
Environmental Policy Research Centre

The National Welfare Index as a Contribution to the Debate on a More Sustainable Economy

Prosperity, Happiness or Growth: Claims for a new National Accountancy in the 21st Century.

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Executive Summary

The task of reaching a more sustainable kind of economic process is narrowly related with a double problem: up to date most societies have pursued an explicit strategy of economic growth, although its successes are now disappearing and, at a closer look, its negative ecological and social side effects appear to be even growing.

The first part of this article contrasts the ambiguity of the growth concept with a concept of social welfare, which aims at a more qualitative kind of growth, considering the available natural and social capital as well.

It will become clear that even GDP as a traditional and politically crucial indicator for the success or failure of a country's economic development necessarily gives ambiguous signals if one looks at this parameter of the national accounts by the light of a sustainable development.

More recent calculations of the national welfare index for Germany (NWI) result in some interesting discussion lines: the aggregated progress of 19 variables shows an significant difference in its development: between 2000 and 2007, the NWI tends to fall in comparison with GDP/GNI (gross national income). This discrepancy is to be seen as evidence of the fact that there might be an increasing economic growth even *without* any improvement in welfare.

Quite on the contrary, in the years 2008 - 2009 the NWI does not seem to follow the drastic collapse of GDP/GNI at the same pace.

This article aims at providing an overview both of the social context in which NWI was created as a complementary reporting system integrating GDP/GNI and of its construction principles as well as of some results.

From all this, some conclusions will be drawn about how the index can be helpful in the development of a more sustainable concept of welfare. For example, it will become understandable that improvements in welfare can be achieved even *without* economic growth. This process could go hand in hand with reflections on economic transformation and cultural change. It is all about future strategies allowing a reduction in the physical material and energy flux as well as in the negative impacts on ecosystems and nature due to economic activities, so that societies will profit from such change.

1. Introduction

Concepts of prosperity based on economic growth are the dominating model for societies hoping to achieve material wealth, social security and political stability. In Germany some positively connoted word associations like “economic miracle” and “prosperity model” have been related with those concepts for many years.

The most recent investigations show that material prosperity, measured in terms of the GDP, must be regarded as the most important factor of influence, also when one tries to explain the environmental damages caused by a certain country (see Bradshaw et al. 2010).

Globally, flexibility with regards to GDP growth and CO₂ emissions lies over 80 % (see Hertwich and Peters 2009). More narrow connections can be seen, particularly, with the use of land, the rapid loss of biodiversity and the growing amount of waste. While economic systems are prospering the degradation of ecosystems goes on and the increase in produced capital leads to a reduction in natural capital at the same time.

The destruction of the natural basis for life following globalisation processes leads to a remarkable depletion of important raw materials and is now threatening the economic performance of - not only - Germany as a production site. Both the related changes in the ecosystems and their contribution to social welfare are usually underestimated both in economics and in the adopted policies (for the first balancing see the TEEB report 2010).

Official economic policies have a certain delay in following real processes. While environmental policies, in Germany at least, have undergone a process of “economisation” and have often explicitly recognised the importance of economic aspects and consequences of environmental policy strategies with regards to new jobs, export increase, contribution to economic growth or required investments, as well as with regards to the savings achieved in the costs of environmental damage, economic policies keep walking in the path of their traditional postulates: the environment is not suitably recognised as a relevant factor in production processes and in economic growth; it is neither considered as a potential parameter nor as a restriction parameter, except for the energy factor and for the common perception of some important theoreticians of economics who have already seen the end of growth looming at the horizon, which implies, for instance, that Keynes should be seen as one the first theoreticians of stagnation.

In this context environmental protection primarily plays a role of reparation, consisting in the elimination of damage caused by producers and consumers. In accordance with this point of view, environmental protection only intervenes after economic processes and, therefore, it is not a genuine parameter of influence to be observed in economic policies.

A sign of this is the point of view, widely spread among economic and political decision makers, according to which, growth has to be generated *in the first place*, in order to have enough resources for the reparation of environmental damage.¹ It is not surprising that such a “moderate” position in the way of dealing with the environment, connected as it is with financial profit, has brought about mediocre conceptual environmental strategies only. For instance, the Federal Association of German Industry has been maintaining for a long time that Germany should not play any forerunner role inside the EU, since the implementation of European standards is seen as being sufficient. The same is true for many other countries as well.

In case of doubt, the primacy of economy, and particularly of markets, seems to be still prevailing². Therefore, it makes sense to remember the reasons for “market failure” in solving environmental problems and in preserving both natural capital and the performance, as well as, particularly, the functionality of ecosystems.

