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# Gross Domestic Product as a Modern-day Economic Indicator

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<p>The purpose of this thesis was to analyze the relevance of Gross Domestic Product (GDP) as an indicator for economic performance and a tool for economic policy-making.</p> <p>The most important source of information was the extensive literature in this field and primary research which has been done on the topic. An interview with a specialist in this research topic was also conducted to get additional information on the areas which were somehow not addressed by the literature.</p> <p>GDP information is firmly established in our society and it is used in comparison of the living-standards between different countries, although the indicator was not originally developed for this purpose. Also the use of GDP as a goal for economic policy is not consistent with sustainable development.</p> <p>In the future, due to a transition from production based economy to service-based economy, the GDP is becoming less relevant. Therefore new ways of measurement have been looked into, to replace the GDP. None of the new indicators are completely ready to be taken in to use as they hold many similar shortcomings as the GDP, but there is interest to conduct further research.</p>	
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## 1 Introduction

Gross domestic product is standardized as an economic indicator by United Nations System of National Accounts, measuring the total output of goods and services of a state during a certain period of time. It is used for comparing the economic performance of states, but very often the comparison is broadened to evaluate and make estimates of living standards, progress or social welfare between states, although GDP was not originally developed for this purpose.

Questioning the use of GDP for this purpose and its relevance has gained ground slowly, but especially the increased awareness of global warming and the most recent financial crisis have been a major thrust to research more the different methods of measuring – and through measurement increasing - welfare, rather than production. In 2008 the whole idea of alternative measures of progress gained public interest in Europe, as the French President Nicolas Sarkozy gathered a group of experts (Davies, 2009), led by the economist Joseph Stiglitz to look in to the matter. The group published the *Report by the Commission on the Measurement of Economic Performance and Social Progress* (Stiglitz, Sen & Fitoussi 2008), which is one of the most groundbreaking researches done in this field.

One could ask, is it really so, that if one country has a higher GDP over another, the people are there better off? If not, why GDP growth can then be considered as one of the main goals of a modern state's policy? Should not increasing the standard of living and welfare actually be the goal of the state? As one could expect, the answer to this question is not easy or in any way straightforward.

This thesis is organized as follows: first the methodology used will be explained, secondly there is information of how the GDP is calculated in detail, followed by a brief history of the national accounts. The literature review in chapter 6 begins by going through first what should be the goal of measurement, then looking at the benefits and drawbacks of using GDP as a goal of economic policy-making. In chapter 7, the alternatives for GDP are presented and in chapter 8 possible future developments are

listed. In chapter 9, there are the main findings of the interview with Jukka Hoffrén. Chapter 10 concludes the thesis, summarizing all of the finding.

## 2 Methodology

### 2.1 Literature review

As the topic of the research is predominantly theoretical, a thorough literature review was a logical way to conduct a majority of the research. The sources for the literature review were mainly journal articles and different reports on the topic. There has been a lot of research done on this particular field of research, probably because the topic is interesting to several different areas of science, from economics to statistics and onwards to psychology, sociology and cultural geography.

The sources for the literature review were mainly selected by searching from Metropolia's electronic databases, such as EBSCO host and ABI Inform. To produce a systematic analysis, several different articles have been examined and only the most relevant have been selected. A majority of the research papers are American, British and Finnish. As GDP is used all over the world, the findings in this thesis are applicable to all countries, but in some parts of the thesis Finland is highlighted to build a more comprehensive view on the topic.

### 2.2 Qualitative research

Primary research has also been conducted in the form of an interview. The selection of the interviewee was relatively straightforward. Jukka Hoffrén is an expert in methods of measuring the economy and has written several research papers on the alternative indicators for GDP and also a doctoral thesis *Measuring the Eco-efficiency on Welfare Generation in a National Economy* (Hoffrén 2001). Mr. Hoffrén was willing to give an interview and it was conducted 27<sup>th</sup> of September 2011. The questions used in the interview can be found in Appendix 1.

The interview began with questions which were somehow left unanswered by the sources or just needed additional comments or clarification. Including the expert interview in the thesis is aiming to bring additional value, not only by building a unique viewpoint, but to argument the literature review with up-to date expert testimony.

The interview was open-ended rather than structured, as no direct answers were sought for the questions, but rather an expert view of the whole research issue. The framework for the interview was built by using the book *Doing Qualitative Research: A practical Handbook* (Silverman 2000).

### **3 Calculating GDP**

Gross Domestic Product (GDP), represents the total market value of all final goods and services produced within a given time period by factors of production located within a country. GDP does not include intermediate goods, but only "new" products and services; this is to avoid double counting (Landerfeld, Seskin & Fraumeni 2008: 195).

GDP can be calculated in three different ways, firstly by value added (or production) approach, which adds up the gross output of different industries and then subtracts intermediate inputs, to avoid double counting. Secondly it can be calculated by income (by type) approach, which measures the income earned by different factors of production. Lastly the GDP can be determined by final demand (or expenditures) approach, which measures the activities, such as investment and consumption across different industries and imports deducted from exports. (Landerfeld, Seskin & Fraumeni 2008: 196)

All of the different ways of calculating the GDP should lead to the same result. Example of the different measurements is represented in the following figure:

<b>Three Ways to Measure GDP</b>	
	<i>2005 share (percent)</i>
<i>I. Value-added (or production) approach</i>	
Gross Output (gross sales less change in inventories)	183.5
<i>Less:</i> Intermediate inputs	83.5
<b><i>Equals:</i> Value added for each industry</b>	<b>100.0</b>
<i>II. Income (by type) approach</i>	
<i>Sum of:</i> Compensation	56.6
Rental income	0.3
Profits and proprietors' income	17.6
Taxes on production & imports	7.4
<i>Less:</i> Subsidies	0.5
Interest, miscellaneous payments	5.5
Depreciation	12.9
<b><i>Equals:</i> Total domestic incomes earned</b>	<b>100.0</b>
<i>III. Final demand (or expenditures) approach</i>	
<i>Sum of:</i> Consumption of final goods and services by households	70.0
Investment in plant, equipment, and software	16.7
Government expenditures on goods and services	19.0
Net exports of goods and services (exports – imports)	–5.7
<b><i>Equals:</i> Final sales of domestic product to purchasers</b>	<b>100.0</b>

Figure 1: Different methods of calculating GDP (Landerfeld, Seskin & Fraumeni 2008: 197)

As a formula, calculating GDP can be represented in the following way (Landerfeld, Seskin & Fraumeni 2008: 197):

$$GDP = C + I + G + (X - M)$$

C is consumption of final goods and services by households

I is investment in things such as plants, equipment and software

G is government expenditures on goods and services

X is exports

M is imports



The different statistical authorities produce quarterly and annual estimates in addition to the actual GDP figures. GDP information for the estimates are gathered from different sources, such as surveys to business, export and import information gathered from customs documents and extrapolations. (Landerfeld, Seskin & Fraumeni 2008: 193)

The output produced by a country's citizens abroad, is not calculated in the GDP figures together with profits which are earned by a company outside their home country. These are included in Gross National Product (GNP) which is the market value of all final goods and services produced during a given period by factors of production owned by a country's citizens. Unlike the GDP, GNP does not separate where the output is produced. The difference in the value of countries' GDP and GNP is usually relatively small and so most of the arguments in thesis made about GDP apply to GNP as well (Van den Bergh 2009: 117). Previously GNP was the most commonly used indicator, but it has been changed to GDP and the consequences of this change are discussed later (See page 7).

To make the cross-country comparison of GDP possible, some adjustments are made to the GDP after the data has been gathered.

