

Anita Frajman Ivković
Josip Juraj Strossmayer
University of Osijek
Faculty of Economics in Osijek
Trg Ljudevita Gaja 7,
31000 Osijek, Croatia
afrajman@efos.hr
Phone: +38531224400

UDK: 330.55
Review article

Received: April 11, 2016
Accepted for publishing: May 31, 2016

LIMITATIONS OF THE GDP AS A MEASURE OF PROGRESS AND WELL-BEING

ABSTRACT

The subject of this paper is the gross domestic product that has become a universal measure of progress and well-being. However, its usage for this purpose is inadequate, inappropriate and wrong since this economic measure does not reflect anything more than productivity. Moreover, it was never designed to be more than just a monetary measure and, besides that, it has a lot of limitations and weaknesses that are not sufficiently presented to the general public or in academic papers. In this paper the limitations of the GDP are shown by defining and describing its historical aspects. Moreover, the SWOT analysis is used to emphasize the weaknesses and restrictions of this monetary measure. Structured critiques of the gross domestic product make way for other measures of progress and well-being to be recognized and used in a more comprehensive way.

Keywords: GDP, GDP limitations, progress, well-being, alternative measures

1. Introduction

In today's society, progress has become imperative in all its spheres. Paradoxically, the real meaning of progress is not defined, and the definition itself certainly depends on the area and the framework in which it is observed. Broadly defined, progress can be defined as a desired future state in which some positive developments are achieved. Definition of progress has changed over time. Schepelmann et al. (2010)¹ point out that progress is not easy to define because it is not an entirely objective concept. In other words, in addition to hard economic indicators, to evaluate progress we also require subjective, soft indicators, so-called alternative measures (e.g.

various indicators of well-being, happiness, human progress, quality of life, etc., which take into account the perception of the population).

In an age of uncertainty, the global society needs a new compass that will direct it toward real progress because the myth of economic growth as a synonym of progress ruled for more than half a century (Abdallah et al., 2009)². In economics, the GDP has long been used as a general indicator of progress, and is already, by inertia, taken as a measure of progress, prosperity and even well-being. Michaelson et al. (2009)³ point out that modern society is or-

ganized around a model of development whereby increased economic output directly improves the well-being, reflected in higher living standards and a better quality of life in society. Monitoring and increasing tendency of economic output (usually measured by the GDP) over time, however, proved as an inadequate method of progress evaluation as can be witnessed by the recent big financial crisis.

Maxton (2011) somewhat provocatively calls for a rethinking of the concept of progress that is necessary because of economic ideas and behaviour in the last few decades. The author points out that in the last few hundred years business and economics have not faced real progress at all, because progress is expressed exclusively through objective indicators (and their material nature, for example, shopping and consumption) on the basis of which progress cannot be fully quantified. In modern times society is characterized by growth obsession that is often seen in the context of exclusive increasing of economic wealth.

Namely, economic growth and the overall output of the economy are usually quantified by monetary measures (of which the most widely used and publicly mentioned is the GDP). Media and everyday practice in the public show that time, the GDP, progress and even well-being become synonyms in time. The GDP is also frequently used in comparative analyses of welfare and as an indicator of living standards. In this paper, by giving the historical perspective and definition and by analysing the GDP methodology, it is shown why such practice is not valid. Moreover, the GDP as a measure of economic growth is analysed by using the SWOT framework with the focus on its limitations.

2. The GDP as an economic measure

2.1 Historical aspects of the GDP

With the aim of monitoring the economic activities that take place within the country, national accounts are used. They can give a good overall picture of a given state and its overall activities, usually publicly presented with statistical tables and graphs. The first estimates of national accounts in the western world were made in England in 1665 by Thomas Petty, whose main objective was to assess the tax capacity of a country. These original concepts were further developed with the guidance of the 'father'

of economics Adam Smith, and after a gap of almost a century, again significantly revised by Alfred Marshall in the early 20th century (McNeill, 1999).

With regard to the formation of the national accounts, Cobb et al. (1995) report that in 1931 a group of experts was invited to respond to the current issues of the economy but they were unable to do so because the most recent data were for 1929. The Senate in 1932 asked the Commerce Department to prepare a comprehensive assessment of national income; a unique set of national accounts was made by a young economist Simon Kuznets. This became the prototype of what is nowadays called the GDP and is used as a de facto measure of success. Dasgupta (2009) points out that the country's GDP is the most commonly used indicator of national accounts designed to measure the value of production. The GDP lies on top of the System of National Accounts (SNA) and its defined and standardized methodology enables international comparison anywhere in the world (Wesseling et al., 2007).

The first official release of GDP data was published in the United States in 1942, motivated by the rapid need of the assessments and increase of manufacturing capabilities in the post-war economy. By this time, the main idea was the maximization of war production. The GDP was thus created in the wake of the Great Depression and World War II for the decision-makers to have at their disposal a measure of economic performance and activity and, actually, the historical circumstances have boosted the emergence and importance of specific economic measures (Haque, 2004). Certainly, the emergence of the GDP was a huge step at the time, which later proved to be very useful and successful since the GDP (with certain changes and modifications) 'has lasted' for 80 years. However, Michaelson et al. (2009)⁴ emphasize that the GDP quickly grew into a measure of national success because after World War II, the total production had become firmly entrenched as a key sign of the overall success of a country and was widely interpreted as a substitute for the progress of society, with devastating consequences for the people and the planet.

Today's widely used methodology of the GDP was prepared by the United Nations and was suggested by the SNA. The purpose and objective of the SNA is to provide comprehensive conceptual and accounting framework for the analysis and assessment of economic performance. The SNA consists of a

coherent, consistent and integrated set of macro-economic accounts, annual accounts (balance sheet) and tables, based on the internationally accepted and agreed concepts, definitions, classifications and accounting rules.

