analysing the indicators from the base point of year 2005, it is noticeable that the increase of the Hungarian economy was not that intensive at all. The sudden rise of the Hungarian GDP was mainly due to the credits and loans and the increase has slightly receded afterwards leading to a similar overall situation to the German one. It is apparent and indisputable that that Hungary experienced a sudden rise right before the crisis but also suffered a major slowdown in 2009.

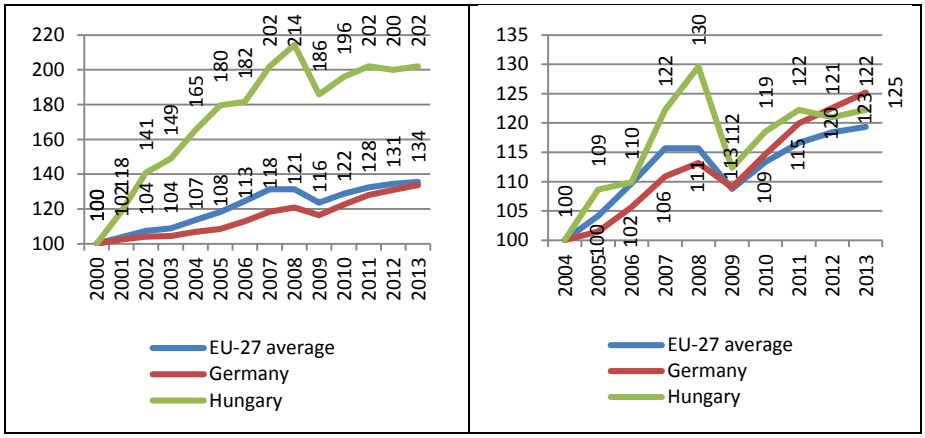

Figure 5
The change of GDP per capita regarding base of 2000 and 2004 (%)
Source: Own compilation based on Eurostat data, 2014

The change of the GNI values also show a diverse picture similar to the ones of the GDP. In the case provided for the growth from year 2000, Hungary definitely stands out of the comparison. The setback of 2009 is also significant and salient, however, this decrease is by no means as much as that of the GDP (29% points for the GDP versus just 23 % points for the GNI) As it can be concluded seeing from the base point of 2004, Germany robustly exceeds the EU average and obviously exceeds Hungary as well, at the same time the German values show a continuous and unceasing increase.

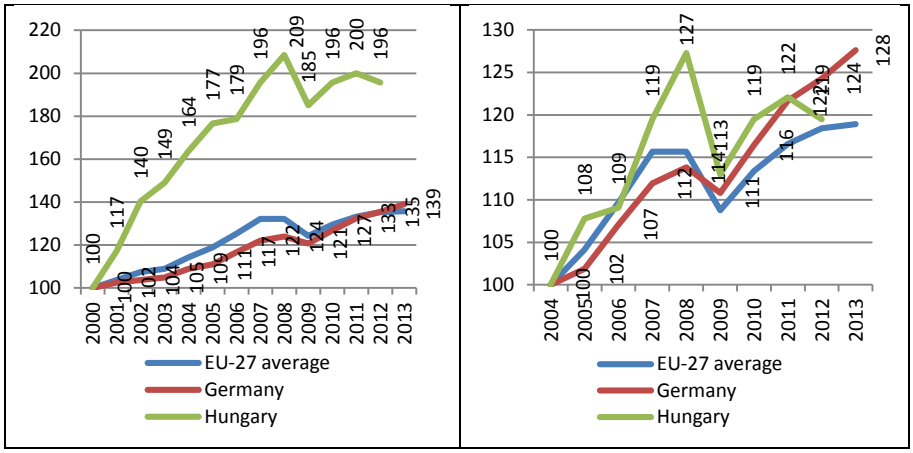

Figure 6
The change of GNI per capita regarding base of 2000 and 2004 (%)
Source: Own compilation based on Eurostat data, 2014