Purchasing Power Parity, or PPP, can be used to make the GDP's of different countries more easily comparable with each other. This is done by selecting comparable goods from different countries and examining how many units of the local currency are needed to buy it in relation to a base currency (usually U.S. Dollars) to buy the same set in an average country. This way the real purchasing power and through this the real income of the GDP figure in a country is effectively evaluated. (Goossens 2007: 14)

Real income is a term used in economics which can be defined as a set of opportunities to purchase real goods and services available to a household as determined by prices and money income. (Case & Fair 2006: 119)

#### 4 The development of GDP and national accounts

National accounts are a broad accounting system which is developed to describe changes both long-term as well as short-term. One of the basic principles of national accounting is also that the data which is produced can be compared across countries. (Statistics Finland 2011)

First estimates of national accounts were made in England by Sir William Petty in 1665, when he researched which outlays on warfare could be supported by means of tax revenues. Later in France agricultural economists the Physiocrats, narrowed down the focus to agricultural production. In Scotland Adam Smith developed the theory of national wealth further to include also manufacturing. There was still a major difference to what we now know as GDP; Smith disregarded service economics, as he saw those unproductive as they were not adding any tangible products. (Cobb, Halstead & Rowe 1995: 3)

At the end of the 19<sup>th</sup> century as England was shifting from manufacturing to services, Alfred Marshall declared that "*utility, rather than tangibility, was the true standard of production and wealth*". So services were also calculated in nation's wealth and the total wealth was determined by the total market price, not by the nature of the products. (Cobb, Halstead & Rowe 1995: 3)

In the beginning of the 20<sup>th</sup> century, during the Great Depression in the United States, the state was forced to make economic estimates based only on inadequate data, such as freight car loadings, stock price indices and incomplete economic indicators (Landerfeld, Seskin & Fraumeni 2008: 193). In 1932 the US Senate requested the Commerce Department to produce estimates of the national income. On behalf of the Commerce Department, economist Simon Kuznets and his colleagues delivered the accounts to the Congress in 1934. This was the first modern version of the gross national product. (Cobb, Halstead & Rowe 1995: 4)

John Maynard Keynes, who has been considered as one of the founders of modern macroeconomics, had an important role in developing the GDP as well. During the World Wars Keynes made notable research which helped to develop the GDP we use today. Generally so-called Keynesian economics is considered to support an active role

from the government in the economics and believe that monetary and fiscal policy should be used to manage the macroeconomy (Case & Fair 2006: 685). So a tool which would help the government to guide the whole economy would fit well to the Keynesian ideology. (Cobb, Halstead & Rowe 1995: 5)

During the Second World War the GNP indicator became more important tool in economic research and politics, after Simon Kuznets, Richard Stone and James Meade made research on ways to determine the production capacity of Allied Forces before and during the World War II (Van den Bergh 2009: 118). Overall the role of the GNP as a war planning tool was very important and it gained even more importance after the wars when the economy needed to recover and these new statistical methods were found to be very effective in economic planning: "*The production frenzy that had pulled the nation out of the Depression and through the war was now the model for the peace as well*". (Cobb, Halstead & Rowe 1995: 4)

In 1991 USA shifted from using GNP to GDP. This change did not have a direct affect to the citizens, as much as to the multinational corporations. Under GNP, the earnings of multinational firms were calculated to the GNP of the country where the firm was owned and so where the profits would be eventually returned. When the national accounting system was changed to GDP, the profits made by the firm were now attributed to the country where the factors of production (like a factor or a mine) were located, although the profits would be returned to the home country of the firm. This change in the accounting principles has made many developing countries in to look much better in statistics than in reality and by so pushing the global economy. At the same time, the developed nations are benefitting from the resources of the poorer countries and make it look like the developing countries would actually gain the benefits. (Cobb, Halstead & Rowe 1995: 8)

During the time when Adam Smith was developing the concept of wealth of nations, the earth seemed to have an endless supply of resources and sustainability was an unknown concept. The production driven economy has led us to where we are now; the earth's resources are slowly running out and overall the view of citizens has changed:

Because the Keynesian approach saw consumption as the drive train of prosperity, Washington collectively looked at the public in those terms as well. They were no longer primarily farmers, workers, business people—that is, producers. Rather, they were consumers, whose spending was a solemn national duty for the purpose of warding off the return of the dreaded Depression. (Cobb, Halstead & Rowe 1995: 5)

In Finland the national accounting officially began in 1948 when Statistical Office of Finland was appropriated by the State Budget to hire personnel to accomplish national income calculations. The Statistical Office of Finland later became Statistics Finland and at the moment there are around 40 people working on national accounts and roughly half of them working on annual accounts. (Statistics Finland, 2011)

## **5 GDP effects on economy and the use of GDP in decision making**

Macroeconomics is *"the branch of economics that examines the economic behavior of aggregates – income, employment, output, and so on – on a national scale"* (Case & Fair 2006: 8) and GDP is used to indicate what is happening in the macroeconomic environment.

Although GDP might seem a distant and abstract economic indicator, it is surprising how much it affects the decision making of policy makers and even individual consumers and by so, the whole economy. In the media, GDP growth forecasts are very often among the headline news. As we currently live in an information society and more information is available to us than ever, GDP information has a more important role than ever. The growth figures receive a lot of attention from the policy makers as GDP growth is very often one of the main economic goals of a state. Low growth figures might be seen by the public as bad performance by the politicians, so politicians might do their best to keep the growth rates high, even though this might not be done in a sustainable way (Van den Bergh 2008: 120-121). Partly due to the importance of GDP, economists have a very important role in the society. (Cobb, Halstead & Rowe 1995: 11)

GDP information also affects individual decision making, the buying behavior of consumers and consumer confidence. Van den Bergh (2009: 120) writes how the recent financial crisis is a good example of the herd behavior, which the GDP information

leads to. The constant information of the low growth figures reinforce the feelings of the consumers and investors and by so creates a vicious cycle. Van den Bergh (2009: 121) points out that there is a lack of empirical studies in the true behavioral effects of the GDP information on the economy.

The national accounts are an important tool in economic decision-making, as they provide detailed statistical information. The economic decision-making process includes three main steps, policy formulation, analysis and monitoring. The information from national accounts is used for example to bring a light to following issues in policy formulation (Statistics Finland 2011):

- The dependency of national economy on foreign trade
- Division between consumption and investment
- Division of output between different industries
- The change in output over time
- The extent and the ways which different decision-making sectors create savings for capital growth

When analyzing the national economy, the national accounts are used for example for the following purposes (Statistics Finland 2011):

- Breakdown of income by different sectors
- Division of imports and exports by product group
- Consumption expenditure by product groups
- Value added and employment by industry and region
- Fixed capital assets and gross fixed capital formation
- Composition of financial assets, reserves and flows
- Also analyzing individual components, such as regional economies, or banking and finance is possible with the information from national accounts

When monitoring the performance of the national economy, the national accounts can be used to compare the performance and development of different areas over time.

These include for instance (Statistics Finland 2011):

- The rate of inflation
- The rate of GDP growth

- Quarterly figures can be used to analyze seasonal variations in household expenditure
- The change in the significance of different funding instruments
- Long-term changes in the industry structures in the national economy

At the EU-level, national accounts provide important information on how EU's resources, like financial aid should be allocated. Goossens writes the following to highlight how much GDP figures effect EU member states:

A lot of EU/international policies are based on a GDP-outcome. The EU Regional Policies for example use a GDP threshold for regions to be eligible for EU funding: regions are entitled to the European Regional Development Fund and the European Social Fund if they have a regional GDP which is less than 75% of the Union average; the Cohesion Fund is restricted to Member States whose living standards are less than 90% of the EU average. Contributions of Member States to the EU budget are currently based on GNI outcome. The Stability and Growth Pact and the convergence criteria in the Economic and Monetary Union indirectly use GDP over their calculation of governments' debt and deficit as a proportion of GDP. (Goossens 2007: 9)

In international context the data from national accounts can be used for instance for the following functions (Statistics Finland 2011):

- Comparison of figures or growth of disposable income in different countries
- Analysis of interdependence between states
- Analysis of composition and destination of exports
- Comparison of the role of general government in different countries

Foreign direct investment (FDI) is an important source of foreign currency for a state. Probably one of the first things which companies and individual investors look, when making their investment decisions, is a country's GDP. This creates a vicious cycle, as FDI has a significant long-run impact on states GDP (See for example Hansen & Rand 2006), so if a country might have a low GDP, it might be hard to attract foreign investors, but without foreign investors the country might find it hard, or even impossible to find ways to increase its GDP.

Van den Bergh also points out an interesting example of how GDP growth as a state goal can steer policy making, for example with climate policy. The United States did not ratify the Kyoto protocol during the George W. Bush administration and was using

the reduced rate of GDP growth, which would result from ratifying it, as one of the motivators for not doing so (Van den Bergh 2009: 121).

## 6 Literature review

There is a lot of relevant literature on economic indicators. The most recent financial crisis beginning in 2008 and the increasing awareness of global warming in the last decade are generally considered in the papers as two of the key motivators for increased interest in doing research in this field during the past few years.

### 6.1 Defining what to measure

A key issue in the whole research is to define, what we want to measure with our economic indicators, if it is not production. Different research papers talk about measuring different things, such as progress, development, subjective well-being or happiness. As has already been mentioned, GDP was never originally developed to measure any of the things listed here, but nowadays as it is used for this purpose, it is good to do some further definition on the terms which are measured.

Sustainability and sustainable development are words which can be heard quite often when talking about economics. Sustainability is also a key concept in looking at the national accounts; almost anyone can manipulate the accounts in such a way that they look good in short term, but it is actually the long run, which matters. Sustainability has been defined several times, but probably one of the most commonly used definitions is the following: "*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*" (UN Documents 1987)

Sustainability is usually only regarded in environmental terms, but it can also be considered from social or economic point of view.

