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# The Okun Misery Index in the European Union Countries from 2000 to 2009

## Abstract

*The aim of the article is to present alternative measures of the economic system's efficiency, taking into consideration, in particular, the values of the so called Okun misery index being the sum of inflation and unemployment rates.*

*The study is composed of four main parts and a summary. The first part, introduction, discusses various measures of the economic system's efficiency that are used in practice. Part two emphasises that the GDP per capita according to purchasing power parity still remains the most popular among those measures. Further, it presents the ranking of the European Union countries taking that measure into account, the research period being 1999-2009. Part three points out that it is also the level of poverty (misery) that determines the economic system's efficiency. That level can be measured by means of various indicators, among others, the so called HPI-2 index calculated by the UN. It will be the Okun misery index, however, computed as the sum of inflation and unemployment rates that will be presented as an alternative being of interest from the macroeconomic point of view. The ranking of the European Union member states according to that measure in the 2000-2004 and 2005-2009 periods will be provided in part four. The article will end in a summary containing synthetic conclusions drawn from earlier observations.*

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## 1. Introduction

Specialist literature offers numerous alternative criteria for the assessment of the economic system's efficiency. That efficiency may be influenced, among others, by the effectiveness of resource allocation, consumer satisfaction, distribution of income, technical progress, cultural and social development (Kosztowniak 2010, p. 70). Its good measure would undoubtedly be an indicator being a weighted average of each of those determinants. However, it would have a serious disadvantage as it would not allow for the precise quantification of some of the above-mentioned categories.

In consequence, the GDP per capita according to purchasing power parity still remains a frequently used measure of the economic system's efficiency although it is beyond all doubt that it suffers from numerous drawbacks. Firstly, it is a mere averaged value that does not reflect actual distribution within the society, and thus offers no information about disproportions of income distribution. Secondly, the GDP can only be measured as a category of economic growth. Hence, it provides no data on qualitative changes in the economy reflected by the category of economic development. Thirdly, the value of the GDP per capita is overestimated as it takes into account consumption of harmful goods such as tobacco products, alcohol, and drugs. The higher the legal consumption of those goods is, the higher the GDP occurs. Fourthly and finally, the current GDP is not a good measure of future growth perspectives if its structure is unknown. Considering long-term economic growth, the higher the share of investment and human capital expenditures in the GDP occurs, the better the situation becomes (Acocella 2002, p. 196-197).

Along with the above-mentioned drawbacks brought to notice by Acocella, there are also others that ought to be mentioned because even precisely computed GDP or GNP values do not answer a question about social costs borne in order to achieve those values. It may turn out that upward trends in the measures result from environmental pollution or increased numbers of working hours, which considerably reduces citizens' comfort of living. Moreover, those measures do not, in principle, take into account any activities carried out outside the market such as work performed on one's own and to satisfy one's own needs (Mankiw & Taylor 2009, p. 44-46).

It is also worth emphasising that the GDP and GNP are usually calculated for a particular year or quarter. Hence, they are the so called streams. Therefore, production as well as income may reach relatively high values in a given period but that does not have to be so for earlier accumulated assets that constitute a resource. In such a case the level of economic well-being of a particular country may be lower than in another despite the fact that its GDP or GNP have higher values.

Those deficiencies of the GDP per capita as a measure of the economic system's efficiency are partly overcome by computing the so called Social Development Index (or the HDI – Human Development Index). It was introduced by the UN and based on three principal elements of human life: longevity, level of knowledge, and standard of living (Acocella 2002, p. 196). Thus, along with the national product per capita, it also takes into consideration life expectancy, educational attainment (a mean of years of schooling for adults aged 25 years and older, and expected years of schooling for children of school going age), and living standard[1] (Tanzi 2006, p. 9).

Such a structure of the HDI prevents it from reflecting the reality in a precise manner due to the fact that it includes, along with actual values, also estimated and expected ones. Moreover, it does not eliminate all the above-mentioned drawbacks of the GDP per capita. Thus, yet another option may be the so called Measure of Economic Welfare (MEW). It was created by Nordhaus and Tobin in the 1960s. They added estimated values of production in the grey area of the economy, as well as those equivalent to the value of free time, public infrastructure (parks, roads), and consumer durables (furniture, jewellery), to the traditionally computed national product reduced by depreciation. They recommended that estimated values of environmental pollution, national defence expenditures, and costs of commuting to work be subtracted from the value calculated in that way (Kwiatkowski 2000, p. 347).

