ALTERNATIVES FOR EVALUATING A COUNTRY'S ECONOMIC DEVELOPMENT

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Abstract: Although real GDP is considered a key macroeconomic indicator for a nation's economic development, various criticisms of its method of measurement and interpretation have been appearing increasingly more often. In the previous century, Simon Kuznets already expressed certain doubts. There are a number of alternative methods and proposals (or additions) to GDP for assessing the current level of societal development. This paper deals with comparing these alternatives. Attention is also devoted to analyzing empirical data concerning the development of real GDP and the Human Development Index (HDI). Data will be compared for the Czech Republic and the other countries that jointly entered the EU together with the Czech Republic in 2004 (the EU-10). The reason for this double comparison is to judge the development of this group of countries through the lens of the double comparison method. From the analysis we conducted, it follows that a country's economic development judged on the basis of real GDP shows different characteristics than economic development perceived as satisfaction with a fuller quality of human life.

Keywords: Economic growth, Quality of life, Gross domestic product, Human Development Index, European Union.

JEL Classification: A13, E01.

Introduction

Actual data from the Czech Statistical Office (CZSO) confirm that, in comparison with other new EU member countries, the Czech economy is growing at a record rate. According to the first estimates (March 2016), the annual real GDP growth rate for 2015 was 4.3%. Thanks to rapid growth, the Czech Republic has reached 86% of the economic average for the EU (measured in purchasing power per capita) and ranks ahead of Cyprus and Malta. It is clear that this information has been very positively accepted by all the domestic economy's economic actors. Gross domestic product (GDP) is commonly considered a key statistical indicator; it an aggregate output measure used by the System of National Accounts to comprehensively describe the state and development of a national economy. As a reminder, this measure is the financial expression of the overall value of goods and services newly created during a given time period in a specific territory [3]. From the methodological perspective, it is possible to definitively state that real GDP is one of the most complicated indicators monitored by current statistics. Moreover, measuring and interpreting this macroeconomic aggregate measure is in fact becoming increasingly more frequently the subject of professional discussion and debate. We will be leaving the methodical limitations and technical complications that relate to determining and demonstrating real GDP outside the scope of this paper. In this regard, we shall start with the fact that the CZSO fully complies with international methodological standards specified by the EU countries, whose basis is currently represented by the European System of Accounts 2010 (ESA 2010). In this paper, our interest turns to critical discussion of GDP's suitability for expressing an economy's development – whether another

(more suitable) indicator or even a whole system of indicators should be used for this purpose.

In the context of the perspective described above, this paper's goal is to discuss certain alternative proposals (or additions) to GDP using qualitative comparative analysis. Next, our attention will focus on comparing empirical data concerning the development of real GDP and the Human Development Index (HDI). Data will be compared for the Czech Republic and the other countries that entered the EU together with the Czech Republic in 2004 (the EU-10). The reason for this double comparison is to judge the economic development of this group of countries through the lens of the double comparison method. Using the results of this qualitative and quantitative analysis, the paper's conclusion discusses selected problems related to the evaluation of a country's economic development and its interpretation using a wider theoretical and practical perspective.

1 Problem Statement

1.1 Critical opinions regarding the GDP

GDP is an indicator that is used to evaluate three empirical conditions: the maturity of an economy, the intensity of its development, and the standard of living of its population. Although these three problems distinctly overlap, they are not equivalent. Therefore, it is not possible to evaluate them using the same number [1]. Certain doubts on the predicative ability of macroeconomic aggregate indicators as a measure of a society's well-being have been recorded as early as the 1930's. It is enough to note that Simon Kuznets, one of the fathers of the System of National Accounts, explicitly warned in 1934 that "the welfare of a nation can scarcely be inferred from a measure of national income" [9]. His prescient warning was unheeded. According to modern critics, real GDP is not only a poor indicator of society's advancement, but it cannot fully account for a society's actual state and does not express anything about the state of the society or the environment. Therefore, the growth of real GDP alone cannot be confused with development as a broader and essentially more socially important concept [12]. Critical opinions agree that the actual growth of a country determined on the basis of GDP is distorted by the fact that official data do not take sufficient consideration of the growth of the quality of goods or the population's quality of or satisfaction with life; the data are not able to describe the influence of negative externalities, the growth of criminality, corruption, or the benefit of nonmarket exchanges for the population. According to [14], GDP does not distinguish which economic processes contribute to the general welfare and does not express anything about the sustainability of development. In the end, pressure for the statistical growth of GDP can then lead to the majority of the people actually being worse off than they were. As stated by Anantha Duraiappah of the United Nations University, who presented a study in 2014 on the limitations of classic GDP measurement in relation to the concept of Beyond GDP, something as simple as a morning bird song can give a wider dimension to economic calculations, because it reveals much about the state of the environment – about pollution levels, climate change, or biodiversity. Even in the future, GDP and other traditional yardsticks will still provide information for understanding economic performance, but the perspective on world development must be balanced. It is necessary to expand it to include the state of the environment and social indicators [5].