Many research papers write how GDP is used as a measure of progress, which in itself is a very complicated term. One could ask, if increasing production and acquiring more

and more goods is the only way to “progress”. Natoli and Zuhair (2010: 2) state the following on the concept of progress:

In mainstream economics, progress has been defined as a term that involves an abundance of material possessions and resources possessing monetary or exchange value. The main focus of this definition was to collectively group income-generating assets. However, the term has constantly evolved to a point where it now can also confer the property of welfare and wellbeing. This move away from a market-centred definition to one that focuses on both social and economic progress (access to education and health care, innovation capacity, environmental health and social relations) needs to be reflected in measurement. (Natoli & Zuhair 2010: 2)

Richard Layard (2005: 135) lists five main features of human nature that should be considered when evaluating how well-being is being generated:

- *Inequality. Extra income matters more to poor people than to rich.*
- *External effects. Other people affect us indirectly and not only through exchange.*
- *Values. Our values and norms change in response to external influences.*
- *Loss-aversion. We hate loss more than we value gain.*
- *Inconsistent behavior. We behave inconsistently in many ways.*

The Stiglitz commission (Stiglitz, Sen & Fitoussi 2008: 14-15) defines well-being as multi-dimensional and consisting of the following factors:

- *Material living standards (income, consumption and wealth);*
- *Health;*
- *Education;*
- *Personal activities including work*
- *Political voice and governance;*
- *Social connections and relationships;*
- *Environment (present and future conditions);*
- *Insecurity, of an economic as well as a physical nature.*

The different concepts which were listed in the beginning of this chapter all consist of very similar elements. This is why it is not sensible to limit this thesis to look GDP as a proxy for one single term, such as happiness. Overall the term sustainability in all of its dimensions (Economic, environmental and social) captures the relevant elements, which the economic indicator should cover, but does not.



The following figure demonstrates very well the issues covered so far and provides a basis for the following chapters.

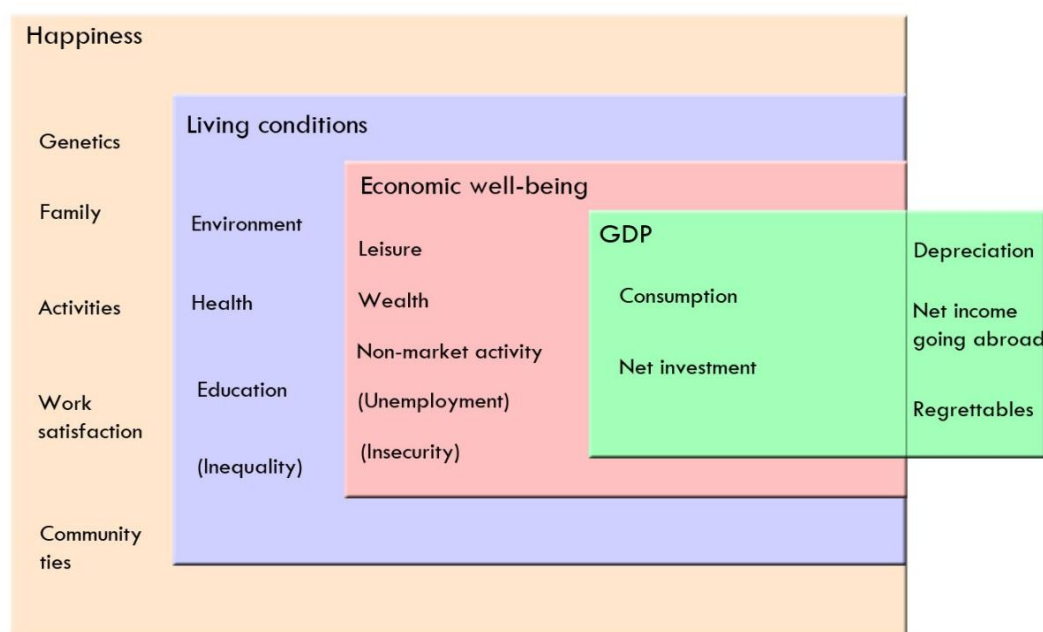


Figure 2: Elements of happiness (Bergheim 2006: 3)

Brackets indicate negative effect. The figures also show some factors which are disregarded by the GDP and which will be discussed in more detail in the following chapters.

## 6.2 Arguments for the use of GDP

There are clearly less articles and research papers talking in favor of GDP than against it. This probably relates to the fact that as GDP is already in use as the ruling economic indicator, research supporting it does not have nearly as much scientific value for the society as a research which would question its relevance. GDP might also be taken for granted and questioning it is not commonly considered might be a reason for the lack of research in this area.

A common argument in favor of using GDP as a state's economic goal is that by increasing the overall budget and the GDP, there is then more money to be spent in things that would have been otherwise too expensive and by increasing the budget it

would be easier to distribute money for different purposes. Johan Norberg (2010) argues that increasing wealth (through increasing GDP) will enable us to do the things we want, like reduce working hours and for example invest more in things that the public budget would not otherwise stretch, like green technology. (Norberg 2010: 8)

Van den Bergh has a counter argument on increasing the public budget and GDP, as he reminds that once that the GDP has increased, nothing may have changed as the same argument can be used over and over again to push difficult political decisions in to the distant future. *"A sub-argument is that the public budget will increase with income growth. This, however, raises the question whether an ever larger public budget is desirable in the first place."* (Van den Bergh 2009: 122).

Norberg is overall very skeptical towards the alternatives of the GDP. This can be seen in his policy brief *GDP and its Enemies: the Questionable Search for a Happiness Index*, where he argues that the use of different index instead of GDP would not bring any new knowledge to us, but rather reduce it, as we would become less aware of currently available economic measurements like unemployment rates. (Norberg 2010: 8)

Another claim from Norberg is that GDP correlates with happiness (Norberg 2010: 8), although this seems to be a very controversial claim and different sources seem to have different kind of arguments on this (See the following section for opposing arguments).

As the strongest arguments for using GDP, Norberg sees that it has been strongly adapted to our society, we know approximately what we are measuring and above all it supports liberal goals; GDP does not guide us in what we do, but rather tells us what we can do. *"It fits a liberal, pluralistic society where people have different interests, preferences and attitudes to well-being and the meaning of life."* (Norberg 2010: 8)

Same point is also brought up by Goossens:

Part of the answer [Why GDP is used despite its shortcomings] is probably that GDP is a beautifully simple measure. It can be elegantly used to calculate many relevant (macro-)economic measures: it will produce decent accuracy in measuring tax revenues and productivity, and it will help macro-management through

estimations of output gaps and inflation. In short, it has a legitimate and strong role in modern economic management. (Goossens 2007: 16)

The arguments regarding the correlation between the GDP and life-satisfaction, well-being or happiness vary from research to another. A common perception in many research papers in the field of economics seems to be that the GDP growth increases subjective well-being (Through things such as literacy, better nutrition and healthcare) rapidly up to a certain point. Then after the GDP has reached approximately \$15,000 per capita, the two are not linked anymore. This is referred to as the Easterlin Paradox (see Easterlin 1994).

*Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox* (Stevenson and Wolfers, 2008) shows strong correlation between subjective well-being and GDP per capita, using data from several decades and several different countries.

### 6.3 Arguments against the use of GDP

A lot of research has been done on the shortcomings of the GDP indicator. In this section I try to conclude the most important arguments on the inadequacy of GDP as an economic indicator.

#### 6.3.1 Externalities

Externalities is a term used in economics which refers to a cost or benefit which results from an activity or a transaction that is imposed or bestowed on parties which are outside of the actual activity or transaction (Case & Fair 2006: 8). Although the shortcomings presented in the following sections (well-being aspect and sustainability) are arising from disregarding externalities, it is good to consider externalities first in more general terms.

Probably one of the most critical shortcomings of the GDP is that it disregards negative externalities. For instance a state which is using massive amounts of money in military spending, repairing environmental damages or for instance controlling crime, has high overall spending and so increases its GDP significantly. A common criticism towards GDP is the example of how catastrophes seem like a blessing to the economy, due to

the increased activity that is needed to repair the damage (Stiglitz, Sen & Fitoussi 2008: 78).

In a way this spending could have a positive effect in the medium term (Damages fixed after the catastrophe etc.), but it has to be noticed that the state which is using its money in these activities, usually does not consider the opportunity cost of the money that is spent. Opportunity cost stands for the best alternative that we give up when making a decision (Case & Fair 2006: 2).