The SNA has its origin in 1947 when the United Nations Statistical Commission (UNSC) expressed and emphasized the need for international statistical standards to serve the development and updating of comparable statistics. The SNA was finally first issued in 1953, encompassing a detailed explanation of the methodology and terminology, and developed standardized tables for presenting the data. Throughout the history of the UNSC several national accounting standards were produced. The SNA of 1953 had two audits in 1960 and 1964. In 1968 the new SNA was prepared, which further developed and expanded the existing system primary by adding also the input-output accounts and balance sheet, focusing on the evaluation of constant prices and trying to approach the SNA and the Material Product System. This convergence was achieved by clarifying and defining the conceptual differences and expanding the definition with the aim of achieving comparability.

A new SNA was adopted and jointly published in 1993 by five organizations: the Statistical Office of the European Communities (Eurostat), the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Statistics Division (UNSD) and the Regional Commissions of the UN and the World Bank. During the development of the SNA in 1993 they took into account the new features of the market economy. Release of the SNA 2008 from 2009, which represents an updated and revised version of the SNA in 1993, is characterized by issues related to changes in the economic environment, advances in methodological research and the release is more adapted to the needs of users (SNA, 2009, pp. xivii)⁵.

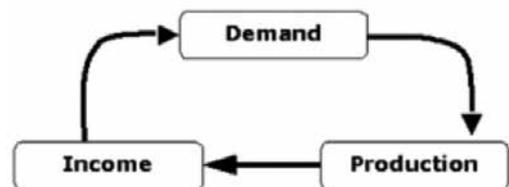
The Council of the European Union, together with Eurostat, modulated and adjusted the standard methodology of the 1993 SNA for the purposes of statistical offices in the European Union (EU), creating a European System of National and Regional Accounts (ESA). The ESA is compatible with the SNA and enables description of the total output of the region, country or group of countries, the different components of output and enables the evaluation and comparison with other economies. This is why the ESA serves as the central framework of

reference for the social and economic statistics of the EU and its Member States. In the continuation of the paper, the definition and methodology of the GDP as the most important indicator derived from the national accounts is presented, accompanied by analysis of the GDP with focus on its limitations.

2.2 Definition and methodology of the GDP

Using the definition given in the 2008 SNA (SNA 2009)⁶, the GDP is the total market value of all final goods and services produced in the country (within the geographical boundaries) in a given period of time. Mankiw and Taylor (2006) use an almost identical definition. Schepelmann et al. (2010)⁷ give detailed explanation of three GDP words: gross - the impairment of the value of capital used in production of goods and services is not taken away from the total value of GDP, domestic - only applies to activities in the domestic economy regardless of ownership, product - refers to what is produced, i.e. goods and services are treated as an output of the economy. The authors also point out that the GDP could be seen as the link of three sides of economy: demand, production and income (Figure 1).

Figure 1 GDP as the crossing point of three sides of the economy



Source: Schepelmann et al. (2010: 14)

These crossing points of the economy can be easily converted into three different and to all economists well-known measurement approaches, i.e. the calculation of GDP: 1. expenditure approach, 2. production approach, 3. income approach.

According to the approach of spending (expenditure method), the GDP is the sum of the final spending, i.e. a measure of the total value of personal, investment and government spending, plus the value of exports minus the value of imports. The above

approach is often shown in the formula $GDP = C + I + G + (X - M)$, given that C is consumption, I investment, G government spending, X export, and M import. Another approach, the approach of output or production method measures the value added that every sector of the economy contributes to the final output; the GDP is the sum of market value reported final production which have made local businesses during an accounting period (usually one year). Finally, access of income (income method) adds the benefits of productive factors received by different people and institutions. The GDP is the sum of wages and salaries, other production taxes and gross operating surplus.

Regardless of the method used for the calculation of the GDP, the calculation should always result in the same number as the above three methods are equivalent: total value added of the manufacturing process is equal to the sum of income generated, which is in turn equal to the total expenditure. Thereby, the GDP measures both: the total income and total spending because those within the state have to be the same.

It is worth noting that the GDP represents the monetary value of all final goods and services produced in the economy, which is calculated by multiplying the value of each product and service with their prices. Therefore, although the GDP is measured in monetary units, its value reflects a combination of real and monetary values. Changes in the level of the GDP can therefore be caused by the real change in volume (products and/or services) or by changes in their prices. That should certainly be taken into account when analysing the change in the size of the GDP within a specified period. In addition, the GDP can be expressed either in the present, market prices (nominal GDP) or constant prices (real GDP), and their ratio is known as the GDP deflator. Given that the real GDP measures the output of the economy adjusted for inflation, it enables the creation of a precise and accurate picture of the functioning of the macro-economy and represents a basic standard of measuring economic activity.

As shown, the GDP is oriented towards production measurement (not taking into account intermediate transactions), taking into account the stronger measure of economic activity based on transactions (not evaluating air pollution, drinking water, natural resources, volunteering, work at home, etc.). As such, the concept of the GDP is often faced with many problems and limitations (shown in the next

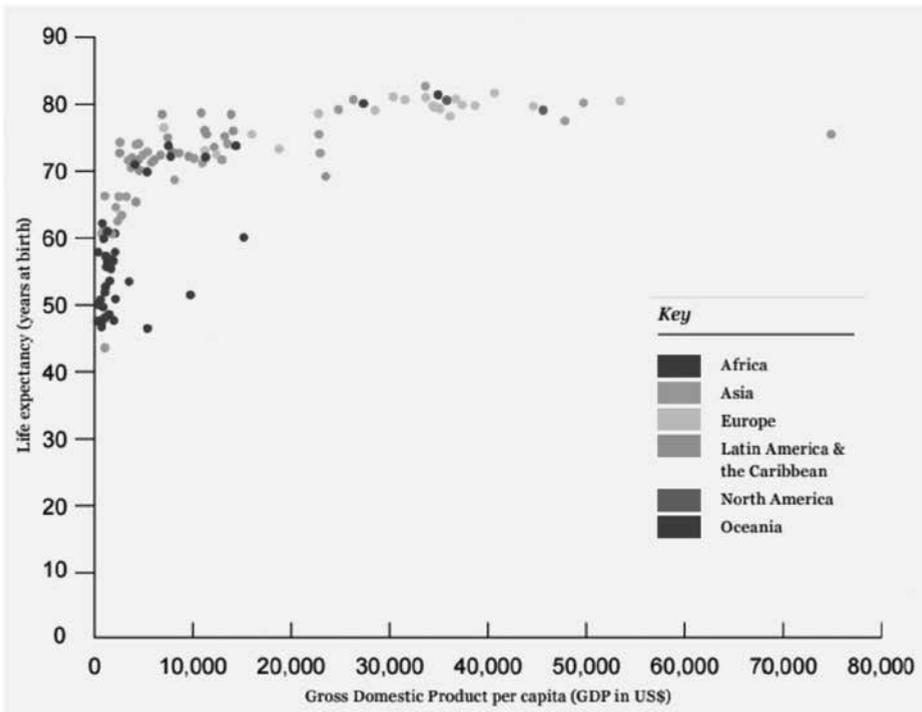
section), especially if it is interpreted in the context of measuring total progress, well-being and sustainable economic development. The GDP is often interpreted as a measure of well-being, a purpose for which it was not intended and for which it was never designed (Bergheim and Schneider, 2006⁸, Bleys, 2005 Canoy and Lerais, 2007).