1.2 Alternative approaches to estimating economic development

Suggestions for alternative indicators of economic development and methods or proposals for recalculating GDP so that it better expresses "the actual development of economies" are a reaction to the GDP criticism mentioned above. Not only individual experts, but also institutions (e.g., the European Commission working group, the OECD, the World Bank, the UN, etc.) have been intensively involved in searching for alternatives and additions to GDP over the last fifty years. The concept of the Net Economic Welfare (NEW) measure, which is methodically linked to the original GDP alternative (called the Measure of Economic Welfare or MEW), is particularly well known. This was proposed in 1972 by William Nordhaus and James Tobin [11]. NEW modifies the degree of overall national production by adding the value of nonmarket activities, leisure, and the shadow economy – including deductions for negative externalities. Bhutan's index of "Gross National Happiness" – whose idea was presented in the 1970's by Bhutan's king – is another world-renowned alternative to GDP. The purpose of constructing this index was to measure the happiness of the local inhabitants. The index includes data on health, education, the state of the environment, governance, preservation of cultural heritage, use of leisure time, and the population's emotional well being. The Genuine Progress Indicator (GPI) is a methodically composed alternative to GDP that also takes into account losses caused by crime and social inequality, damage to the environment, loss of leisure time, or, conversely, the benefits of volunteer work and housework. The index was originally proposed in 1989 by American scientists from Boston University under the name of the Index of Sustainable Economic Welfare (ISEW) [4]. As presented in [10], [2], three American states (Vermont, Maryland, and Oregon) currently measure their economy according to the GPI on the basis of 26 specific criteria. It can be stated that Czech economists' approach to the problem under discussion is more restrained. For example, [8] believes that the average growth of real domestic demand could be a welfare indicator; however, the problem with this is that growth of real demand can be covered by increasing a deficit in the balance of international trade. Another alternative indicator, which it is the closest one when GDP to being a measure of welfare, is the so-called Gross Domestic Income (GDI), which presents a GDP modified by using revenues (or losses) caused by annual change in terms of trade [8]. It is possible to assume that the most well known and, at the same time, the most accepted alternative to GDP today is the so-called Human Development Index (HDI), which has been in use since 1975. The Pakistani economist Mahbub ul Haq is behind this idea. Amartya Sen proposed the design of the final index [13]. As of 1990, the index has been published in the periodical Human Development Reports, provided by the United Nations Development Programme (UNDP). As of 2008, this index has been published independently of the program and monitors the development of 194 of the world's countries.

1.2.1 The Human Development Index

We assume that, although it is impossible to consider the HDI a comprehensive tool for determining economic development, it the closest when compared with the approaches listed above. Its construction complies with the UNDP's definition of human development, which states that people need to attain three basic conditions in order to expand their opportunities. It is necessary for them to lead a long and healthy life, acquire education, and have access to the means of ensuring a respectable standard of living. Therefore, the index's construction is focused on these three key parts: economic prosperity, which takes into account the measure of gross national income (GNI per capita); the health of the

population; and the population's educational level. In 2010, the HDI accepted significant changes to its methodology. The final HDI value for a specific country in a specific year is reached by multiplying the resulting values of all three dimensions (of the indexes) and then finding their cube root. The actual indicator of all three dimensions of human development, including minimum and maximum values, are listed in the following table (Table 1).