A problem related to the previously mentioned externalities is that the GDP does not separate or categorize the produced value in any way, as it just measures the total money value of produced goods and services. So no matter if the produced value is coming from food items, chemicals or ammunition, as long as it is taxed, the GDP sees it all as the same. Van den Bergh writes the following in his article:

The use and calculation of the GDP (per capita) indicator is inconsistent with three principles of good bookkeeping: (i) divide clearly between costs and benefits; (ii) correct for changes in stocks and supplies; and (iii) use accurate measures for all social costs (=private + external costs). If a commercial company were to employ the method that is the basis for calculating GDP, its accounts would not be legally approved. The fact that the GDP calculation method continues to coexist with institutionalised, legal rules for financial accounting of firms is somewhat of a mystery. (Van den Bergh: 118)

### 6.3.2 Well-being aspect

The aspects of welfare and life-satisfaction are very much disregarded by GDP. This is not a problem of GDP, but more in the way that it is used.

Richard Layard (2005: 134) for example highlights the problem of different working hours and hourly wages in different countries, which might make comparisons between countries through GDP figures very absurd, as to reach the same level of GDP; it might require much more work and less leisure in one country than in another. Leisure, which in fact is a major source of well-being, is not calculated in the GDP at all. "*When the need for a second job cuts the time available for family or community, the GDP records this loss as an economic gain.*" (Cobb, Halstead & Rowe 1995: 7)

GDP does not consider income distribution in any way. Gross domestic product sees a dollar for each person the same and if one person loses his income, the GDP figure remains unchanged, if the decrease is compensated by an increase in somebody else's income. The GDP figures can also hide big regional differences inside states. This means that a country as a whole might have very high GDP per capita, but there would still be people living in poverty. This is due to the fact that GDP calculates average income, when in fact mean or median income per household would be telling more on the income distribution (Stiglitz, Sen & Fitoussi 2008: 32)

Recent development in the United States stands as a good example of the distortion between the GDP growth and the actual living standards in the country. In 2010 the United States had a moderate GDP growth of 2.8% and the highest GDP in the world of \$47,200 per capita (CIA 2011). At the same time the median household income was \$49,200 and declined for the third year in a row. Also the number of people living in poverty was the highest in 52 years, as a total of 46.2 million people were living below the poverty line (U.S. Census Bureau 2011). So the indicators which tell about the true economic living standards of the U.S. households suggest that the income levels are declining and poverty is increasing, but the most used economic indicator is suggesting the opposite.

The paradox between the concept of welfare state, high GDP and actual welfare is discussed further in chapter 9.

### 6.3.3 Sustainability

As we can see from the arguments stated so far, the GDP very much disregards the issue of sustainability and sustainable growth. The lack of sustainability, as defined above, is very much arising from the results of negative externalities, like environmental problems.

In the previous chapter, the research from Stevenson and Wolfers (2008) was suggesting that there is a strong correlation between subjective well-being and GDP per capita. The article from Van den Bergh (2009) raises a valid point against this kind of research. He reminds that although there might be a correlation between the GDP and

social welfare over short-term, GDP cannot be taken as a good measure of social welfare:

If, by way of a thought experiment, one extrapolates a constant tempo of real GDP growth towards the distant future, it is evident that any correlation with social welfare will be lost somewhere along the way. To illustrate this, note that extrapolation of a 2% yearly growth rate 1000 years into the future would result in a GDP that is  $(1.02)^{1000} \sim 400$  million times the current GDP. (Van den Bergh 2009: 119)

From this example it is easy to come to the same conclusion as Van den Bergh, that is, 400 million times better social or individual welfare is quite difficult to imagine. He draws a conclusion that if there is a positive (average) correlation between GDP and social welfare, it should be very close to zero. The findings of Easterlin (explained on page 15) are also very much supporting this view.

It is worth pointing out that if states try to manipulate GDP figures in the short run at the cost of environmental factors, this can be very costly for future generations. A report called *Stern Review on the economics of climate change* (Stern 2006), which has calculated the costs of the climate change has calculated that if there will not be measures taken to tackle climate change, the costs will be as high as losing 5% of the global GDP annually now and forever. According to a bleaker estimate, where a wider range of impacts and risks are taken into account, the costs of climate change might rise to 20% or more of the global GDP. On the contrary, minimizing the impacts of climate change by reducing greenhouse gas emissions could be limited to around 1% of the global GDP each year.

This is a very important consideration when governments use reduced GDP growth figures as motivator for not implementing new climate policies.

From the perspective of social sustainability, one can also argue that the pursuit of GDP growth does not make any sense, as people would endlessly be pursuing for more. Economist Thorstein Veblen wrote already in 1899 about people's pursuit of wealth and their changing expectations: *"In the nature of the case, the desire for wealth can scarcely be satiated in any individual instance, and evidently a satiation of the average or general desire for wealth is out of the question. However widely, or equally, or 'fairly', it may be distributed, no general increase of the community's wealth*

*can make any approach to satiating this need, the ground of which approach to satiating this need, the ground of which is the desire of every one to excel every one else in the accumulation of goods"*(Veblen 1899: 23). This also supports the argument by Van den Bergh on page 14, of how the size of the public budget does not really matter in the end.

Veblen argues that the competition between people to acquire more wealth than others leads to a situation where the possession of property becomes the basis of popular esteem. He writes (Veblen 1899: 22): *"But as fast as a person makes new acquisitions, and becomes accustomed to the resulting new standard of wealth, the new standard forthwith ceases to afford appreciably greater satisfaction than the earlier standard did. The tendency in any case is constantly to make the present pecuniary standard the point of departure for a fresh increase of wealth; and this in turn gives rise to a new standard of sufficiency and a new pecuniary classification of one's self as compared with one's neighbours."*

The term pecuniary is similar to the term monetary, or money-related. The ideas presented by Veblen partly explain the reasons for using GDP despite its unsustainability; the strong links between human nature and the need to produce and acquire always more and more.

#### 6.3.4 Depreciation and changes in quality

*Depreciation* means the *decline in an asset's economic value over time* (Case & Fair 2006: 234). So for example as the factors of production, like machines in a factory get older and more used, they lose their monetary value. Or with money, the term commonly used for depreciation is inflation. The GDP does not account depreciation in its calculation, although it is generally one of the most important factors in accounting. This is due to the fact that the GDP only focuses on new products.

[The GDP] includes the replacement of depreciated capital: it is a "gross" concept. However, depreciation does not boost welfare and the replacement of old capital just takes the economy back to square one. This capital consumption amounts to between 10% (UK and Ireland) and more than 20% (Japan) of GDP. (Bergheim 2006: 4)

The depreciation of capital leads to consumers spending more money to be able to buy the same goods as before and makes the GDP figures go up, when in fact it does not benefit the consumers, but the money just goes to replace the physical capital.

The changes in the quality of the produced products are relatively hard to measure, but taking these changes into account would be very important, as the comment from Stiglitz shows: "*Under-estimating quality improvements is equivalent to over-estimating the rate of inflation, and therefore to underestimating real income*" (Stiglitz, Sen & Fitoussi 2008: 22).

### 6.3.5 Wealth

GDP ignores the concept of wealth in its calculations, as it is focusing only on new products. So a country might have for instance massive reserves of natural resources, but if these are unused, they do not show in the GDP in any way. The need to produce something new to keep the growth rates high is not sustainable in any way.

This kind of problem could be avoided better with other measurement systems, or a completely reformed system of national accounts, which would show country's assets and liabilities. Stiglitz commission proposes the following:

To construct the balance sheet of an economy, we need to have comprehensive accounts of its assets (physical capital – and probably human, natural and social capital) and its liabilities (what is owed to other countries.) To know what is happening to the economy, we need to ascertain changes in wealth. In some instances, it may be easier to account for changes in wealth than to estimate the total value of wealth. Changes in wealth entail gross investments (in physical, natural, human and social capital) minus depreciation and depletion in those same assets. (Stiglitz, Sen & Fitoussi 2008: 29)

### 6.3.6 Other considerations

A further problem of the GDP is that it excludes non-market activities and the underground (or black market) economy. These so-called informal economic activities are the kind of work which is not usually taxed, and so do not get accounted in any official statistics. This can be for example unpaid work, small-scale entrepreneurship, or just tax evasion. The informal sector is a major employer especially in developing countries



where it can comprise from one third to a half of all economic activities. By excluding this, GDP measurement of the least developed countries looks even worse than it is in reality (La Porta & Shleifer 2008: 284).

The underground economy is also a major economic force in some developed countries. According to Case and Fair (2006: 430) in Italy, the underground economy is estimated to range from 10 to 35 percent of the country's GDP, whereas in Switzerland these figures are estimated to be somewhere between 3 to 5 percent. These massive differences in economic activities which are disregarded by the GDP indicator show that the comparison of states by their GDP does not make much sense, as the reality might be quite different than what the GDP figure is showing.