3. Analysis of the GDP with focus on limitations and weaknesses

The GDP is nowadays faced with many critiques, limitations in its application and shortcomings in the broader sense. Shortly after its creation, its usage and interpretation in the context of measure of development and prosperity, as well as its exclusive focus aimed at producing, was criticized by many famous economists such as Nobel Prize winners Kenneth Arrow, Simon Kuznets, Daniel Kahneman, Robert Solow, Joseph Stiglitz, Amartya Sen and Muhammad Yunus (Wesselink et al., 2007). Even Simon Kuznets, one of the main pioneers of the GDP, was aware of how the welfare of the country can hardly be judged based on the measures of national income: one should pay attention to the difference between quantitative and qualitative growth, between costs and income, and between a short and long period of time; aims for more growth should specify more growth of what and for whom (Kuznets, 1962).

During his keynote speech in 1968, US Congressman Robert F. Kennedy expressed his doubts about the GDP as the only measure of development by noting that too much and for too long, we seemed to have surrendered personal excellence and community values in the mere purpose of accumulating material goods. Our gross domestic product is high, but there is much that it does not cover. It does not include the health of our families and children, the quality of their education or the pleasure of playing or the safety of our streets. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public diplomacy and integrity of our officials. The GDP measures neither our intellect nor our courage, neither wisdom, knowledge, nor our compassion or dedication to the country.⁹ In short, Kennedy concluded that it measures everything except that which actually has real meaning in lives.

Figure 2 GDP per person against life expectancy (years at birth) (UNDP, 2009)



Source: WWF, *Living Planet Report* (2010: 75)

Even in the source point of the GDP, the SNA 2008, it is clearly stated that the GDP is often interpreted as a measure of well-being and that the SNA does not stand behind this view (SNA, 2009)¹⁰. The SNA also points out the shortcomings of the GDP (i.e. the national accounts) in the context of well-being measurement.

The big questions are whether the GDP really represents a good measure of the living standard (Stiglitz, 2009)¹¹, what really lies behind the GDP numbers and do the people interpret them in the right way. For politicians, the historic Olympic feat of the GDP (faster, higher, stronger) testifies to the ever increasing economic wealth that they will be glad to share with their environment (Islam and Clarke, 2002). If people spend more money, thus increase the GDP, can it be assumed that this transaction increases the total or subjective well-being, that is, do people really feel the improvement? Although the material well-being (measured by the GDP) represents a potential and an economic base for the development of society, the goal of every state should be the

maximization of well-being of citizens, which leads to the overall progress, rather than maximization of pure material well-being.

Recent empirical research and studies (e.g. Bleys, 2005, Goossens et al., 2007¹², Stiglitz et al., 2009¹³, Scheplemann et al., 2010) show that the monetary measures should not be the ultimate in measuring progress due to the weakness and limitation of access and methodology, calculation and monitoring, because they are too simplistic and do not cover all aspects of human life. In other words, it cannot be assumed that the monetary transactions increase well-being, i.e. that things are generally improving and progressing only because more money is being spent.

Although incomes are an important component of development, they are not the only one: the well-being also includes social and personal elements which together extend the capabilities available for people to live the life they want and consider to be worth living. Furthermore, after a certain level of income, a large number of soft and hard data of the human well-being, such as life expectancy at birth, cannot be increased with further increase in per

capita income (WWF, 2010, Figure 2)¹⁴.

On the other hand, the economy has to be more than just the production and consumption of things; higher goals and better ways of measuring country performance are necessary (Cobb et al., 1995). Moreover, the GDP does not measure directly what makes life valuable, but the ability to obtain inputs (Mankiw and Taylor, 2006).

While the GDP is the widely used and accepted measure of growth, it is often used in an inappropriate manner, partially purposely, partially because of the lack of knowledge of those who use it. Hence Goldsmith (2009) interpreted the English expression GDP as a grossly distorted picture. Before using and interpreting the GDP numbers to create the policy of a state, region or company, you must be familiar with all the advantages and disadvantages of this widely used measure of economic output. Based on these assumptions, the following chapters of this paper analyse the GDP through SWOT analysis based on weaknesses and limitations of the GDP as a universal measure of progress.

3.1 GDP limitations and critiques - the SWOT analysis

SWOT analysis is a tool often used in strategic planning and analysis with the strengths, weaknesses, opportunities and threats as the main components used to analyse the competitive situation and the position of the observed company, city, region, country, specific indicators or systems (e.g. educational, scientific, etc.). The limiting factor of the SWOT analysis lies in the potentially subjective assessment and evaluation of observed elements. The justification for the SWOT method selection for the GDP analysis was confirmed by Schepelmann et al. (2010)¹⁵; they used the same methodological framework for each of the selected indicators that go beyond the GDP. However, that publication does not assess GDP for its internal strengths and weaknesses and external opportunities and threats. The SWOT analysis of the GDP is presented below (summarized in Table 1 after which all of the items are explained in detail). The initials of the analysis have the following meanings: strength - attributes of the GDP that contribute to its continued use as an indicator; weaknesses - attributes of the GDP speaking against its use as an indicator of progress; opportunities - external conditions that may contribute to the use of the GDP; threats - external conditions that 'damage' the GDP and its usage.