## 2. Ranking of the EU-27 Countries According to the GDP per Capita in the 1999-2009 Period

Due to considerable time and cost necessary to calculate the MEW indicator, it has not become a global measure commonly used in economic analyses to make international comparisons. Therefore, the simplicity of the GDP per capita according to purchasing power parity is, in that context, its huge advantage offsetting serious drawbacks of that measure. Thanks to that it remains one that is most popular and most commonly used for comparison purposes. Table 1 presents the ranking of the European Union countries (EU-27) according to that measure in 1999, 2004, and 2009. The presentation of data for those three years, each time at a five-year interval, allows to observe changes occurring in the last decade.

[1] According to UN calculations, in 2010 Norway was the leader of the ranking of countries arranged according to their HDIs, followed closely by Australia and New Zealand. Further positions in the first tenth were occupied by: the United States, Ireland, Liechtenstein, the Netherlands, Canada, Sweden, and Germany. Poland ranked 41st in that classification. The last, 169th position was held by Zimbabwe (*Human Development Report 2010*, p. 145-146).

**Table 1. Gross Domestic Product at Purchasing Power Parity per Capita in the European Union Countries**

| Year | 1999 | | 2004 | | | 2009 | | |
|---|---|---|---|---|---|---|---|---|
| **Place** | **Country** | **GDP[a] (EU-27= 100)** | **Place** | **Country** | **GDP[a] (EU-27= 100)** | **Place** | **Country** | **GDP[a] (EU-27= 100)** |
| 1 | Luxembourg | 237 | 1 | Luxembourg | 253 | 1 | Luxembourg | 267 |
| 2 | Denmark | 131 | 2 | Ireland | 142 | 2 | Ireland | 131 |
| | Netherlands | 131 | 3 | Netherlands | 129 | 3 | Netherlands | 130 |
| | Austria | 131 | 4 | Austria | 127 | 4 | Austria | 122 |
| 5 | Ireland | 126 | 5 | Denmark | 126 | 5 | Sweden | 120 |
| | Sweden | 126 | | Sweden | 126 | 6 | Denmark | 117 |
| 7 | Belgium | 123 | 7 | U. Kingdom | 124 | 7 | Belgium | 116 |
| 8 | Germany | 122 | 8 | Belgium | 121 | | Germany | 116 |
| 9 | U. Kingdom | 118 | 9 | Germany | 116 | | U. Kingdom | 116 |
| 10 | Italy | 117 | | Finland | 116 | 10 | Finland | 111 |
| 11 | France | 115 | 11 | France | 110 | 11 | France | 107 |
| | Finland | 115 | 12 | Italy | 107 | 12 | Spain | 104 |
| 13 | Spain | 96 | 13 | Spain | 101 | 13 | Italy | 102 |
| 14 | Cyprus | 87 | 14 | Greece | 94 | 14 | Cyprus | 98 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 15 | Greece | 83 | 15 | Cyprus | 90 | 15 | Greece | 95 |
| 16 | Malta | 81 | 16 | Slovenia | 86 | 16 | Slovenia[c] | 86 |
| | Portugal | 81 | 17 | Malta | 77 | 17 | Czech Rep. | 80 |
| | Slovenia | 81 | | Portugal | 77 | 18 | Malta | 78 |
| 19 | Czech Rep. | 69 | 19 | Czech Rep. | 75 | | Portugal | 78 |
| 20 | Hungary | 55 | 20 | Hungary | 63 | 20 | Slovakia | 72 |
| 21 | Slovakia | 50 | 21 | Estonia | 57 | 21 | Hungary | 63 |
| 22 | Poland | 49 | | Slovakia | 57 | 22 | Estonia | 62 |
| 23 | Estonia | 42 | 23 | Poland | 51 | 23 | Poland | 61 |
| 24 | Lithuania | 39 | 24 | Lithuania | 50 | 24 | Lithuania | 53 |
| 25 | Latvia | 36 | 25 | Latvia | 46 | 25 | Latvia | 49 |
| 26 | Bulgaria | 27 | 26 | Bulgaria | 34 | 26 | Romania[b] | 42 |
| 27 | Romania | 26 | | Romania | 34 | 27 | Bulgaria[c] | 41 |

[a] Gross Domestic Product at Purchasing Power Parity per Capita

[b] In 2007

[c] In 2008

Source: Author's own work based on: http://epp.eurostat.ec.europa.eu

The table indicates that Luxembourg was the undisputed number one of the ranking in all the three analysed years. Throughout the decade in question EU leaders included also Ireland, the Netherlands, Austria, Sweden, and Denmark, although, in the case of the last of the listed countries, a dwindling position in the ranking can be clearly observed (the fall from the 1999 second position to the sixth one in 2009).

Another group of countries is composed of those having a slightly lower GDP per capita which, however, is still higher than that computed for the whole area. That group, both at the beginning and at the end of the examined period, was led by Belgium closely followed by: Germany, the United Kingdom, Finland, France, and, despite a definitely downward trend, Italy. In 2004 that group was joined by Spain.