When examining the GNDI values from similar points of view, a very similar tendency can be observed with further decrease of differences. The curve showing the Hungarian data has been shallow when measured from the 2000 data and the curve's the lowest point is the years of 2008 and 2009 with a difference between the two values showing just 21% points. While in 2013 regarding the same benchmark the GDP of Germany performed below the EU average by 2% points (136% and 134%), the GNDI performance of the country remained similar (135% and 138%). The values calculated on data of 2004 show an even higher degree of co-movement. The development of the German economy is continuously unabated, while Hungary, after a slight decrease in its growth still thrives to keep the rates of its indicators above the EU average.

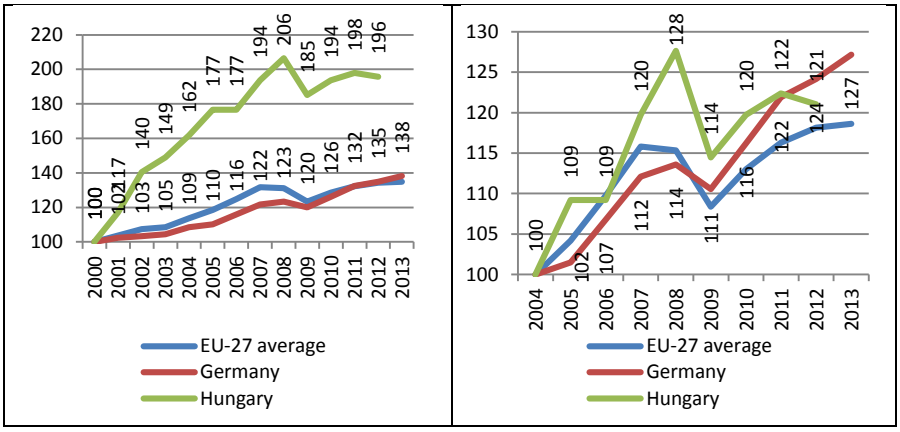

Figure 7
The change of GNDI per capita regarding the base of 2000 and 2004 (%)
Source: Own compilation based on Eurostat data, 2014

4 Conclusion

Based on the results of this brief analysis it is true to say that the economy of Hungary is in tight and strong co-movement with the German economy. Given the immense vulnerability of the Hungarian economy, the dependence of the economy even increases the threats and vulnerabilities. The data of the German economy demonstrate the evidence of the soundness of the German economy. Due to the smooth and continuous increase of the German economy over the past years, the setback caused by the crisis has just narrowly shocked the economy.

The values of it have slightly lowered but despite this relatively slight „brake", in a short period of time its values got back on a rapidly increasing trend. In the other hand, Hungary was unable to recover completely from the significant impact and setback on its economy caused by the crisis. Not a single indicator could ever since the crisis reach its pre-crisis value.

This is greatly due to the increase that was pumped by credits. After the end of the credit boom, as it turned out, no fuel had been left in the economy since the economy lived up both the fuel and even its fuel reserves. The German economy had plenty of resources in its four-component expenditure model equation[7] of

[7] Components by expenditure (GDP) = consumption + investment + government spending + net exports

macro economy. Germany successfully increased its internal consumption (end-of-life vehicle programs), investments (car industry) and the government had its finances and the country's economy was capable of exceeding its exports in comparison with the imports volume. On the other hand, in Hungary no resources were left or could be found for consumption, the country lived up the resources it had no access to (consumer credit start-up), the country was unable to invest for similar reasons and the government don not have capital for investment, either, due to the country's vast indebtedness.

The only solution is the foreign trade the way it always used to be (we can confirm that the situation is improving) but the foreign trade largely depends on the state of health of the German economy. For us, Hungarians, there is nothing else left than to keep our fingers crossed for the German economy, for the strengthening of its immune system in order to prevent the economy's catching a cold.

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