Table 1 SWOT analyses of the GDP as a measure of progress

Strengths	Weaknesses
<ul style="list-style-type: none"> • simple and universal • used in economic policy for a long period of time • comparable in terms of time • comparable in terms of scope • positively correlates with some alternative measures 	<ul style="list-style-type: none"> • already recognized by the SNA (e.g. the impact of externalities, external events, non-economic effects etc.) • uncovered items (e.g. the black economy, leisure, human freedom etc.) • questionable covered items (e.g. depreciation, income for foreigners etc.) • methodological problems of calculations (e.g. the invisible structure, distribution of income, health conditions, etc.)
Opportunities	Threats
<ul style="list-style-type: none"> • indicators adjusting the GDP • Satellite Accounts SNA • favour of the relevant institutions 	<ul style="list-style-type: none"> • the growing costs of economic growth • new measures that include sustainability

Source: Author

Strengths

Historically, the GDP is the most commonly used indicator of economic activity because of certain qualities that enabled it to survive for so long. The great advantage of the GDP is reflected in the fact that it was the first measure of economic performance and activity. Convenient historical circumstances and reasons created and encouraged the emergence of the GDP (as explained above). Its specific development made it very unique: it combines simplicity, linearity and universality and has a crucial role in macroeconomic policy (monetary as well as fiscal) and decision making (Schepelmann et al., 2010)¹⁶. As such, the GDP is a valuable and important economic indicator, which plays an important role in designing economic policy, which represents its main strength. In addition, the GDP also allows comparability. The GDP is positively correlated with some of the alternative measures.

Weaknesses

Several problems exist in the definition of the GDP and what it measures. The literature reports the discussion of the limitations and criticisms of the GDP as a measure of well-being. Some authors emphasize issues related to the environment (e.g. Dasgupta, 2009, Coyle, 2014), some mention incorporated or unincorporated activities (e.g. Schepelmann et al., 2010¹⁷, Coneciao and Bandura, 2008, Case and Fair, 2007, Bergheim and Schneider, 2006¹⁸, Braguinsky, 2005¹⁹, Doepke, 2003²⁰, Darmstadter, 2000, Cobb et al., 1995, Matthews, 1984), some question the methodology itself (e.g. Landefeld et al., 2010, Albu, 2008, Boarini et al., 2006, Van den Bergh, 2007, Stiglitz, 2009²¹, Haque, 2004, Islam and Clarke, 2002, McNeill, 1999, Bannock, 1975, etc.).

All these disadvantages are interconnected and can therefore sometimes be difficult to separate. For the purpose of this paper, the GDP weaknesses are divided into two groups: A) the weaknesses identified by the SNA itself (further divided into six categories) and B) other weaknesses to be found in the literature (further divided into three categories).

A) The SNA is also aware of some shortcomings involved in measures of national accounts from the perspective of measuring well-being. In the 2008 SNA it is clearly stated: the GDP is often used as a measure of well-being, but the SNA does not claim that this is true, and there

are several conventions in the SNA that speak against the interpretation of these accounts in terms of well-being (SNA, 2009)²². This primarily refers to the 6 categories explained below.

1. Qualifications to treating expenditure as a welfare measure

In a market economy, the prices used to value different goods and services should reflect not only their relative costs of production, but also the relative benefits or utilities to be derived from using them for production or consumption. This establishes the link between changes in aggregate production and consumption and changes in welfare. However, changes in the volume of consumption, for example, are not the same as changes in welfare. It is widely accepted that, other things being equal, increased expenditure on goods and services leads to increased welfare. The increase in welfare may not, however, be proportionate to the increase in expenditure. Nor is the unit incurring the expenditure necessarily the one that benefits from an increase in welfare. The SNA makes a distinction between actual consumption, showing the amount of goods and services actually consumed, and consumption expenditure.

2. Unpaid services and welfare

The services produced and consumed by households are not included in the SNA except for the imputed rental of owner-occupied dwellings and the payments made to domestic staff. Similarly, no estimate is included in the SNA for the labour services of individuals provided without cost to non-profit institutions. In both these cases, the contribution of time increases the welfare of other individuals in the community.

3. The impact of external events on welfare

The level of an individual's and a nation's welfare may be affected by a wide range of factors that are not economic in origin. Consider the effects of an exceptionally severe winter combined with an influenza epidemic. Other things being equal, the production and consumption of a number of goods and services may be expected to rise in response to extra demands created by the cold and the epidemic; the production and consumption

of fuels, clothing and medical services will tend to increase. As compared with the previous year, people may consider themselves to be worse off overall because of the exceptionally bad weather and the epidemic, notwithstanding the fact that production and consumption may have increased in response to the additional demand for heating and health services. Total welfare could fall even though the GDP could increase in volume terms.

4. The impact of externalities on welfare

Some production activities cause a loss in welfare that is not captured in the SNA. A factory, for example, may generate noise and emit pollutants into the air or nearby water systems to the extent of causing a loss of amenity and thus a loss of welfare to individuals living nearby. As long as there is no financial penalty to the factory, the consequences go unmeasured in the SNA. If, in response to government legislation or otherwise, the factory incurs expenditures that reduce the noise or quantity of pollutants emitted, costs will rise and so will welfare, but again the match is not necessarily one to one and the level of welfare after the ameliorations may still be lower than it might be if the factory simply closed down.

5. Non-economic impacts on welfare

An individual's state of well-being, or welfare, is not determined by economic factors alone but by personal and family circumstances, quality of health, satisfaction, etc. It is difficult to imagine an objective way in which factors such as these could be quantified and more difficult to imagine the usefulness of including them in a system designed primarily to facilitate economic analysis.

6. Welfare indicators and macroeconomic aggregates

Welfare is a wide-ranging concept with many different facets: some of these may be captured reasonably well by one or more of the key aggregates of the SNA, others may be captured by using the basic structure of the SNA and expanding it in certain directions. Yet other aspects are likely to remain forever outside the reach of a system not designed with the measurement of welfare as a prime consideration.