Tab. 1: Construction of the HDI as of 2010

Dimension of Human Development	Indicator	Index	Minimum value	Maximum value
Health	Life expectancy from birth	**Life Expectancy Index**	20 yrs.	85 yrs.
Education	Expected number of years of education from school entrance age	**Education Index**	0 yrs.	18 yrs.
	Average number of years of education in the adult population		0 yrs.	15 yrs.
Standard of Living	Gross National Income per capita (PPP in USD)	**GNI Index**	USD 100	USD 75,000

Source: Authors' own work acc. to [17]

2 Methods

The next section will be approached on the basis of empirical induction. In order to evaluate the economic development of the selected group of countries in the subsequent section, we will use empirical data expressing the real GDP growth rate for the period of 2004–2014. Official statistical databases (CZSO, Eurostat) are used as the source of data. In the next step, a comparison of these countries' economic development will be conducted using the alternative indicator – the HDI. The source of data for the HDI is the official UNDP database [17]. Concerning the previously mentioned change to the HDI's composition method in 2010, this part of the comparison will be conducted in two phases. The results from the comparative analysis will be further discussed and developed into general conclusions.

3 The Economic Development of the EU-10 Countries

In the following graph, we can track the average growth rate of the EU countries' real GDP from 2004 to 2014 (Fig. 1). From EU-10 countries, Slovakia and Poland show the greatest dynamic for the years under investigation, as can be clearly seen in the graph. Both countries identically show a 4% average real GDP growth rate. The next countries are those with an average growth rate greater than 3% (Lithuania, Latvia, and Estonia). In this regard, the Czech Republic has the sixth most dynamic economy among the EU-10 group. Over the ten year average, it has been growing more quickly than Malta, Slovenia, Hungary, and Cyprus. Detailed analysis of the empirical data of individual EU-10 economies shows that, from the perspective of real GDP, a growth trend has been noticeable since 2000, but it was only in 2004 that this signified more pronounced growth for these countries. The high

growth dynamic typical for the EU-10 countries in the early period after EU entry was primarily seen on a wide scale in 2006 and 2007. The real GDP growth rate reached more than 11% in Estonia and Latvia. High growth also accompanied development in Slovakia (10.4%), Lithuania (7.8%), and the Czech Republic (6.9%). However, in 2008, an unpleasant downturn occurred caused by the global financial crisis, and all the post-transformation economies underwent an economic slump together with the more advanced European economies. In the Czech Republic, the steepest drop in real GDP was recorded in 2009, when the real GDP growth rate reached -4.8%. Afterward, slightly revived economies returned in 2010 and 2011. In regard to current development, it seems that the world and European economies have completely recovered.