**Table 2. Real GDP Growth Rate in the European Union Countries**

| **Real GDP Growth Rate[a]** | | | | | |
|---|---|---|---|---|---|
| **Place** | **Country** | **Period 2000-2004** | **Place** | **Country** | **Period 2005- 2009** |
| 1 | Estonia | 8,0 | 1 | Slovakia | 5,5 |
| 2 | Latvia | 7,5 | 2 | Poland | 4,7 |
| 3 | Lithuania | 6,9 | 3 | Bulgaria | 3,9 |
| 4 | Ireland | 6,1 | 4 | Romania | 3,7 |
| 5 | Romania | 5,4 | 5 | Czech Republic | 3,5 |
| 6 | Bulgaria | 5,1 | 6 | Cyprus | 3,0 |
| 7 | Greece | 4,5 | 7 | Lithuania | 2,7 |
| | Hungary | 4,5 | | Luxembourg | 2,7 |
| 9 | Luxembourg | 4,2 | 9 | Slovenia | 2,6 |
| 10 | Slovakia | 4,1 | 10 | Malta | 2,3 |
| 11 | Slovenia | 3,7 | 11 | Greece | 2,2 |
| 12 | Spain | 3,5 | 12 | Latvia | 2,1 |
| 13 | Cyprus | 3,4 | 13 | Estonia | 1,8 |
| 14 | Czech Republic | 3,2 | 14 | Spain | 1,7 |
| | Poland | 3,2 | 15 | Austria | 1,6 |
| 16 | Finland | 3,1 | 16 | Ireland | 1,5 |
| 17 | Sweden | 3,0 | 17 | Netherlands | 1,5 |
| 18 | United Kingdom | 2,9 | 18 | Belgium | 1,1 |

| | | | | | |
|---|---|---|---|---|---|
| 19 | France | 2,1 | | Finland | 1,1 |
| 20 | Belgium | 2,0 | | Sweden | 1,1 |
| 21 | Austria | 1,8 | 21 | France | 0,8 |
| 22 | Netherlands | 1,7 | 22 | Germany | 0,6 |
| 23 | Italy | 1,5 | | Hungary | 0,6 |
| | Denmark | 1,5 | 24 | United Kingdom | 0,5 |
| | Portugal | 1,5 | 25 | Portugal | 0,4 |
| 26 | Germany | 1,1 | 26 | Denmark | 0,3 |
| 27 | Malta | 0,4[b] | 27 | Italy | - 0,4 |
| EU-27 | | 2,2 | EU-27 | | 0,9 |

[a] Average Annual Real GDP Growth Rate (constant prices)

[b] Average Annual Real GDP Growth Rate (constant prices) in 2001-2004

Source: Author's own work based on: http://epp.eurostat.ec.europa.eu

The GDP in Greece and Portugal, i.e. the last two member states of the old EU (EU-15), was a little below 100% of the product per capita in the whole EU-27. The latter was outstripped by some of the new EU members that joined the EU in 2004, namely by Cyprus and Malta (from 1999 on) and, later, also by Slovenia (from 2004 on) and the Czech Republic (from 2009 on).

Yet another group of countries includes those that, in the last examined year, achieved a product per capita below ¾ but above ½ of the value computed for the whole area. That concerns such countries as: Slovakia, Hungary, Estonia, Poland, and Lithuania. Even a half of the value of the GDP per capita for the whole area was not achieved by only three countries: Latvia and the newest member states, i.e. Romania and Bulgaria.

The analysis of the rankings for the three selected years allows to state that there were rarely significant differences in the positions of particular countries despite the fact that the research period was the entire past decade. However, it is worth noticing that disproportions among particular countries were definitely decreasing, which was actually not the case only for Luxembourg increasingly outdistancing the other countries. The trend is proved, for instance, by the fact that between 1999 and 2009 Poland fell from the 22nd to the 23rd position although, over that period, the value of its GDP per capita increased from a little below a half to more than 60% of the value calculated for the EU-27. Similar trends occurred for the other catching-up countries considered to include all those that joined the EU in the 21st century. The decreasing disproportions must have certainly been connected with more rapid

economic development in those countries as compared with developed ones. That can be observed by, among others, the analysis of table 2. The table indicates that in the first half of the past decade the Baltic States (Estonia, Latvia, and Lithuania) experienced the most rapid development, followed by Ireland, Romania, and Bulgaria, while in the latter half of that period the fastest growth took place in Slovakia, Poland, the Czech Republic, and, again, in the least developed countries – Bulgaria and Romania.