B) In addition to the weaknesses identified and already 'recognized' by the SNA, in the literature one can find other limitations of the GDP, which confirm that it is not a good measure of well-being. These limitations will be discussed below, grouped into three categories that, to some extent, intertwine.

1. Not covered items

Here, among other things, it is important to emphasize the following concepts: black economy, black marketing, leisure, human freedom, type of employment, quality of products, etc.

The GDP underestimates the true living standards due to the existence of the black economy (also called grey economy, shadow economy, informal economy, the underground economy), which includes the economic activities that take place unrecorded (Matthews, 1984). The above is related to unregistered legal transactions that go beyond the market (to avoid paying taxes), but also illegal, prohibited transactions (e.g. sale of weapons, prostitution, smuggling, etc.); none of these is included in the statistics of GDP (see also Braguinsky, 2005²³, Doepke, 2003²⁴).

The GDP also does not take into account the earnings generated through black marketing that is rapidly evolving, which is why it is often called parallel economy (economic activity that leads to growth, but is not registered). The GDP measures only goods and services that are bought or sold; if the products and/or services are exchanged with neighbours, friends, family and the like, they are not included in the GDP (Doepke, 2003)²⁵. Leisure and family time is also not taken into account (Cobb et al., 1995).

From the health perspective, we can certainly say that leisure contributes to the well-being of people; yet, from the perspective of the GDP there are clear 'opportunity costs' of free time. Calculation of the GDP also does not take into account how hard people work to produce a specific output. Moreover, most of the tasks today are safer and less physically strenuous than in the past, but the GDP does not take that into account. Even the changes in the quality of the product are not measured; for example, even though computers have become much better, faster and more efficient, they are still counted as the same prod-

ucts, which is why economic growth is often underestimated (Doepke, 2003)²⁶. Human freedom is also an important concept that is vital for the well-being, but it is difficult to express in monetary terms that are the essential aim of using the GDP to measure well-being (Islam and Clarke, 2002). Wen et al. (2007) grouped items that are not included in the GDP into three categories: economic (e.g. coefficient of income distribution, etc.), social (the cost of crime, the cost of car accidents, the value of volunteering, etc.) and ecological (cost of air pollution, water, forests, etc.).

2. Questionably covered items

If someone in the company wants to spend money to repair the machine that is broken or just for some reason no longer suitable for use, the money spent for such expenditure will in the company be shown as an expense, rather than as revenue. The problem with the GDP is that there is no such difference. It includes many items that do not contribute to the well-being: depreciation, income for foreigners, etc. (Bergheim and Schneider, 2006)²⁷. The GDP does not indicate the conditions of life in which people live and how economic activity is reflected in their living conditions. The value of the GDP can grow if, for example, natural resources are used more aggressively. In a situation of non-renewable or slowly renewable resources, such growth is generated to the detriment and expense of future growth. The GDP includes the replacement of the amortized/underestimated capital: it is a 'gross' concept. However, the depreciation will not contribute to the well-being and the replacement of the old capital of economy actually returned to the same place (Bergheim, 2006) unless the capital is replaced with better and more innovative one.

A large number of GDP critics are associated with environmental issues (depletion of natural resources and damage to the environment) that justify the need for satellite accounts. Initiatives in the area are commonly referred to as greening the GDP. This kind of criticism is more than justified: the more countries exhaust their natural resources, the more the GDP increases, but the welfare is certainly not growing. According to McNeill (1999), this occurs for two reasons. Firstly, whenever you do harm to the environment (e.g. oil spills, contamination of waterways), financial re-

sources used in the campaign to resolve the consequences of the pollution will pass through the market system. Labour, machinery and raw materials required in this process will be registered as an economic activity and will therefore increase the GDP. Secondly, the GDP does not take into account when stocks of natural capital (such as forests or fish in the sea) decrease. Activities for which there is a decrease in natural capital (such as logging or hunting fish) are recorded in the GDP because these products are sold in the market at a certain price; the GDP will rise even if the stocks of natural capital decrease (to the point of complete exhaustion of natural resources).

3. Methodological problems of calculation

This category primarily relates to the following weaknesses: delay in reporting, invisible structure, government spending, perfect competition, distribution of income, health conditions, interstate comparisons, the issue of the environment, the ratio of short-term vs. long-term development and others. The problems caused by the above deficiencies in the calculation of the GDP are explained below.

The GDP is facing delays in reporting; considering that the collection of data on transactions included in the calculation of the GDP in any country is a time demanding process, the data are evaluated only on a quarterly basis. For this reason, additional variables are required to determine monthly chronology in order to obtain short-term forecast of economic activity at the national level (Albu, 2008).

Furthermore, data on the GDP itself have an invisible structure: they do not indicate the structure of output which can often be crucial for analysts and subjects of macroeconomic policy. For example, the increase in the GDP is not necessarily the result of an increase in productive investment and better export performance but of the increase of unproductive private and/or government spending. Similarly, the reduction in the GDP does not always mean a worse economic situation, but can sometimes be the result of positive innovation caused by restructuring and modernizing the economy, which will, in the future, enable the creation of a larger output (Borožan, 2006).

The GDP highlights the average income, which may not correspond to the actual income of any particular or specific population group. Average income gives no indication of the distribution of income among citizens (not taking into account how the output produced is distributed in a given period - how much went to the rich, and how much to the poor people).

It is particularly challenging and difficult to measure government spending in the national accounts as public services are often provided for free (or at a reduced price) and directly to users; government spending cannot be evaluated using prices that reflect the marginal benefit to the consumer. As a result, the valuation of the output of public services in current prices is based on the values of inputs, i.e. equalizing the government spending with a total cost of production. The above has implications for the measurement of the total GDP and determination of the extent to which it can be used as an assessment of well-being (Boarini et al., 2006).

Changes in the health conditions of society are only reflected in the GDP in the extent to which they increase the cost of the health care system. In this sense, a more expensive health care system increases the GDP, though the foundation of the growth of these costs may be the use of advanced techniques, increasing life expectancy and the like. The costs and benefits in these cases again are not easy to identify (Schepelmann et al., 2010)²⁸.