Fig. 1: The Average Real GDP Growth Rate of EU Countries for 2004–2014 (%)
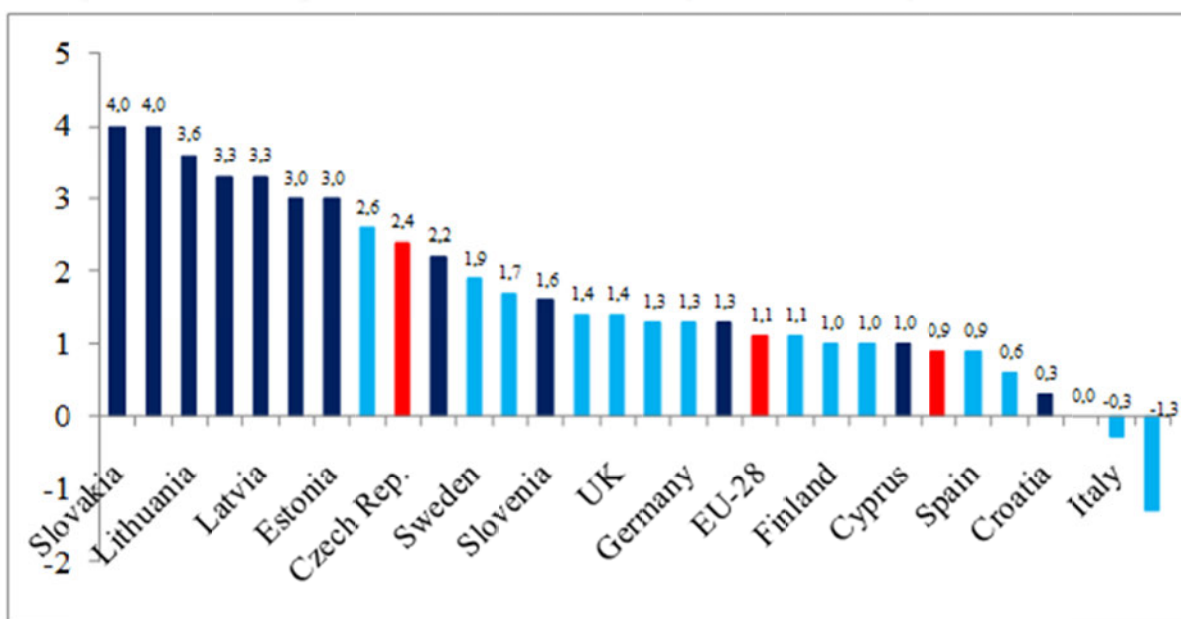
A comparison of the group of countries being investigated from the perspective of the development of the HDI shows somewhat different conclusions. The table (Table 2) summarizes the results of the analysis conducted for 2005. It covers the time period of the first year of these countries' membership in the EU. On the basis of the HDI values that were determined, the table's first column depicts the ranking of countries within the EU-10 and EU-28 groups. Among other things, it is clear from the table that, of the Visegrad 4, the Czech Republic attained the best evaluation. On the whole, these countries achieved better ratings than the Baltic states. The data listed in table form corresponds to the HDI construction method valid up until 2009. In this original method, real GDP per capita (using PPP in USD) was included in the HDI as an indicator of standard of living. The Education Index was composed of two sub-indicators – adult literacy in percentages with a weight of 2/3 and the percentage of children enrolled in primary, secondary, and tertiary education with a weight of 1/3. If we separate the hard indicator (the macroeconomic indicator of GDP) from the HDI and we determine the order of countries accordingly, then there is a noticeable difference when compared to the HDI's ranking. On the basis of soft indicators (the Education Index and the Life Expectancy Index), the reason for lower rankings appears within economic development. Even despite higher GDP per capita scores, countries with lower levels of health or education show a drop in ranking. For example, Cyprus drops on account of having the lowest percentage of children enrolled in school (77.6%), and Estonia falls because of having the lowest life

expectancy (71.2 years). Nonetheless, the opposite situation also occurs and countries that have a relatively low GDP per capita increase their ranking on account of the contribution of solid results from their soft indicators. Poland best demonstrates this situation. It is interesting that the results of the analysis conducted for the following years (2006–2009) did not show any significant changes in the rankings of the groups of countries investigated, and individual countries in the EU-10 group retained their ranking. Estonia was the only exception, with a ranking that gradually grew from 2006 levels to take a higher place.

Tab. 2: GDP of the EU-10 Countries in 2005

EU-10 Ranking (EU-28 Ranking)	Country	HDI	Indicator Values			
			Life Expectancy (yrs.)	GDP per Capita (PPP in USD)	Adult Literacy (%)	Percentage Enrolled in School (%)
1.(15.)	**Slovenia**	**0.917**	77.4	22,273	99.7	94.3
2.(16.)	**Cyprus**	**0.903**	79.0	22,699	96.8	77.6
3.(18.)	**CR**	**0.891**	75.9	20,538	99.0	82.9
4.(19.)	**Malta**	**0.878**	79.1	19,189	87.9	80.9
5.(20.)	**Hungary**	**0.874**	72.9	17,887	99.4	89.3
6.(21.)	**Poland**	**0.870**	75.2	13,847	99.8	87.2
7.(22.)	**Slovakia**	**0.863**	74.2	15,871	99.0	78.3
8.(23.)	**Lithuania**	**0.862**	72.5	14,494	99.6	91.4
9.(24.)	**Estonia**	**0.860**	71.2	15,478	99.8	92.4
10.(25.)	**Latvia**	**0.855**	72.0	13,646	99.7	90.2

Source: Authors' own work acc. to [17]