## 3. The Okun Misery Index as an Alternative Measure of the Economic System's Efficiency

The level of poverty (misery) is undoubtedly one of the factors of crucial importance for the assessment of the economic system's efficiency. If poverty strikes a significant part of the society, that definitely proves that the system lacks in efficiency. In practice, however, it is quite difficult to define a precise measure of poverty. One of the most popular among such measures is the Human Poverty Index – HPI-2 developed by the UN. That index characterises the level of the intellectual and economic development of the society. It includes such disaggregates as: the probability at birth of not surviving to the age of 60, the percentage of adults lacking functional literacy skills, the percentage of people living below the poverty line, and the rate of long term unemployment (*Human Development Report 2007-2008*, p. 355)[1]. It is beyond all doubt that each of the above-mentioned factors plays a vital role in the assessment of the economic system's efficiency. However, similarly to the MEW and HDI, their serious drawback is that they cannot be precisely quantified.

In that context, especially from the typically macroeconomic point of view, an interesting alternative seems to be the so called Okun misery index. It is computed as the sum of unemployment and inflation rates.

Unemployment and inflation should be considered to be among the most undesirable phenomena in every economy. It is beyond all doubt that the higher the unemployment and inflation are, the worse the economic situation of an average citizen becomes. In the case of high unemployment it is not only more difficult to find a job but one should also expect lower average remuneration. High inflation entails a decrease in the purchasing power of received nominal

[1] According to UN calculations, in 2008 Sweden was the leader of the ranking of 19 selected OECD countries arranged according to their HPIs, followed closely by Norway and the Netherlands. Further positions in the first tenth were occupied by: Finland, Denmark, Germany, Switzerland, Canada, Luxembourg, and Austria (*Human Development Report 2007-2008*, p. 242).

income. Therefore, it is believed that both a higher unemployment rate and a higher rate of inflation constitute an economic and social cost. Hence, in that sense, the sum of unemployment and inflation rates may also constitute a kind of a poverty index. Such an approach was proposed for the first time by Arthur Okun and thus that indicator is sometimes also called the Okun index.

At this point it ought to be emphasised that it is extremely difficult to simultaneously combat both inflation and unemployment. However, it is not out of the question on the assumption that the state's macroeconomic policy stimulates supply. Such steps taken by the state would, ceteris paribus, contribute to an increase in domestic production which is conducive to a fall in unemployment as well as, in consequence of increased competition in the market, to a drop in prices. However, the state's actions that consist in increasing the total supply are not possible in the short term when monetary and fiscal policy instruments may, in principle, serve only to affect the total demand. Still, in that case, one should be aware that it is not possible to simultaneously pursue two opposite goals because an increase in the total demand will cause an, at least temporary, increase in production and fall in unemployment (assuming that there are unused capacities in the economy) but, at the same time, also a rise in inflation. On the other hand, a reduction in the aggregate demand will contribute to a drop in inflation but at the expense of a temporary increase in unemployment.

In the theory of economics such a relationship is called the Phillips curve. Its shape indicates that such a combination of unemployment and inflation is available which, from the social and economic point of view, will mean the lowest sum of costs associated with those phenomena (Niskanen 2002, p. 193). However, the choice of an optimum combination must always be painful: lower unemployment at the cost of higher inflation or lower inflation at the expense of higher unemployment. Thus, to a large extent, the choice depends on priorities decided on by the state.

Irrespective of those priorities, both a higher unemployment rate and a higher rate of inflation can be treated as an economic and social cost necessary to be borne by the country and its citizens. The larger the number of people without jobs and the higher the rate of an increase in the general level of prices are, the higher the cost to be paid. The co-occurrence of high unemployment and

high inflation is termed stagflation in economics[2]. Thus, the sum of rates of intensity of those adverse phenomena may be regarded as a kind of a stagflation rate. Alternatively, as proposed by Acocella, that measure may be called the macroeconomic misery index (Acocella 2002, p. 217) or, as suggested by Lovell and Pao-Lin, the economic discomfort index (Lovell & Pao-Lin, 2000, p. 1).

On one hand, the simplicity of that index as a measure of the poverty scale is certainly its advantage. On the other hand, however, it may rather be seen as its drawback. Therefore, the poverty index constructed in such a way comes in for criticism mainly due to the very fact of excessive generalisation that may, unjustifiably, be conducive to the sense of social discomfort where there are no grounds for that. That is the case because, when taking only inflation and unemployment rates into account, merely a simplified utility function can be determined. Therefore, it is often suggested that it would be reasonable if that measure also included, among others, the rate of economic growth and an index of a situation in the stock exchange. Moreover, the Okun index was based on a controversial assumption that indifference curves for an average citizen indicating aversion to inflation and unemployment, are straight lines with a slope of -1, which means a constant marginal rate of substitution equal to 1 (Lovell & Pao-Lin 2000, p. 2). Hence, it was presumed that a rise in unemployment by 1 percentage point is always as disadvantageous as an increase in inflation by 1 percentage point – irrespective of the economy's initial situation. Still, it is difficult to agree with that assumption as it seems that the relationship describing willingness to accept a rise in one variable in exchange for a fall in the other without a change in the sense of discomfort depends, to a large extent, on the initial situation concerning unemployment and inflation. If the first of the variables is low, an increase in unemployment by 1 percentage point will presumably be accepted in exchange for a decrease in inflation by, for example, 1 or 2 percentage points. If, however, unemployment is high, its rise by 1 percentage point will certainly be accepted only in exchange for a considerable (e.g. by 4 percentage points) drop in inflation (Acocella 2002, p. 219).