In order to compare living standards between countries, the basic GDP figures should be adjusted because of the different exchange rates and relative price levels in the two countries. Otherwise, it would seem that the poor countries always lose (in terms of issues of convergence). However, it should be remembered that the cost of living in poor countries is lower than in rich countries. To correct this difference, it is necessary to use purchasing power parity (PPP) as an exchange rate that makes the cost of living in different countries comparable (Gould and Ruffin, 1993). Schepelmann et al. (2010)²⁹ define the PPP as a set of comparable products from countries that examines how many units of the domestic currency in relation to foreign currency (usually USD or euro) should be set aside for the purchase of a particular product in another country. When the GDP is adjusted to the recalculated exchange

rates, the authors added that it becomes an effective customized mirror of real purchasing power and living standards.

Within this methodological GDP issues category it is important to point out that it is possible that the productivity of the country is growing, but also decreasing during the period in which the GDP grows. The problem is that no one will notice a reduction in productivity, as long as attention is focused solely on the GDP. Moreover, if productivity continues to decline, economic growth will stop and get the opposite sign: the standard of living will decline. Thus, the growth of the GDP per capita can encourage people to think that everything is fine, despite the fact that it is not (Dasgupta, 2009).

Another recent concern about the adequacy of national accounts stems from the understanding of the different impacts of recession among households, industries and regions of the country. Concerns also occur in terms of failure of the national accounts for the corresponding warning about imbalances that developed in the household sector and financial markets (Landefeld et al., 2010). The GDP does not distinguish between the costs and benefits of productive and destructive activities, sustainable and unsustainable practices and procedures. The GDP focuses on short-term (current) economic activity, and not the long-term aspects of sustainable development, such as growth of natural, economic and human resources that are important from a long-term perspective (Van den Bergh, 2007). All of the limitations of the GDP are important and absolutely correct; what is wrong, according to McNeill (1999), is that the analysis of these restrictions does not go far enough.

Opportunities

The GDP has a lot of disadvantages if it is seen as an indicator of progress and prosperity. However, the above limitations may be the starting point of changes, i.e. they can be turned into opportunities that will allow the GDP to retain its role of a leading economic measure. Seen by conventional means, opportunities for the GDP that come from the environment are the new indicators that use the GDP as its basis, and are usually called indicators that

adjust the GDP (e.g. Genuine Progress Indicator). These alternative indicators, which use the GDP in the calculation, often show different results measuring the progress than the GDP itself. However, the last efforts of expanding the conventional GDP have run into problems of subjectivity and uncertainty inherent in the measurement of health, happiness and the environment (Landefeld et al., 2010). Critics fear that the inclusion of the uncertain and subjective value in the GDP seriously reduces the key role of national accounts in the measurement and management of market economy.

Environmental externalities are the main cause of concern from a dual perspective: the measurement of well-being and the economic growth. In response to these problems, satellite accounts by the SNA have been developed. Satellite accounts are closely linked with the main SNA, but do not necessarily use the same concepts and are not necessarily limited to information expressed in monetary terms. Satellite accounts are intended for specific purposes, such as monitoring the health of the community or the state of the environment. They can also be used to research new methodologies and new accounting procedures that, when fully developed and accepted, can become part of the main SNA over time (SNA 2008, 2009)³⁰.

An additional opportunity for the GDP is the obvious inclination of major institutions (such as the European Council) to keep it as the main measure of progress of society. Everything is calculated through and with the help of the GDP. Schepelmann et al. (2010)³¹ argue that the modern economic policy and decision-making processes (in the EU, at the national and regional level) are therefore heavily dependent on GDP growth: the EU regional policy is to use the level of the GDP in determining the threshold acceptability levels for EU funding, government debt and deficit are calculated as a percentage of the GDP, and so on. In fact, given these reasons and their interdependence, completely abandoning the GDP could cause serious problems and even conflicts.

Threats

Economic well-being is not the guarantor of human happiness or, in itself, a reliable key to human well-being (Darmstadter, 2000), but it is often interpreted in this context. Citizens generally feel better if they are materially richer, but well-being also

depends on the type of goods that are consumed, the amount of free time that is available to individuals, relationships with family and friends, the state of preservation of the environment that surrounds them, and so on. Nowadays many people feel that their well-being is undermined by too much pressure of work, unemployment, problems in the family, pollution and climate change. For these reasons the decision-makers should be interested in statistics that take into account the resolution of those issues, rather than purely economic, monetary indicators like the GDP. In addition, there remains the question if the GDP, out of all data that can be obtained from the SNA, is best suited to measure the total value of economic resources that influence the well-being (Boarini et al., 2006).

From a competitive perspective, the threat to the GDP is the emergence of new measures that include the aspect of sustainability. Thus, the external threats to the GDP are all new indicators that aim to replace the GDP. The question remains how big the interest of the public and the media should be for this, in a way, revolutionary move to measure progress qualitatively, in terms of welfare and sustainability. Or, to go a step back, economists should be the main generators of new measures to promote the progress and presentation of existing shortcomings of the GDP to the general public.

4. Conclusion

Progress of the society should be valued through the quality of life improvement, not on GDP figures alone. Therefore, it might be useful to see it as a construct consisting of two dimensions: objective and subjective (Frajman Ivković, 2012). The fact that argues for the necessity of coordinated monitoring of objective and subjective indicators is that despite the economic growth in the last 50 years, people have not become happier and more satisfied than they were 20 or 40 years ago (Clark et al., 2008) when there were no big TV screens, Internet and PlayStations. Questionable thus becomes the assumption of traditional economics, which is that all people strive to maximize utility, with higher income available and greater opportunities for consumption. Research (like Easterlin, 1974) shows that the size of the GDP does not determine the amount of happiness and well-being in society.

There is obviously something else in addition to the GDP to what one should pay particular attention in policy-making and policy implications, especially if the primary concern is the welfare of society over a long period of time.