Until the early 20<sup>th</sup> century, most people in the western world were still working with primary activities (activities involved in acquiring raw materials, such as agriculture, mining, fishing etc), however after the World Wars and through rapid urbanization, people moved on to secondary activities (activities related to manufacturing and assembly, traditional factory work). After the growth of secondary sector, there became a growing need for services, which were provided by the so called tertiary sector. Now in the recent decades also the share of people working with quaternary activities (handling information, such as consulting work) has increased rapidly and the share of primary and secondary activities has been constantly declining. (Kenessey 1987)

Due to this economic transition, which has occurred in most developed countries, the society has changed a lot. However the way of measuring development has stayed the same. The stagnation has caused GDP to lose some of its relevance in modern society.

The value of the goods that the primary and secondary sector produce are relatively easy to measure but the exact monetary value of, for instance, consultancy services that would be included in the quaternary sector are more difficult to accurately estimate. So when the economic development of an economy which is based mostly on tertiary and quaternary activities is measured with GDP the result may be skewed. The difficulty of estimating values is related also to the changes in quality, discussed earlier.

Not only does the difficulty to estimate the value of the products becomes difficult, but we also have to think if increasing production is adding any value for individual citizens. This view is also raised in the interview, in chapter 9.

## **7 The alternative indicators**

The area of alternative indicators been researched very much and several indicators have been developed to challenge the use of GDP. The information in this chapter has been gathered from few different research papers, which present and evaluate the different kind of indicators (Hoffrén, Lemmetyinen, & Pitkä 2010; Goossens 2007; Stiglitz, Sen & Fitoussi 2008; Ylikahri 2010). The data in this section largely draws to the work by Goossens (2007) and Hoffrén, Lemmetyinen, & Pitkä (2010).

As there are several indicators available and each one of them could a topic for an own research, in this section I will divide the indices in the different type of groups and introduce a few of them. The indices which are explained in more detail have been chosen on the basis of how much they get attention in the research papers. I will use the similar division as Goossens (2007), and divide the different indicators to three categories: indicators adjusting GDP, indicators replacing GDP and indicators supplementing GDP.

In addition to the indicators listed in this chapter, one has to also consider commonly used economic indicators, such as unemployment rates or inflation rates to supplement the information from GDP.

### **7.1 Indicators adjusting GDP**

Firstly, there are the indicators which adjust the GDP. These indicators use GDP, or other similar performance measurement, like national saving rates, as a basis and then add environmental or social factors with monetized value in to the equation.

Examples of these indicators include for instance Measure of Economic Welfare MEW and Green GDP (Goossens 2007: 21-31). In the following sections few different indicators adjusting the GDP is looked in more detail.

### 7.1.1 Index of Sustainable Economic Welfare (ISEW)

Index of Sustainable Economic Welfare (ISEW) is an indicator developed in the 1980s to indicate the links between the economy, environment and the society. (Hoffrén, Lemmetyinen, & Pitkä 2010: 26)

In short, ISEW is calculated using personal consumer expenditure as basis, adding services from domestic labour, non-defensive public expenditures and economic adjustments to it. Then adjustments are made for income inequality, and costs of environmental degradation, defensive private expenditures and depreciation of natural capital is extracted from it (See Table 1).

The biggest development areas for ISEW have been named its valuation methods and unifying it more. ISEW rather underestimates than overestimates environmental damages. Also the availability of the very specific data and the issue that this kind of data has not been standardized across countries in any way makes it difficult to make comparisons across countries. (Hoffrén, Lemmetyinen, & Pitkä 2010: 29). ISEW presented as a formula (Hoffrén, Lemmetyinen, & Pitkä 2010: 27):

$$ISEW = C_{adj} + P + I + G - F - H$$

$C_{adj}$  stands for private consumption weighed with income distribution

P is public spending

I is income growth and international trade balance

G is the value of non-market services which increase well-being

F is private costs caused by externalities

H is the costs of environmental degradation and depreciation of natural capital

Table 1: The different elements adding and decreasing the value of ISEW (Hoffrén, Lemmetyinen, &amp; Pitkä 2010: 27-28)

ISEW		
Adding value	Decreasing value	Adding/decreasing value
Weighed private consumption	Procurement of durable goods	Changes in the international position of a state
The value of household work	Private spending on health and education	
The services produced with durable goods	Costs of advertising	
The benefits gained from streets and roads	Costs of commuting	
Public spending on health and education	Costs of traffic accidents	
	Costs related to pollution of water and air	
	Costs of noise problems	
	Dissipation of wetlands, mires, etc.	
	Dissipation of arable land	
	Use of nonrenewable resources	
	Cost of long-term environmental damage	
	Increase in net capital	

Durable goods are goods that do not wear out easily and last a relatively long time, such as cars and household appliances (Case & Fair 2006: 421)

### 7.1.2 Genuine Progress Indicator (GPI)

Genuine Progress Indicator (GPI) has been developed from the ISEW indicator. GPI is quite similar to their predecessor, yet has a few additional elements. The GPI for example consider crime levels, divorce rates, unemployment and changes in how much leisure time people have (See Table 2). The measure of progress shown by GPI is easily related to development shown by ISEW or GDP, but the picture which GPI gives about the well-being of a state is much more dim than the one provided by GDP or ISEW, as environmental factors get much more importance in GPI. (Hoffrén, Lem-

metyinen, & Pitkä 2010: 31). The formula of GPI can be presented as follows (Hoffrén, Lemmetyinen, & Pitkä 2010: 30):

$$GPI = C_{adj} + B - F - H + I$$

$C_{adj}$  stands for private consumption weighed with income distribution

B is the value of non-market services which increase well-being

F is private costs caused by externalities of production

H is the costs of environmental degradation and depreciation of natural capital

I is income growth and international trade balance

Table 2: The different elements adding and decreasing the value of GPI (Hoffrén, Lemmetyinen, & Pitkä 2010: 30-31)

GPI		
Adding value	Decreasing value	Adding/decreasing value
Weighed private consumption	Cost of criminal activity	Value of voluntary work
Value of household work and parenthood	Value of lost leisure time	Increase in net capital
Value of higher education	Cost of unemployment	Net lending
The services produced with durable goods	Procurement of durable goods	
Benefit gained from roads	Costs of commuting	
	Costs of traffic accidents	
	Costs of noise problems	
	Dissipation of mires and marshlands	
	Dissipation of arable land	
	Costs of ozone layer getting thinner	
	Use of natural resources	
	Households spending on preventing environmental problems	
	Dissipation of natural forests	

GPI has been criticized for example of arbitrariness in the selection and weighing the different criteria which are included in the calculation (Goossens 2007: 24).

### 7.1.3 Genuine Savings (GS)

Genuine Savings (GS), which also known by the name Adjusted Net Savings, was developed by World Bank researchers David Pearce and Giles Atkinson in 1993. (Hoffrén, Lemmetyinen, & Pitkä 2010: 35)

GS is an indicator which focuses on a country's resources and so uses so-called capital approaches. Capital in this context is referring to all kinds of capital which a country possesses; built capital, natural resources and social capital. The idea behind GS is that the well-being of a nation in the future is dependent on current actions on consumption and savings; the use of natural resources, pollution, building infrastructure and investments in social capital. Net savings means the change which happens in nation's wealth (See Table 3). (Hoffrén, Lemmetyinen, & Pitkä 2010: 36)

The depreciation of the country's capital, like for instance the weakening condition of roads is calculated as a negative impact. Also the use of non-renewable natural resources is undoubtedly hazardous for sustainable development and it is considered as a "*negative investment for future well-being*". Different kind of growth in investments and capital increases net savings and is calculated as a positive impact. The increase in social capital in such forms as knowledge and skills is calculated just as consumption, but in GS it is considered as a future investment. (Hoffrén, Lemmetyinen, & Pitkä 2010: 36)

Net savings is calculated from GNI by extracting depreciation of capital and private and public spending (Hoffrén, Lemmetyinen, & Pitkä 2010: 36).

Table 3: The different elements adding and decreasing the value of GS (Hoffrén, Lemmetyinen, & Pitkä 2010: 36)

Genuine Savings	
Adding value	Decreasing value
Net savings	Net depreciation of forests
Public spending	Depreciation of nonrenewable resources
	Mining of minerals
	Damages caused by carbon emissions
	Damages caused by particulate matter

## 7.2 Indicators replacing GDP

Secondly, there are the indicators which are created to completely replace GDP. These indicators have an alternative view on how some view of how wellbeing should be assessed and weigh these things (Life-satisfaction, basic human functions) in different ways.