Finally, the discussed index does not take into account adverse effects of deflation which improves the value of the index despite the fact that it actually

[2] If a rise in both the analysed variables is additionally accompanied by economic decline, such a situation is often referred to as slumpflation (Kołodko 1987, p. 144). Specialist literature offers, however, also an alternative interpretation of the above-mentioned terms. According to that, *stagflation* is defined as a situation where economic stagnation, usually characterised by high unemployment, is accompanied by rising inflation. Hence, pursuant to that definition an unemployment rate does not have to show an upward trend. However, if that is so, and, simultaneously, the inflation rate also goes up, *slumpflation* occurs (Belka 1985, p. 73). An overview of various definitions of *stagflation* can be found, among others, in: (Wojtyna 1988, p. 12-13).

results in a decrease in the total demand. Hence, in the opinion of the author, considering the positive consequences of low inflation, an alternative macroeconomic misery index should be proposed in the form of the sum of the unemployment rate and inflation rate deviations (both upward and downward) as compared with the target rate of inflation set at e.g. 2%[3].

The above-presented comments indicate that the Okun misery index does not have a clear scientific framework. Nevertheless, its values may often have considerable practical importance and determine, for instance, election results, which was proved in practice in numerous cases. A simultaneous strong rise in unemployment and inflation on an international scale occurred mainly in the 1973-1974 and 1979-1980 periods. In each of those periods the increase in the macroeconomic misery index was associated with a sharp rise in crude oil prices. However, the blame for the situation was attributed, first and foremost, to the then governments which, consequently, often lost power. Examples of governments that fell victim to citizens' dissatisfaction with the increasing misery index may include: Gaullist government replaced with Giscard d'Estaing's one in 1974 as well as Dutch liberals ousted from power by left-wing politicians. A similar situation occurred in 1982 when the conservative CDU/CSU union replaced the SPD party in the Federal Republic of Germany, liberals rose again to power in Denmark, and election was won by socialists led by François Mitterrand in France. The 1990 fall of Margaret Thatcher is often attributed to a fast increase in the misery index, too (Burda & Wyplosz 2000, p. 27)[4].

## 4. Ranking of the EU-27 Countries According to the Okun Misery Index in the 2000-2004 and 2005-2009 Periods

The already performed analysis indicates that, despite a great number of critical but fair comments on the Okun misery index, it has considerable practical advantages. Therefore, it seems interesting to present its values for all

[3] The inflation target was established at that level by the European Central Bank. On the other hand, the National Bank of Poland set that target at 2.5%.

[4] It is worth stressing that various macroeconomic indicators are used in models that serve to prepare election forecasts in the United States. One that came to especially great prominence was a forecasting formula devised by Fair where explanatory variables of the future election result include, among others, the rate of economic growth (affecting the condition of the labour market) and the inflation rate. Based on such a model, Fair incorrectly forecast the election result in 1992. However, in the case of subsequent elections (in 1996, 2000, and 2004) the model allowed to produce correct forecasts of results (Samuelson & Nordhaus 2009, p. 183-185).

the current member states of the European Union (EU-27). One-year analyses might, however, obfuscate the picture a bit due to the occurrence of a random term in the form of e.g. seasonal adverse weather conditions in some countries. Thus, data concerning that index is provided for two five-year periods, namely 2000-2004 and 2005-2009. Table 3 presents the EU-27 countries' ranking for those periods based on the first sub-aggregate of the macroeconomic misery index constituted by the mean (five-year average) unemployment rate, while table 4 offers a ranking for the same periods based on the five-year average rate of inflation being the other sub-aggregate of the Okun index.

Finally, table 5 presents a collective classification according to the complete misery index in the period in question. The table indicates that the macroeconomic misery index was lowest in the United Kingdom in the first half of the examined period but a very similar value of the index was also observed in Luxembourg, the Netherlands, Austria, and Denmark, while it was only slightly higher in Sweden, Cyprus, Ireland, and Portugal. The worst level of the discussed measure was recorded in Lithuania (despite very low inflation – see table 4), Estonia, Latvia, and, in particular, Bulgaria, Poland, Slovakia, and Romania.