Part of the new HDI construction method was monitoring the development of the EU-10 group during a period of three years (2010, 2012, 2014). Relating to this, we present the example of the calculation of the HDI for the Czech Republic in 2014 (Table 3). The output data are GNI per capita at USD 26,660 and a 78.6 year life expectancy. For the Education Index, the values of 16.4 years and 12.3 years were used, i.e., expected period of enrollment in school and the actual average number of years enrolled in school, respectively.
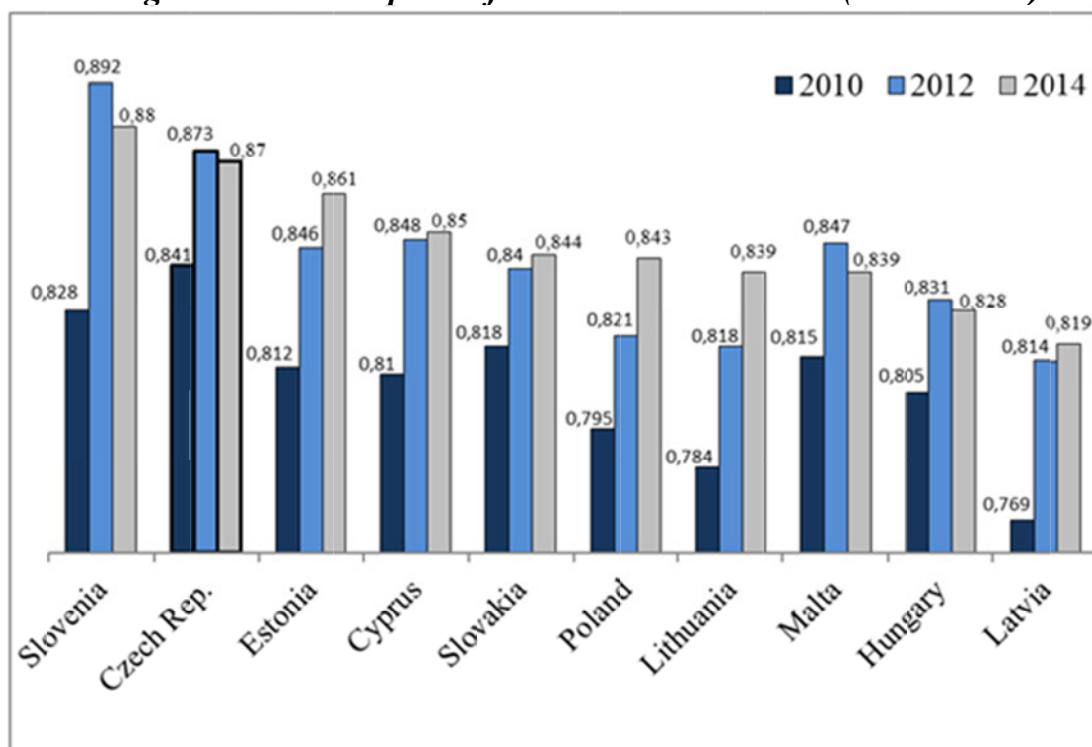
Tab. 3: Establishing HDI Values for the Czech Republic in 2014

Index	Calculation	Resulting Value
Life Expectancy Index	$\dfrac{(78,6 - 20)}{(85 - 20)}$	0.902
GNI Index	$\dfrac{[\log(26\,660) - \log(100)]}{[\log(75\,000) - \log(100)]}$	0.844
Expected number of years of education from school entrance age	$\dfrac{16,4 - 0}{18 - 0} = 0,911$	0.866
Average number of years of education in the adult population	$\dfrac{12,3 - 0}{15 - 0} = 0,820$	
Education Index	$\dfrac{0,911 + 0,820}{2}$	
HDI	$(0,902 * 0,844 * 0,866)^{1/3}$	**0.870**

From the graph, it is clear that overall six countries (Estonia, Cyprus, Slovakia, Poland, Lithuania, and Latvia) show growing indicator values during this period. The data supports the fact that the Czech Republic, with a 0.841 index value, was the country with the best 2010 index value of the 10 countries under investigation. However, we lost this position during the next period. The actual HDI values rank the Czech Republic behind Slovenia, which has been the most successful EU-10 country since 2012.