Conventional practice has until recently been to judge the well-being solely on the basis of GDP data. As shown in this paper, the GDP has a number of weaknesses. The consequences of improper use of the GDP and its interpretation as an indicator of well-being, i.e. the absence of measures of the actual progress of society are huge, especially if one

takes into account the powerful impact the figures of the GDP have on the functioning and direction of the economy as a whole (e.g. the public debt, the available funds of the European Union, the development of regions within the country, etc.) and decision-making at all levels. The GDP is therefore only one of the economic measures that objectively show the situation in the country. The number of alternative measures of economic development that indicate varying degrees of social development is increasing, but they are still insufficiently accepted in public policy.

REFERENCES

1. Albu, L. L. (2008), "A Model to Estimate the Composite Index of Economic Activity in Romania", *Journal for Economic Forecasting*, Vol. 50, No.12, pp. 44-50.
2. Bannock, G. (1975), "Technology and the Quality of Life", in Alexander, K. J. W. (Ed.), *The Political Economy of Change*, Basil Blackwell, Oxford, pp. 45-56.
3. Bleys, B. (2005), "Alternative welfare measures", MOSI Working Paper No. 12, Vrije Universiteit Brussel, Brussels.
4. Boarini, R., Johansson, A., d'Ercole, M. M. (2006), "Alternative measures of well-being", *OECD Social, Employment and Migration Working Papers No. 33*, OECD, Paris.
5. Borozan, Đ. (2006). *Makroekonomija*. Osijek: Faculty of Economics in Osijek.
6. Canoy, M., Lerais, F. (2007), "Beyond GDP", paper presented at Beyond GDP conference, Bureau of European Policy Advisers (BEPA), European Commission, Available at: <http://www.beyond-gdp.eu/download/bgdp-bp-bepa.pdf> (Accessed on: April 09, 2016)
7. Case, K. E., Fair, R. C. (2007). *Principles of Economics*. 8th edition. New York: Pearson Education.
8. Cobb, C., Halstead, T., Rowe, J. (1995), "If the GDP is up, why is America down?": *The Atlantic Monthly*, No. 276, pp. 59-79.
9. Coyle, D. (2015). *GDP: A brief but affectionate history*. Princeton, New Jersey: Princeton University Press.
10. Darmstadter, J. (2000), "Greening the GDP - Is It Desirable? Is It Feasible?", *The RFF Reader in Environmental and Resource Policy*, No. 139, pp. 11-15.
11. Dasgupta, P. (2009), "The welfare economic theory of green national accounts", *Environmental and Resource Economics*, Vol. 42, No. 1, pp 3-38.
12. Easterlin, R. A. (1974), "Does Economic Growth Improve the Human Lot?", in David, P. A., Reder, M. W. (Eds.), *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*, Academic Press, Inc., New York, pp. 89-125.
13. Frajman Ivković, A. (2012). *The Progress of Society Led by Subjective Well-being: the Citizen Happiness Index*. Doctoral dissertation. Osijek: Faculty of Economics in Osijek.
14. Goldsmith, Z. (2009). *The Constant Economy: How to Create a Stable Society*. London: Atlantic Books.
15. Gould, D., Ruffin, R. J. (1993), "Human Capital Externalities, Trade, and Economic Growth", *Federal Reserve Bank of Dallas Research Paper No. 9301*, Federal Reserve Bank of Dallas, Dallas.
16. Haque, M. S. (2004), "The Myths of Economic Growth (GNP): Implications for Human Development", in Mudacumura G., Haque, M. S. (Eds.), *Handbook of Development Policy Studies*, Marcel Dekker, New York, pp. 1-24.
17. Islam, S. M. N., Clarke, M. (2002), "The Relationship Between Economic Development and Social Welfare: A New Adjusted GDP Measure of Welfare", *Social Indicators Research*, Vol. 57, No. 2, pp. 201-228.
18. Kuznets, S. (1962), "Inventive Activity: Problems of Definition and Measurement, The Rate and Direction of Inventive Activity: Economic and Social Factors", in *National Bureau of Economic Research, The Rate and Direction of Inventive Activity: Economic and Social Factors*, Princeton University Press, Princeton, New Jersey, pp. 19-52.
19. Landefeld, J. S., Moulton, B. R., Platt, J. D., Villones, S. M. (2010), "GDP and Beyond: measuring economic progress and sustainability", *Survey of Current Business*, Vol. 90, No. 4, pp. 12-25.
20. Mankiw, N. G., Taylor, M. P. (2006). *Economics*. Stamford, Connecticut: Thomson Learning.

21. Matthews, K. G. P. (1984), "The GDP residual error and the black economy: A Note", *Applied Economics*, Vol. 16, No. 3, 443-448.
22. Maxton, G. (2011). *The end of progress: How modern economics has failed us*. London: John Wiley & Sons.
23. McNeill, J. (1999), "GDP growth and human wellbeing: a brief look at why we need a better measure of progress", *New England Perspectives*, No. 3, pp. 135-144.
24. Van den Bergh, J. (2007), "Abolishing GDP", *Tinbergen Institute Discussion Paper*, Vol. 19, No. 3, Tinbergen Institute, Amsterdam.
25. Wen, Z., Zhang, K., Du, B., Li, Y., Li, W. (2007), "Case study on the use of genuine progress indicator to measure urban economic welfare in China", *Ecological Economics*, Vol. 63, No. 2, pp. 463-475.
26. Wesselink, B., Bakkes, J., Best, A., Hinterberger, F., ten Brink, P. (2007), "Measurement Beyond GDP", paper presented at *Beyond GDP: Measuring progress, true wealth, and the well-being of nations*, November 2007, Brussels.