The 2005-2009 period was characterised by a little lower index for the entire area as it dropped, despite a slight increase in inflation, from 10.8 to 10.4. The majority of the ranking's leaders of the first half of the period maintained their leading positions also in the second half of the analysed period when the first three places were occupied by the Netherlands, Denmark, and Austria respectively, followed closely by Cyprus, Luxembourg, the United Kingdom, Ireland, and Sweden.

**Table 3. Unemployment Rate in the European Union Countries**

| Annual average Harmonized Unemployment Rate | | | | | |
|---|---|---|---|---|---|
| **Place** | **Country** | **Period 2000-2004** | **Place** | **Country** | **Period 2005-2009** |
| 1 | Netherlands | 3,4 | 1 | Netherlands | 3,5 |
| | Luxembourg | 3,4 | 2 | Denmark | 4,3 |
| 3 | Ireland | 4,2 | 3 | Austria | 4,8 |
| 4 | Austria | 4,6 | 4 | Cyprus | 4,9 |
| 5 | Denmark | 4,7 | 5 | Luxembourg | 5,0 |
| | Cyprus | 4,7 | 6 | Slovenia | 5,7 |
| 7 | United Kingdom | 4,8 | | United Kingdom | 5,7 |
| 8 | Portugal | 5,6 | 8 | Czech Republic | 6,3 |
| 9 | Hungary | 6,0 | 9 | Romania | 6,7 |
| | Sweden | 6,0 | | Malta | 6,7 |
| 11 | Slovenia | 6,7 | 11 | Ireland | 6,8 |
| 12 | Romania | 7,3 | | Finland | 6,8 |
| 13 | Malta | 7,4 | | Sweden | 6,8 |
| 14 | Belgium | 7,9 | 14 | Italy | 7,2 |
| 15 | Czech Republic | 8,0 | 15 | Bulgaria | 7,7 |
| 16 | Finland | 8,1 | 16 | Belgium | 7,8 |
| 17 | Germany | 8,5 | 17 | Lithuania | 7,9 |
| 18 | Italy | 8,6 | 18 | Estonia | 8,0 |
| 19 | France | 9,2 | 19 | Hungary | 8,5 |
| 20 | Greece | 10,5 | | Portugal | 8,5 |
| 21 | Spain | 10,6 | 21 | Germany | 8,6 |
| 22 | Estonia | 11,0 | 22 | Greece | 9,0 |
| 23 | Latvia | 11,5 | | France | 9,0 |
| 24 | Lithuania | 13,5 | 24 | Latvia | 9,8 |
| 25 | Bulgaria | 15,8 | 25 | Poland | 10,7 |
| 26 | Slovakia | 18,5 | 26 | Spain | 12,0 |
| 27 | Poland | 18,8 | 27 | Slovakia | 12,2 |
| EU-27 | | 8,8 | EU-27 | | 8,1 |

Source: Author's own work based on: http://epp.eurostat.ec.europa.eu

**Table 4. Inflation Rate (HICP) in the European Union Countries**

| Annual average Inflation Rate (HICP) | | | | | |
|---|---|---|---|---|---|
| **Place** | **Country** | **Period 2000-2004** | **Place** | **Country** | **Period 2005-2009** |
| 1 | Lithuania | 0,6 | 1 | Netherlands | 1,6 |
| 2 | United Kingdom | 1,2 | 2 | France | 1,7 |
| 3 | Germany | 1,5 | 3 | Germany | 1,8 |
| 4 | Finland | 1,8 | | Finland | 1,8 |
| | Sweden | 1,8 | | Ireland | 1,8 |
| 6 | Austria | 1,9 | | Sweden | 1,8 |
| 7 | France | 2,0 | 7 | Portugal | 1,9 |
| | Belgium | 2,0 | | Austria | 1,9 |
| 9 | Denmark | 2,1 | 9 | Denmark | 2,0 |
| 10 | Czech Republic | 2,5 | 10 | Italy | 2,1 |
| | Italy | 2,5 | 11 | Cyprus | 2,2 |
| | Malta | 2,5 | | Belgium | 2,2 |
| 13 | Luxembourg | 2,8 | 13 | Malta | 2,5 |
| 14 | Netherlands | 3,0 | | United Kingdom | 2,5 |
| 15 | Cyprus | 3,1 | 15 | Czech Republic | 2,7 |
| 16 | Spain | 3,2 | | Luxembourg | 2,7 |
| | Latvia | 3,2 | | Spain | 2,7 |
| | Portugal | 3,2 | 18 | Slovakia | 2,8 |
| 19 | Greece | 3,4 | 19 | Poland | 2,9 |
| 20 | Estonia | 3,5 | 20 | Slovenia | 3,0 |
| 21 | Ireland | 4,1 | 21 | Greece | 3,1 |
| 22 | Poland | 4,3 | 22 | Hungary | 5,1 |
| 23 | Bulgaria | 6,4 | 23 | Estonia | 5,2 |
| 24 | Slovenia | 6,9 | 24 | Lithuania | 5,5 |
| 25 | Hungary | 7,2 | 25 | Romania | 6,8 |
| 26 | Slovakia | 7,8 | 26 | Bulgaria | 7,1 |
| 27 | Romania | 26,0 | 27 | Latvia | 8,4 |
| EU-27 | | 2,0 | EU-27 | | 2,3 |