Fig. 2: HDI Development for the EU-10 Countries (2010 – 2014)

Slovenia: 2010 0,828; 2012 0,892; 2014 0,88
Czech Rep.: 2010 0,841; 2012 0,873; 2014 0,87
Estonia: 2010 0,812; 2012 0,846; 2014 0,861
Cyprus: 2010 0,81; 2012 0,848; 2014 0,85
Slovakia: 2010 0,818; 2012 0,84; 2014 0,844
Poland: 2010 0,795; 2012 0,821; 2014 0,843
Lithuania: 2010 0,784; 2012 0,818; 2014 0,839
Malta: 2010 0,815; 2012 0,847; 2014 0,839
Hungary: 2010 0,805; 2012 0,831; 2014 0,828
Latvia: 2010 0,769; 2012 0,814; 2014 0,819

Legend: ■ 2010 ■ 2012 ■ 2014

Source: Authors' own work acc. to [17]

The following table (Table 4) presents the results of the comparative analysis of the EU-10 countries according to HDI values for 2014. The table's first column first lists the ranking of these states within the EU-10 and then their ranking within the EU as a whole. As is clear, the HDI ranking of the EU-10 countries changed drastically in 2014 in comparison with 2005. The unequivocal reason is the previously mentioned change in the HDI's method of construction; however, the influence of the countries' ten years of membership in the EU is also expressed. This was reflected the most in health care as well as in an increasing standard of living. In terms of the HDI, entry into the EU had the most significant influence on life expectancy, which increased for all ten of the countries in question. The greatest jump – of an unbelievable 5.6 years – was recorded by Estonia between 2005 and 2014 and the population of another six countries increased their life spans by at least two years. Improving the population's life style can also take credit for this success.

Inasmuch as it concerns the countries' ranking, the same ranking (in comparison with 2005) was retained only by three countries (Slovenia, Poland, and Latvia). The greatest jump was made by Estonia (by six places). Slovakia jumped up two places and the Czech Republic and Lithuania one. Conversely, the most marked drop was recorded by Hungary (four places), then Malta (three places), and Cyprus (two places). The detailed values of the individual indicators entering into the HDI subsequently yield an interesting comparison. For example, Malta, which attained the second greatest value for Gross National Income (GNI) per capita (27,930) moves to the seventh place in the HDI evaluation because of having the worst level in the Education Index – despite having the longest life expectancy (Cyprus is similar but not so extreme). The opposite situation can be seen for Estonia, whose GNI value is in sixth place; nonetheless, the country comes in third in the HDI on account of its top ranking in the Education Index.

Tab. 4: The HDI of the EU-10 Countries in 2014

EU-10 Ranking (EU-28 Ranking)	Country	HDI	Indicator Values			
			Life Expectancy (yrs.)	GNI per Capita (PPP in USD)	Expected Time Enrolled in School (%)	Number of Years Enrolled in School (%)
1.(12.)	**Slovenia**	**0.880**	80.4	27,852	16.8	11.9
2.(15.)	**CR**	**0.870**	78.6	26,660	16.4	12.3
3.(17.)	**Estonia**	**0.861**	76.8	25,214	16.5	12.5
4.(18.)	**Cyprus**	**0.850**	80.2	28,633	14.0	11.6
5.(19.)	**Slovakia**	**0.844**	76.3	25,845	15.1	12.2
6.(20.)	**Poland**	**0.843**	77.4	23,177	15.5	11.8
7.(21.)	**Lithuania**	**0.839**	73.3	24,500	16.4	12.4
7.(21.)	**Malta**	**0.839**	80.6	27,930	14.4	10.3
9.(24.)	**Hungary**	**0.828**	75.2	22,916	15.4	11.6
10.(25.)	**Latvia**	**0.819**	74.2	22,281	15.2	11.5

Source: Authors' own work acc. to [17]