The most well-known indicator replacing of this type is the Human Development Index. Other example of and indicator Happy Planet Index HPI, which is calculated in a simple form as life expectancy times life satisfaction and divided by ecological footprint. Gross National Happiness, which is very similar to HPI, has been taken in to use in the Kingdom of Bhutan. (Goossens 2007: 39)

Also the following indices and accounting systems have been developed to replace GDP: Ecological footprint (EF), Environmental Sustainability Index ESI and Regional Quality of Development Index QUARS. (Goossens 2007: 31-43)

### 7.2.1 HDI

HDI, or Human Development Index, is an index developed by the United Nations and is one of the most well-known alternatives to the GDP. HDI was originally developed to evaluate the progress in developing countries, as lack of adequate and reliable national accounting was making the use of GDP more problematic than in developed countries.

In 2010 the Human Development Index was updated and the 2010 Human Development Report introduced several changes to the new HDI formula (Klugman, Rodríguez & Choi, 2011: 15):

$$HDI = (H_{Health} * H_{Education} * H_{Living\ standard})^{1/3}$$

All of the different components receive a target value, in which the true value is then compared to. The HDI value varies between zero and one. Life expectancy is the indicator for health dimension, just like in the old version of HDI, but the GDP, which has been the measure for living standards, is replaced by Gross National Income. Mean years of schooling and expected years of schooling make up the dimension of education. (Klugman, Rodríguez & Choi, 2011: 15)

HDI has been criticized for example for the choice of its variables (The well-being aspect of HDI excludes for example other dimensions, such as equity, political freedoms, human rights, sustainability and happiness), having equal weights for the different variables and having too little or too much focus on sustainability, depending on the source of the critique. (Klugman, Rodríguez & Choi, 2011: 10-15)

### 7.3 Indicators supplementing GDP

Lastly there are the indicators which supplement GDP. These indicators do not try to replace GDP, but try to bring supplemental information to it. Goossens (2007) divides these indicators further in to two categories; first the ones which are based on GDP national account systems and adding environmental aspects to them and secondly the ones which are setting social and environmental information in relation to GDP.

The indicators including environmental factors but which are based on national accounts include Environmental Accounts EA, System of Economic Environmental Accounts (SEEA), National Accounting Matrix including Environmental Accounts (NAMEA), German Environmental Economic Accounting (GEEA), System of Economic and Social Accounting matrices and Extensions (SESAME). See Goossens (2007: 43-51) for further information.



Examples of the second type of supplemental indicators include System of Economic Environmental Accounts (SEEA), Sustainable Development Indicators (SDI), Decoupling indicators, Political and civil freedom indicators by Freedom House, US and the most well-known of these are the Millennium Development Goals (MDGs) developed by the United Nations. (Goossens 2007: 51-57)

In addition to the indicators listed by Goossens, one could also consider more traditional economic indicators supplementing GDP information, such as unemployment rates or consumer confidence indices.

## 8 Future development

After evaluating the different indices which have been created to supplement or to replace the GDP, it seems that developing a new and a better index is not in any way a straightforward solution to solve the problems of the GDP. This is because many of the new indices currently available still hold many of the GDP's problems. An even bigger problem than developing an index without the shortcomings of the GDP would be the question of how this new system could be taken into global use.

Goossens (2007: 61) evaluates the different options of working further with GDP in EU decision-making as follows:

- By adjusting the GDP, factors which have been usually left out of the GDP calculation, like housework and negative external costs, could be included in the calculation. Adjusting GDP also holds one of the GDP's current strong points, as it is relatively easy to understand by the public and can be used to send out indications of where the economy is heading. A negative aspect to this option are the issues of defining methods for valuating external costs and reaching a consensus.
- Completely replacing GDP with a development index would be the most radical and would also disregard the advantages that the GDP currently holds. Therefore it is the most unlikely option.
- Supplementing GDP is the most probable future development, according to Goossens. *"Especially in the context of indicators based on national account*

*systems, EU services could build on a considerable knowledge base of official statistical services”* (Goossens 2007: 61). This option would leave GDP as it is with its limitations, but would put it in the appropriate socio-ecological context; in other words, people would be better informed of its limitations in the measurement of well-being. As an obstacle to move further Goossens sees the lack of public perception and political support.

Dashboards or a set of indicators are one probable next step moving away from GDP centered national accounting. Using a dashboard of indicators would mean that some other indices would be used alongside GDP to bring supplemental information and bring different aspects of the measurement. Stiglitz uses the following example to clarify the idea of dashboards:

For instance, confusion may arise when one tries to combine current well-being and sustainability into a single indicator. To take an analogy, when driving a car, a meter that added up in one single number the current speed of the vehicle and the remaining level of gasoline would not be of any help to the driver. Both pieces of information are critical and need to be displayed in distinct, clearly visible areas of the dashboard. (Stiglitz, Sen & Fitoussi 2008: 77)

Richard Layard believes that by just looking at things from an economic perspective will not bring a solution to the issue of how public policy should be guided, but he calls for co-operation between different social sciences to determine what happiness really is. *"Happiness should become the goal of policy, and the progress of national happiness should be measured and analysed as closely as the growth of GNP"* (Layard 2005: 147)

Van den Bergh (2009: 125) suggests an option where the GDP would be totally disregarded. He reasons that as the information failure which is caused by the GDP leads to wrong decisions by for example governments, this can lead to government failures. These problems would not occur if the GDP would not be used: *"Without the availability of a GDP indicator decisions will be more aimed at welfare improvement, since the systematic and cumulative error resulting from economic behavioral responses to misleading GDP information will be gone"* (Van den Bergh 2009: 125). He writes that without GDP there will be less resistance to policies which would improve social welfare at the cost of GDP growth, like for instance climate policies.

The Stiglitz commission report (Stiglitz, Sen & Fitoussi 2008) has extensively gone through the shortcomings of the current measurement system and suggests that a dashboard system should be globally taken in to use. To conclude in short (See Appendix 2 for the full list of more general recommendations made by the commission) the main recommendations that to better follow the sustainable development of a society the following measures have to be done (Stiglitz, Sen & Fitoussi 2008: 78-80):

- Sub-dashboards should be developed to global dashboards
- The components in the sub-dashboards should take stocks (resources) in to account and underpin well-being
- A monetary index could be included in the measurement system, but the focus should be on economic aspects of sustainability
- Environmental aspects of sustainability should have a separate system through which it would be followed

The Stiglitz report has been criticized for example for not proposing to put a value for environmental damage done and adding it to the alternative economic indicators (Hoffrén, Lemmetyinen, & Pitkä 2010). Hoffrén also criticizes the report for viewing thing too much from a neo-classical point of view (See page 36). Johan Norberg sees the whole report filled with political motives and is very skeptical towards the idea of valuating different kind of stocks which the state holds. *"How can we trust governments to measure stock in an objective and evenhanded way when we know that even government finances are manipulated fairly regularly?"*, asks Norberg (2010: 7). But as the argument from Van den Bergh already pointed out on page 16 above, even the GDP calculation has major inconsistencies in the way it is calculated, so the argument by Norberg is not very strong.

How to give a monetary value to natural resources or how to include the external costs to the calculations are one of the major unsolved problems with the new measurement systems. One common claim when opposing the new systems (Like from Norberg above) is that the national accounting should be value free and scientific and the new indicators include too many estimates, assumptions and value judgments. It should be here remembered that also GDP makes a value judgment when it disregards for example environmental damage and all the other things which were covered in chapter (Cobb, Halstead & Rowe 1995: 9)

A few initiatives have been made to develop a more innovative statistical approach to the issue. For instance OECD has developed "OECD – Your better life index", which is an interactive tool that allows the user to see how different countries perform according to the different importance that the user gives to the 11 topics, which include housing, community, education, income, jobs, community, environment, governance, health, life satisfaction, safety and work-life balance (OECD 2011).

## 9 Interview

### 9.1 Background

Jukka Hoffrén has written several research papers in the area of developing alternatives for GDP and researched GPI and ISEW in Finland. He is currently working in Statistics Finland in the Statistical Methodology and Research Unit. Statistics Finland, or Tilastokeskus, is the official authority in Finland producing statistics, including GDP.

This chapter has been written using the interview conducted with Mr. Hoffrén as a basis and the text is referring to Mr. Hoffrén's views on the research issue. The full list of questions used in the interview can be found from Appendix 1.

### 9.2 Where we are now with GDP

We live today in a world, where economy and money are very much in control. As a consequence, people have slowly but steadily turned from citizens to consumers. Thus, the overall view of human beings has turned to an economic one which is very simplifying. *"The hegemony of economy has also changed greatly the fundamentals of our western civilization and societal behavior. The dominant rationales of economics have promoted characteristics like greed, profit seeking, immorality and even aggression and violence"* (Hoffrén 2011). This provokes a negative, yet rational "take the money and run" mentality among business actors.