Source: Author's own work based on: http://epp.eurostat.ec.europa.eu

The worst stagflation indices were still observed in: Poland (even despite a substantial fall in unemployment – see table 3), Bulgaria, Slovakia, and Latvia. Due to an increase in unemployment, that group was also joined by Spain for which it meant a fall by 5 ranks. A similar decline in the ranking was recorded for the United Kingdom (although it still remained one of the leaders) and Hungary. An even worse drop (by 6 positions) occurred in the case of Portugal. On the other hand, the most significant progress was recorded in Slovenia (a rise by 7 ranks) and, despite its still poor position, in Romania (a climb by 6 places). As for the other countries, their ranks were similar to those of the preceding five-year period.

As for the ranking taking into account the deviation from the target proposed in the preceding point (instead of the rate of inflation), a slight improvement in their positions would be observed for countries that were closest to the set reference value, i.e., first of all, France, Belgium, Austria, and Denmark in the 2000-2004 period, and Denmark, Portugal, Austria, and Italy in the 2005-2009 period respectively, while countries characterised by very low inflation, i.e. mainly Lithuania, the United Kingdom, and Germany would face a slight decline in their positions in the first half, and the Netherlands – in the second half of the examined period. Thus, there would mainly be cosmetic changes in the ranking. A more notable exception, however, may be the fall of the United Kingdom to as low as the fifth position in the 2000-2004 period. Hence, the United Kingdom would be outstripped by Luxembourg, the Netherlands, Austria, and Denmark, although differences expressed in percentage points would be very small.

**Table 5. Stagflation Rate (Okun Misery Index) in the European Union Countries**

| **Annual average Stagflation Rate[a]** | | | | | |
|---|---|---|---|---|---|
| **Place** | **Country** | **Period 2000-2004** | **Place** | **Country** | **Period 2005-2009** |
| 1 | United Kingdom | 6,0 | 1 | Netherlands | 5,1 |
| 2 | Luxembourg | 6,2 | 2 | Denmark | 6,3 |
| 3 | Netherlands | 6,4 | 3 | Austria | 6,7 |
| 4 | Austria | 6,5 | 4 | Cyprus | 7,1 |
| 5 | Denmark | 6,8 | 5 | Luxembourg | 7,7 |
| 6 | Sweden | 7,8 | 6 | United Kingdom | 8,2 |
| | Cyprus | 7,8 | 7 | Ireland | 8,6 |
| 8 | Ireland | 8,3 | | Finland | 8,6 |
| 9 | Portugal | 8,8 | | Sweden | 8,6 |
| 10 | Belgium | 9,9 | 10 | Slovenia | 8,7 |

| | | | | | |
|---|---|---|---|---|---|
| | Finland | 9,9 | 11 | Czech Republic | 9,0 |
| | Malta | 9,9 | 12 | Malta | 9,2 |
| 13 | Germany | 10,0 | 13 | Italy | 9,3 |
| 14 | Czech Republic | 10,5 | 14 | Belgium | 10,0 |
| 15 | Italy | 11,1 | 15 | Portugal | 10,4 |
| 16 | France | 11,2 | | Germany | 10,4 |
| 17 | Hungary | 13,2 | 17 | France | 10,7 |
| | Slovenia | 13,6 | 18 | Greece | 12,1 |
| 19 | Spain | 13,8 | 19 | Estonia | 13,2 |
| 20 | Greece | 13,9 | 20 | Lithuania | 13,4 |
| 21 | Lithuania | 14,1 | 21 | Romania | 13,5 |
| 22 | Estonia | 14,5 | 22 | Hungary | 13,6 |
| 23 | Latvia | 14,7 | | Poland | 13,6 |
| 24 | Bulgaria | 22,2 | 24 | Spain | 14,7 |
| 25 | Poland | 23,1 | 25 | Bulgaria | 14,8 |
| 26 | Slovakia | 26,3 | 26 | Slovakia | 15,0 |
| 27 | Romania | 33,3 | 27 | Latvia | 18,2 |
| EU-27 | | 10,8 | EU-27 | | 10,4 |