(ENDNOTES)

- 1 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", *Wuppertal Institute for Climate, Environment and Energy*, Wuppertal special no. 42.
- 2 Abdallah, S., Thompson, S., Michaelson, J., Marks, N., & Steuer, N. (2009), "The Happy Planet Index 2.0: Why good lives don't have to cost the Earth", *The New Economics Foundation*, London.
- 3 Michaelson, J., Abdallah, S., Steuer, N., Thompson, S., Marks, N. (2009), "National Accounts of Well-being: Bringing Real Wealth Onto the Balance Sheet", *The New Economics Foundation*, London.
- 4 Michaelson, J., Abdallah, S., Steuer, N., Thompson, S., Marks, N. (2009), "National Accounts of Well-being: Bringing Real Wealth Onto the Balance Sheet", *The New Economics Foundation*, London.
- 5 *System of National Accounts 2008* (2009), United Nations, New York
- 6 *System of National Accounts 2008* (2009), United Nations, New York
- 7 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", *Wuppertal Institute for Climate, Environment and Energy*, Wuppertal special no. 42.
- 8 Bergheim, S., Schneider, S. (2006), "Measures of well-being", *There is more to it than GDP*, Deutsche Bank Research, Frankfurt
- 9 JFK Library, Robert F. Kennedy Speeches, Remarks at the University of Kansas, March 18, 1968, Available at: <http://www.jfklibrary.org/Research/Research-Aids/Ready-Reference/RFK-Speeches/Remarks-of-Robert-F-Kennedy-at-the-University-of-Kansas-March-18-1968.aspx> (Accessed on April 09, 2016)
- 10 *System of National Accounts 2008* (2009), United Nations, New York
- 11 Stiglitz, J. E. (2009), "Rethink GDP Fetish", Available at: http://host.madison.com/ct/news/opinion/column/guest/article_71fad514-9caa-11de-9a00-001cc4c03286.html (Accessed on April 09, 2016)
- 12 Goossens, Y., Mäkipää, A. (2007), "Alternative progress indicators to Gross Domestic Product (GDP) as a means towards sustainable development", *Policy Department Economic and Scientific Policy*, European Parliament.
- 13 Stiglitz, J. E., Sen A., Fittoussi, J. P. (2009), "Report by the Commission on the Measurement of Economic Performance and Social Progress", Available at: http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf (Accessed on April 09, 2016)
- 14 WWF, *Living Planet Report* (2010), "Biodiversity, Biocapacity and Development", Switzerland.
- 15 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", *Wuppertal Institute for Climate, Environment and Energy*, Wuppertal special no. 42.
- 16 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", *Wuppertal Institute for Climate, Environment and Energy*, Wuppertal special no. 42.
- 17 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", *Wuppertal Institute for Climate, Environment and Energy*, Wuppertal special no. 42.

- 18 Bergheim, S., Schneider, S. (2006), "Measures of well-being", There is more to it than GDP, Deutsche Bank Research, Frankfurt
- 19 Braguinsky, S. (2005), "Lecture Notes for Macroeconomic Theory", Available at: <http://pluto.fss.buffalo.edu/classes/eco/sb56/> (Accessed on: April 09, 2016)
- 20 Doepke, M. (2003), "Lecture Notes for Econ 202 at Chicago." Chapter 2 - NIPA and the Measurement of Inflation, Available at: <http://www.econ.ucla.edu/doepke/teaching/resources/index.html> (Accessed on: April 09, 2016)
- 21 Stiglitz, J. E. (2009), "Rethink GDP Fetish", Available at: http://host.madison.com/ct/news/opinion/column/guest/article_71fad514-9caa-11de-9a00-001cc4c03286.html (Accessed on April 09, 2016)
- 22 System of National Accounts 2008 (2009), United Nations, New York
- 23 Braguinsky, S. (2005), "Lecture Notes for Macroeconomic Theory", Available at: <http://pluto.fss.buffalo.edu/classes/eco/sb56/> (Accessed on: April 09, 2016)
- 24 Doepke, M. (2003), "Lecture Notes for Econ 202 at Chicago." Chapter 2 - NIPA and the Measurement of Inflation, Available at: <http://www.econ.ucla.edu/doepke/teaching/resources/index.html> (Accessed on: April 09, 2016)
- 25 Doepke, M. (2003), "Lecture Notes for Econ 202 at Chicago." Chapter 2 - NIPA and the Measurement of Inflation, Available at: <http://www.econ.ucla.edu/doepke/teaching/resources/index.html> (Accessed on: April 09, 2016)
- 26 Doepke, M. (2003), "Lecture Notes for Econ 202 at Chicago." Chapter 2 - NIPA and the Measurement of Inflation, Available at: <http://www.econ.ucla.edu/doepke/teaching/resources/index.html> (Accessed on: April 09, 2016)
- 27 Bergheim, S., Schneider, S. (2006), "Measures of well-being", There is more to it than GDP, Deutsche Bank Research, Frankfurt
- 28 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", Wuppertal Institute for Climate, Environment and Energy, Wuppertal special no. 42.
- 29 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", Wuppertal Institute for Climate, Environment and Energy, Wuppertal special no. 42.
- 30 System of National Accounts 2008 (2009), United Nations, New York
- 31 Schepelmann, P., Goossens, Y., Makipaa, A. (2010), "Towards Sustainable Development, Alternatives to GDP for Measuring Progress", Wuppertal Institute for Climate, Environment and Energy, Wuppertal special no. 42.

Anita Frajman Ivković

OGRANIČENJA BDP-A KAO MJERE PROGRESA I BLAGOSTANJA

SAŽETAK

Predmet ovog rada je bruto domaći proizvod koji je postao univerzalna mjera napretka i blagostanja. Međutim, njegova upotreba za tu svrhu je neprimjerena i pogrešna, jer on kao ekonomska mjera, odražava isključivo produktivnost. Nadalje, BDP nije ni osmišljen za nešto više od monetarne mjere, a osim toga, ima puno ograničenja i slabosti koje nisu u dovoljnoj mjeri predstavljene široj javnosti, kao ni u znanstvenim radovima. U ovome radu, navedeno je prikazano definiranjem BDP-a i njegovim povijesnim gledištima. Osim toga, korištena je SWOT analiza za isticanje slabosti i ograničenja ove monetarne mjere. Strukturalne kritike bruto domaćega proizvoda daju prostor drugim mjerama napretka i blagostanja koje se mogu koristiti na sveobuhvatniji način.

Ključne riječi: BDP, ograničenja BDP-a, napredak, blagostanje, alternativne mjere