4 Discussion

The results of the comparison of empirical data conducted above for the selected group of countries allows us to further develop our discussion focused on alternative options for estimating a country's economic development. From the analysis we conducted, it follows that a country's economic development judged on the basis of real GDP shows different characteristics than economic development perceived as satisfaction with a fuller quality of human life. Evaluating economic growth of the EU-10 group after their entry into the EU only on the basis of the dynamics of GDP growth rate shows other characteristics and a different comparative ranking for the countries. From the perspective of the HDI, Poland and Slovakia, which are at the top of this ranking, slide to the second half of less successful countries when looking at the EU as a whole. The opposite situation is seen for Cyprus and Slovenia. Estonia shows the greatest dynamic concerning the development of HDI indicators for the time period in question. Our conclusions correspond to the conclusions of empirical studies that deal with GDP alternatives. For example, it was proven for GPI that, although American GDP steeply increased between 1950 and 2008, GPI has been stagnating since the 1970's and tends towards a straight line [10], [2]. The population of countries that show a greater GDP growth rate thus are not necessarily happier or lead a higher quality life in reality. Relating to this, let us recall the Easterlin paradox, which states that growth in the living standard of poor countries means that their satisfaction also increases greatly but, when people attain a certain level of well-being, further growth in wealth does not lead to growth in happiness [6]. In other words, the limit value of additional wealth decreases when its value increases. From this perspective, GDP looses something of its interpretative significance. Moreover, it is possible to state that this

was also one of the main reasons why the key macroeconomic aggregate indicator of gross national income (GNI) was selected as an indicator of living standard during the transition to a new, more effective method for constructing the HDI. It is generally known that this indicator is somewhat overlooked in relation to evaluating a country's economic level, because its value generally increases more slowly than GDP values. When judging economic performance, GNI does not rest on a territorial but rather on a national perspective and also includes the balance of net income from assets abroad.

The results of this analysis also confirm the necessity of a comprehensive investigation of the causes and, primarily, the results of a country's economic development. Economic growth is only one of the conditions needed to achieve economic development – not the rule. For example, economic growth can be achieved by an increase in military expenses, or it may actually only be felt by a minority of the given population. In this context, even the current economic boom in the Czech economy mentioned in the paper's introduction is not longer such positive information. According to analysts, this is an accidental result of the interplay of a number of factors over time, mainly precipitate use of European funds, low prices for oil and fuel, and a stable Czech koruna. According to [16], the statistically proven concurrent growth of the Czech economy is not built on a healthy foundation. To a large degree, it is financed by redistribution and grant programs and gained at the expense of future debt, which cannot yet be seen in the higher growth dynamic of the standard of living in Czech households, i.e, individual residents. According to the statistical data, the contributions made to the Czech economy's recovery by the individual components of GDP were really varied. The greatest growth rate was shown by government institution expenditure, which naturally influences the deficit amount in a negative way, and the overall debt of the government sector. It is possible to consider the only positive, "healthy" benefit of GDP growth to be the development of international trade. The Czech economy's development is also accompanied by a number of internal problems that are able to influence (or are already influencing) its economic condition in a negative way. The following are some of the primary problems: work is little equipped with capital, a decrease in industrial production's growth rate, a decrease in the influx of direct foreign investment, a decrease in total labor productivity (67% of the EU average), high hourly labor costs, insufficient workers with the appropriate education (primarily, technical fields, adequate language skills, and the decreasing quality of education). Other weak points of the Czech economy are ineffective government regulation, considerable bureaucratic red tape (primarily for beginning entrepreneurs), an unstable business environment and the development of a shadow economy stemming from this, and a long-standing high perception of corruption.

It is clear that, to judge the effectiveness of a country's economic performance, economic development, or the efficacy of economic policies, a mere time series of real GDP values or the annual GDP growth rate does not appear to be sufficiently informative. Therefore, we prefer approaches that propose supplementing (not "fine-tuning") the actual quantification of economic performance using suitable, comparable qualitative indicators of societal well-being. However, we believe that, although the HDI fulfills these requirements in many respects, the problematic of societal welfare indicators still encompasses an entirely wider scope. The adjustment of its parameters will always be controversial and the actual quantification of its methods difficult.

Conclusion

Although the interpretative significance of the indicator of real GDP as a standard, objective measure of a country's economic performance is becoming weaker, it is an indicator that is logical, methodically sophisticated, and consistent for the purpose of international comparison. For credible approximation of a depicted reality, the current statistic does not have a better indicator. Nonetheless, it is clear that there is room to continue to work on its development. As mentioned in the introduction, the estimation of real GDP is also linked to many methodical and technical problems. We hold the opinion that, at the current level of societal development and, primarily, concerning requirements for its sustainability, society must recognize GDP's inadequacies and reflect this in its thinking. In this regard, perfecting the methods and models for estimating a country's economic maturity and alternative approaches to estimating economic development are undoubtedly an important challenge for scientific research.

Acknowledgments

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