To understand the big picture of where we are now, it is necessary to look at how economics has developed. Since World War II, we have believed to endless economic growth, which brings us invariably more wealth and happiness. Today it looks like we are stuck in believing endless economic growth in the terms of using GDP, although the economy has changed and it does not work in this time.

The planning of the economy in Soviet Union was based only on material balance sheet which was lacking price information. When GDP was developed in the U.S., it included the price information, which can be considered as one of its biggest advantages. The fundamental problem of the GDP is that there is an endless need to get more resources, more consumers and all of this at the cost of sustainability.

After the World War II the GDP worked very well for a while as it was promoting production, which helped the economy first to compensate destruction and later increased our wellbeing greatly. *"The constraints of economic growth became apparent in late 1960's and 1970's in western societies. Exceeding these constraints became visible in the form of environmental problems, limited scope of natural resources and social problems, such as unemployment and consequential unrest"* (Hoffrén 2011).

The solutions to correct these failures of economic thinking were environmental protection that relieved environmental hazards and promoting efficiency in technology that reduced our dependence for natural resources. Unemployment problem was to be solved by increasing markets by common market areas, cutting down custom tariffs and the whole globalization progress. *"Idea was that there were still new markets to where the western economies could expand. Within the economics profession the American monetarists school of thought, argued in 1980's for more money supply to economy so that more and more money could be invested to production capacity. This led to growth of investment wealth and to excess incurring of debt first in USA and later to European debt crisis"* (Hoffrén 2011). Thus our limited means to relieve the hazards of the current economic system were acknowledged by 2008 and left us to totally new situation.

Within the European Union the failures of the current development and its prime measures were first realized in the highest level in 2007. As politicians in western world

are promoting economic growth through the growth of GDP, this is leading to new kind of problems. Thus aim to increase growth by increasing number of consumers in economy through birth rates and immigration, enlarge factories and production processes, although the markets are already full of products and cut down public sector to pay debts. This rationale comes from the fact that GDP is a measure of turnover not a measure of gains, or profit. *"Steering an economy to increasing wellbeing by simply concentrating to turnover is an absurd goal. Instead we need a new measure to tell us how much gain the functioning of an economy can bring us and how this can be done in a way that minimizes the caused environmental and social problems."* (Hoffrén 2011)

The Soviet Union was using only material balance sheet in national accounting, but after the collapse of the Soviet Union, the newly formed countries took GDP in to use. These countries have been using GDP only for two decades and are still somewhat in a transition phase. Now as some of the former Soviet countries, like the Baltic states, have joined the EU, but are still adapting to the use of GDP, so much effort has been put into integrating these states into EU and OECD-approved systems that there has been little or no research on alternatives in the EU.

### 9.3 Finland in focus

In Finland the welfare state is currently facing a paradox as our GDP suggests that we are richer than ever but at the same time politicians and decision-makers are demanding for major cuts to public expenditures that generate these welfare services. Local schools and services are being shut down, the things that truly would increase welfare. This paradox comes from the fact that although Finland is called a welfare society, the welfare is not measured in an adequate way. *"Why, if we are such a rich country today, can't we sustain even those services that we could afford yesterday when we were much poorer country? The logical answer is that GDP as a measure of society's turnover and tells nothing about how rich we are or how much wealth we have that we can use to generate welfare."*(Hoffrén 2011)

In Finland the only commonly accepted theory in economics is the neoclassical school, which has been imported from United States. The neoclassical economists have insist-

ed that the neoclassical theories work also in Finland despite the fact that it has been developed in the United States and in practice do not always fit very well in Finnish economic realities. The view among them has been that their beloved theories must be right and the world has to change according to the theories. In doing so these economists exercise power and try to prevent the natural progress of an economy.

Among the younger politicians in Finland there is a clear interest towards the new ways of measuring welfare. However the *old school* Finnish bureaucrats currently in power are part of the generation who were part of creating the GDP system. The major opposition to change the current system is coming from those bureaucrats. In the latest government platform there are only vague promises of developing a new system of measurement.

When predicting the future, it is quite obvious the production-based economy will not be supporting the Finnish economy. In a globalized world there is always some country with lower costs and the oversupply that Finland has for example in the paper sector, is significant. During the last century, the economy in Finland has shifted from agriculture to industrial production and in the future there will be a similar change from a production based economy to an economy relying on services. At the same time many old school economists and industrialists are resisting this inevitable development.

The Finnish economy has traditionally been considered as a GDP oriented "*exporting machine*" (Hoffrén 2011) and the domestic market has been very much underrated. The major hurdle for the Finnish economy to move away from GDP centered accounting is the production-based economy that has been a driver for the growing economy. It has to be remembered that the decision-making in Finland is today very much tied to EU politics. So if a decision of adapting new indicators is made, it needs acceptance and support from the EU-level.

#### 9.4 Future development

"*Discussion about adapting a new indicator reflects also needs major policy changes in our societies*" (Hoffrén 2011). The means that the advice from economists to foster economic growth have been measures like cutting down on wages, energy prices with-

in industry and environmental legislations are not commonly favored by majority of people. *"If all of the undesired and non-priced social and environmental costs currently excluded from GDP were to be included to the societal-economic planning, there would not be need to fix these welfare problems afterwards in such a large scale as today."* (Hoffrén 2011)

The Stiglitz report is an excellent report, but it still did not have the courage to include all of the external costs in its calculations. The neoclassical ideas can be seen also from the Stiglitz report. Eurostat is continuing from Stiglitz's work with a Beyond GDP project. When new welfare composite indicator is taken in to use, it most likely have to express progress in monetary terms, rather than being just an index. The focus of the policymaking will also concentrate to the welfare of individuals.

## **10 Conclusion**

GDP information clearly has a strong impact on the economy and it is used widely as a tool in economic policy-making. This leads to the situation where the policies have an agenda which is ultimately set by GDP.

GDP is not an adequate measure of standard of living or sustainable economics but it has to be kept in mind that it was never originally developed for this purpose. Instead its use has evolved to a point where its appropriateness can, and even should, be questioned.

One reason why GDP is still used in measuring standard of living despite all of its shortcomings is that it has been very strongly integrated in our society. A major factor in the solid integration of the GDP has been the link between increased production and increased well-being, which was especially true in the Western world after the World War II. However now we have passed the phase where increased production equals increased welfare. As the share of people working with services is growing and the number of people working with production steadily declining, a change should also take place in the way we measure the economy.



Still during the time when the GDP was developed politics were guiding the economy and business, but nowadays the situation is very much the other way around. The politicians are talking about a welfare-state, but the reality is more of a competition-state, which is global competition of the highest possible GDP. If policy-makers would want to truly increase welfare in the long run, the GDP would be replaced or at least supplemented with another economic indicator.

It is hardly likely that GDP would be replaced with one single index in the near future, as there is still a lot of debate on how to value the different costs. More probable development will be that indicator dashboards will be more widely taken in to use.

This thesis has aimed to present different aspects as objectively as possible, but as the topic of the thesis is a very much question of values, this might set a possible limitation to view the topic from all possible perspectives.

Further research on economic measurement could focus more on the behavioral effects of GDP information and if GDP is not replaced with a new indicator, how the negative effects of the information could be minimized.

## References

- Bergheim, S. 2006, *Measures of well-being*, [online] Available at: <[http://www.dbresearch.com/PROD/DBR\\_INTERNET\\_EN-PROD/PROD000000000202587.PDF](http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD000000000202587.PDF)> [Accessed 4 October 2011].
- Case, K.E. & Fair, R.C. 2006, *Principles of Economics*, 8th edn, Pearson Education Inc., New Jersey.
- CIA World Factbook 2011, [online] Available at: <<https://www.cia.gov/library/publications/the-world-factbook/geos/us.html>> [Accessed 17 October 2011].
- Cobb, C., Halstead, T. & Rowe, J. 1995, *If the GDP is Up, Why is America Down?*, [online] Available at: <<http://www.theatlantic.com/past/politics/ecbig/gdp.htm>> [Accessed 4 October 2011].
- Davies, L. 2011, *Sarkozy attacks focus on economic growth* [online] Available at: <<http://www.guardian.co.uk/business/2009/sep/14/sarkozy-attacks-gdp-focus>> [Accessed 4 October 2011].
- Easterlin, Richard A. 1994, *Will raising the incomes of all increase the happiness of all?* [online] Available at: <<http://ipidumn.pbworks.com/f/EasterlinIncomesandHappiness.pdf>> [Accessed 4 October 2011].
- Goossens, Y. 2007, *Alternative progress indicators to Gross Domestic Product (GDP) as a means towards sustainable development*, [online] Available at: <<http://www.beyond-gdp.eu/download/bgdp-bp-goossens.pdf>> [Accessed 4 October 2011].
- Hansen, H. & Rand, J. 2006, "On the Causal Links Between FDI and Growth in Developing Countries", *World Economy*, vol. 29, no. 1, pp. 21-41. Available through: EBSCOhost [Accessed 5 September 2011].
- Hoffrén, J. 2001, *Measuring the eco-efficiency of Welfare Generation in a National Economy*, [online] Available at: <<http://acta.uta.fi/pdf/951-44-5252-6.pdf>> [Accessed 4 October 2011].
- Hoffrén, J., Lemmetyinen, I. & Pitkä, L. 2010, *Esiselvitys hyvinvointi-indikaattoreista*, [online] Available at: <<http://www.sitra.fi/julkaisut/Selvityksi%C3%A4-sarja/Selvityksi%C3%A4%2032.pdf>> [Accessed 5 October 2011].
- Hoffrén, J. 2011. [Personal communication]. 27 September 2011
- Kenessey, Z. 1987, "The primary, secondary, tertiary and quaternary sectors of the economy", *Review of Income and Wealth*, vol. 33, no. 4, pp. 359-385. <<http://www.roiw.org/1987/359.pdf>> [Accessed 4 October 2011].
- Klugman, J., Rodríguez, F. & Choi, H. 2011, *Human Development Research Paper 2011/01 - The HDI 2010: New Controversies, Old Critiques*, [online] Available at:

<[http://hdr.undp.org/en/reports/global/hdr2011/papers/HDRP\\_2011\\_01.pdf](http://hdr.undp.org/en/reports/global/hdr2011/papers/HDRP_2011_01.pdf)> [Accessed 4 October 2011].

La Porta R, Shleifer A. 2008, *The Unofficial Economy and Economic Development*, [online] Available at: <[http://www.economics.harvard.edu/faculty/shleifer/files/unofficial\\_economy\\_brookings\\_2008.pdf](http://www.economics.harvard.edu/faculty/shleifer/files/unofficial_economy_brookings_2008.pdf)> [Accessed 12 October 2011].

Landerfeld, J.S., Seskin, E.P. & Fraumeni, B.M. 2008, *"Taking the Pulse of the Economy: Measuring GDP"*, [online] Available at: <[http://www.bea.gov/about/pdf/jep\\_spring2008.pdf](http://www.bea.gov/about/pdf/jep_spring2008.pdf)> [Accessed 4 October 2011].

Layard, R. 2005, *Happiness*, 1st edn, Penguin Group, London.

Natoli Riccardo, Zuhair Segu. 2010 "What is a reasonable measure of progress?" *International Journal of Sociology and Social Policy* Vol. 30 Nos. 5/6. Available through: ABI-Inform/Proquest [Accessed 5 September 2011].

Norberg, J. 2010, *GDP and its Enemies: the Questionable Search for a Happiness Index*, [online] Available at: <[http://www.1888932-2946.ws/ComTool6.0\\_CES/CES/E-DocumentManager/gallery/Policy\\_Briefs/GDPanditsenemies\(web\).pdf](http://www.1888932-2946.ws/ComTool6.0_CES/CES/E-DocumentManager/gallery/Policy_Briefs/GDPanditsenemies(web).pdf)> [Accessed 4 October 2011].

OECD 2011, *OECD Better Life Initiative - Executive Summary* [online] Available at: <[http://www.oecdbetterlifeindex.org/wpsystem/wp-content/uploads/2011/07/YourBetterLifeIndex\\_ExecutiveSummary2.pdf](http://www.oecdbetterlifeindex.org/wpsystem/wp-content/uploads/2011/07/YourBetterLifeIndex_ExecutiveSummary2.pdf)> [Accessed 4 October 2011].

Silverman, D. 2000, *Doing Qualitative Research*, 1st edn, Sage Publications LTD, London.

Statistics Finland 2011, *The national accounts - what, where, when?* [online] Available at: <[http://www.stat.fi/tup/verkkokoulu/data/talt/01/index\\_en.html](http://www.stat.fi/tup/verkkokoulu/data/talt/01/index_en.html)> [Accessed 4 October 2011].

Stern, Nicholas. 2006, *Stern Review on the economics of climate change*, [online] Available at: <[http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/stern\\_review\\_report.cfm](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm)> [Accessed 4 October 2011].

Stevenson, B. & Wolfers, J. 2008, "Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox", [online] Available at: <<http://bpp.wharton.upenn.edu/jwolfers/Papers/EasterlinParadox.pdf>> [Accessed 4 October 2011].

Stiglitz, J.E., Sen, A. & Fitoussi, J. 2008, *Report by the Commission on the Measurement of Economic Performance and Social Progress*, [online] Available at: <[http://www.stiglitz-sen-fitoussi.fr/documents/rapport\\_anglais.pdf](http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf)> [Accessed 4 October 2011].

UN Documents 1987, *Our Common Future, Chapter 2: Towards Sustainable Development* [online] Available at: <<http://www.un-documents.net/ocf-02.htm>> [Accessed 4 October 2011].

U.S. Census Bureau 2011, *Income, Poverty and Health Insurance Coverage in the United States: 2010* [online] Available at: <[http://www.census.gov/newsroom/releases/archives/income\\_wealth/cb11-157.html](http://www.census.gov/newsroom/releases/archives/income_wealth/cb11-157.html)> [Accessed 17 October].

Van den Bergh, Jeroen C.J.M. 2009, "The GDP Paradox", *Journal of Economic Psychology*, no. 30, pp. 117-135.

Veblen, T. 1899, *Theory of the Leisure Class* [online] Available at: <<http://www.gutenberg.org/files/833/833-h/833-h.htm>> [Accessed 17 October].

Ylikahri, V. 2010, *Onnellisuustalous*, [online] Available at: <[http://www.visili.fi/pdf/Onnellisuustalous\\_loppuraportti.pdf](http://www.visili.fi/pdf/Onnellisuustalous_loppuraportti.pdf)> [Accessed 4 October 2011].

## Appendix 1: Interview questions

### Background

- How significant do you see the impact of GDP information for a national economy? In what way do you think the use of GDP is leading the economy?
- What do you see as the most significant shortcoming of GDP as an economic indicator?
- What positive sides do you see in the use of GDP?

### Alternative indicators

- Although many research papers and articles have come to the conclusion that none of the currently available indicators is ready to replace GDP, which indicator do you see having the biggest potential? Or do you think indicator dashboards are more of a future trend?
- Some articles propose the removal of GDP information completely and not replacing it with any specific indicator. Do you see this possible? If not, why?
- You are probably familiar with the *Stiglitz commission* report. Do you have an opinion on its outcomes?

### Future development

- What do you see as the biggest obstacle for moving away from GDP centered accounting? Do you know if there is any lobbying for GDP, as there usually is in political decisions this scale?
- What practical measures would have to be taken, so that new indicators could be taken in to wider use?
- How do you see Finland's position in developing and adapting the new economic indicators? Is there political will in Finland to introduce new economic indicators?
- Do you have some special advice, viewpoints which should be considered, or other things you would like to point out on this topic.

## **Appendix 2: Stiglitz commission's recommendations**

Following lines are direct quotes from the report (Stiglitz, Sen & Fitoussi 2008: 12-18)

1. When evaluating material well-being, look at income and consumption rather than production
2. Emphasise the household perspective
3. Consider income and consumption jointly with wealth
4. Give more prominence to the distribution of income, consumption and wealth
5. Broaden income measures to non-market activities
6. Quality of life depends on people's objective conditions and capabilities. Steps should be taken to improve measures of people's health, education, personal activities and environmental conditions. In particular, substantial effort should be devoted to developing and implementing robust, reliable measures of social connections, political voice, and insecurity that can be shown to predict life satisfaction.
7. Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way
8. Surveys should be designed to assess the links between various quality of-life domains for each person, and this information should be used when designing policies in various fields
9. Statistical offices should provide the information needed to aggregate across quality-of-life dimensions, allowing the construction of different indexes.
10. Measures of both objective and subjective well-being provide key information about people's quality of life. Statistical offices should incorporate questions to capture people's life evaluations, hedonic experiences and priorities in their own survey.
11. Sustainability assessment requires a well-identified dashboard of indicators. The distinctive feature of the components of this dashboard should be that they are interpretable as variations of some underlying "stocks". A monetary index of sustainability has its place in such a dashboard but, under the current state of the art, it should remain essentially focused on economic aspects of sustainability.
12. The environmental aspects of sustainability deserve a separate follow-up based on a well-chosen set of physical indicators. In particular there is a need for a clear indicator of our proximity to dangerous levels of environmental damage (such as associated with climate change or the depletion of fishing stocks.)