[a] Annual average Harmonized Unemployment Rate + Annual average Inflation Rate (HICP)

Source: Author's own work based on: http://epp.eurostat.ec.europa.eu

It is worth noticing that the proposed rankings of the EU countries made up on the basis of alternative macroeconomic misery measures are quite similar to the ranking reflecting the countries' positions based on the GDP per capita according to purchasing power parity (see table 1). In both the cases leaders include Luxembourg, Denmark, the Netherlands, Austria, the United Kingdom, and Sweden, while lowest ranking countries are Hungary, Slovakia, Estonia, Poland, Lithuania, Latvia, and, in particular, Romania and Bulgaria. The other countries, as a rule, occupy positions somewhere in the middle of the rankings as regards both their products per capita and Okun misery indices. Therefore, the latter measure confirms the generally lower quality of life in countries with low GDPs per capita (despite differences occurring also within that group of countries). It is absolutely not out of line with the fact that those countries are catching-up ones and develop most rapidly among all countries in the area (see table 2) as the faster economic growth usually results in higher inflation. The reason for the more rapid economic growth is often a stronger increase in work

productivity which, consequently, prevents a fall in unemployment and, through the so called Balassa-Samuelson effect, additionally pushes up inflation.

## 5. Conclusion

The performed analysis allows to draw the following conclusions:

1. There is no one and only, perfect measure of the economic system's efficiency. Those used include, among others, the Measure of Economic Welfare, as well as the Human Development Index and the Human Poverty Index calculated by the UN. A drawback of such measures is that they require considerable time and cost to calculate. Also, their weights are of the discretionary nature and it is not possible to precisely quantify their particular sub-aggregates.
2. In that context, the GDP per capita according to purchasing power parity still remains the most popular measure used in international comparisons. Despite its lack of a distinct scientific framework, an interesting alternative may be offered by the so called macroeconomic misery index (the Okun misery index) being the sum of unemployment and inflation rates or, in the proposed modified form, the sum of the unemployment rate and deviation of the inflation rate from a target set by the central bank.
3. Throughout the examined decade divided into two five-year periods macroeconomic misery indices computed in the above way appeared to be lowest mainly in Luxembourg, Denmark, the Netherlands, Austria, the United Kingdom, and Sweden. All those countries are the so called old EU members belonging to the EU-15 group. As for the lowest ranking countries, those are new EU members (which joined the EU in 2004 or 2007), i.e. Hungary, Slovakia, Estonia, Poland, Lithuania, Latvia, and, in particular, Romania and Bulgaria.
4. Okun misery index levels show great similarity to those of the GDP per capita according to purchasing power parity. According to the latter measure, leaders of both the first and second half of the examined period include the same countries that occupied best positions in the ranking based on the macroeconomic misery index. A similar situation occurred with respect to the lowest ranking ones.
5. Nevertheless, the comparison of the two analysed sub-periods indicates that there is convergence consisting in the so called catching up with the old EU member states by new members of the Community. That is clearly noticeable in the case of both the GDP per capita and the Okun misery

index irrespective of its calculation manner. It ought to be presumed that the convergence will intensify in the future although its rate need not be especially fast.

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## Streszczenie

### WSKAŹNIK UBÓSTWA OKUNA W KRAJACH UNII EUROPEJSKIEJ W LATACH 2000-2009

*Celem artykułu było przedstawienie alternatywnych mierników sprawności działania systemu gospodarczego, ze szczególnym uwzględnieniem kształtowania się tzw. wskaźnika ubóstwa Okuna będącego sumą stopy inflacji oraz stopy bezrobocia.*

*Opracowanie składa się z czterech części zasadniczych i podsumowania. W punkcie pierwszym omówiono różnorodne mierniki sprawności systemu gospodarczego wykorzystywane w praktyce. W części drugiej podkreślono, iż nadal najpopularniejszym z nich jest PKB per capita według parytetu siły nabywczej. Zgodnie z tym miernikiem przedstawiono ranking państw Unii Europejskiej w latach 1999-2009. W punkcie trzecim podkreślono, że o sprawności systemu gospodarczego decyduje także poziom ubóstwa. Może być on mierzony różnymi wskaźnikami, m.in. tzw. indeksem HPI-2 obliczanym przez ONZ. Jako ciekawą z makroekonomicznego punktu widzenia alternatywę ukazano jednak miarę wskaźnika ubóstwa Okuna obliczanego poprzez zsumowanie stopy inflacji i stopy bezrobocia. Ranking państw Unii Europejskiej według tej miary w okresach 2000-2004 oraz 2005-2009 zaprezentowano w części czwartej. Całość zamknięto podsumowaniem, w którym zawarto syntetyczne wnioski z przeprowadzonych obserwacji.*