“Markets in general do not have (a) the capability to detect long-term environmental damage, (b) private firms do not have an adequate incentive to develop marketable solutions, and typically markets are (c) unable to create sufficient demand for such solutions - which need high market penetration to be effective in terms of environmental protection.” (Jänicke /Zieschank 2011, p. 316f).

Moreover, the attempt to manage scarce natural resources, be they renewable or not, and ecological functions, like the preservation of water cycles, of the fruitfulness of land, the creation of biomass etc., through mere price signals does not seem to be promising. In fact, it can either lead to an even faster pace of depletion or to a remarkably delayed economic reaction; when we wait until such scarcity really becomes visible in the market price, then the overexploitation of ecosystems is usually in such an advanced stage that irreversible damage has already taken place. (see Hey 2011, manuscript).

Recurring to the substitution optimism of, say, a neoclassical growth theory, expanded to include the question of technical replaceability of natural resources, does not help in answering the question as to which increase in resource efficiency or substitution effects will *suffice* to incorporate the requirements of ecological sustainability of the economic system both in the theoretical model and in the everyday practice of production and consumption.

¹ „Growth, as measured with gross domestic product, is not everything, but without such growth, a lot of things come to nothing.“ (Haß 2010, 699).

² However, recent position papers by the Hanns-Seidel Foundation and by the Bertelsmann Foundation, for instance, as well as the latest economic report of the German Federal Government show some modifications.

Does all this necessarily result in the question about an alleged primacy of ecology? This is the case when we look at the capital stock in *natural capital* - including the functionality of ecosystems - as a crucial basis for social welfare (that is to say not only for material prosperity but also for “immaterial” aspects).

To this respect, it will be impossible to ignore guidelines, objectives and requirements going beyond markets and also beyond the requirements assigned by traditional economic theory building.

Since early discussions about “market failure” (for example Jänicke 1979) it has been clear that this is either a task of ecosystem and climate research, of civil society including associations for environmental protection or it is an important task of state institutions:

“Here the constitutional obligations and legitimation mechanisms of democratic government become relevant. The role of public policy is especially important when the pressure for change is high and the rate of technical progress too low (e.g. for climate change). Governments, individually or by concerted action, typically translate environmental threats into regulations, particularly if they come under political pressure.” (Jänicke/ Zieschank 2011, p. 316f).

2. Preliminary conclusions

Solving the problems of environmental consumption and impacts related to the economic process must be an essential integral part of an ecologically sustainable welfare concept if we want to consider natural capital as an essential basis for social wellbeing and progress. Moreover, a similar way of thinking can be applied to the creation and the development of human and social capital.

These aspects must not only be identified and explained, which is primarily a task of science, but they must also have a certain bindingness and an orientation allowing to establish a new practice in production and consumption processes, the whole of which actually lies in the competence domain of state policies.

Considering the dominant orientation of many economic and political actors targeting continuous economic growth, a welfare concept making a central reference to the preservation of natural capital (and in later phases to its renewed growth as well) needs a convincing information basis.

Expanding the idea of the previous paragraph: a part of this underlines the importance of an active role of the state.

The first implication of all that has to do with the welfare concept itself, which cannot be exhaustively dealt with at the level of individual responsibility, since, in the context of a sustainable development, it shows a collective and institutional level, which is narrowly connected with the idea of the common good (this differentiation is equally recognisable between “welfare” and “wellbeing”). Social welfare cannot be generated out of individual interests, since it needs the classical function of the state as an all-encompassing entity and, ideally, as a neutral one.

If the state is the only institution which can take responsibility for the whole society, at least in the sense of a process, then the protection of the natural basis for life is an important task of the state, too. According to the reflections on the definition of the purpose of the state made by the Council of Experts on Environmental Issues (SRU 2011, 23), article 20a of the Basic Law for the Federal Republic of Germany results in a long term responsibility for future generations, strengthened by the precautionary principle of environmental protection policies as well as by the principle of sustainability as it is now understood after the Brundtland Commission.

Therefore, the definition of such aims bears an important orientation function for all social and economic actors.

Particularly, from the conceptual triad consisting in a more encompassing welfare concept at the level of society as a whole, in the state task of a long term ecological responsibility and in the principle of sustainability, it can be inferred that the preservation of the Earth’s life-sustaining capacity must be an essential purpose of modern industrial societies. Germany’s Federal Government have already stated this in their second progress report on the national strategy for a sustainable development, where the life-sustaining capacity of ecosystems is considered to be the absolute outer limit, within which the pursuit of all other various aims has to be “optimised”. (Germany’s Federal Government 2008). In the special expert opinion of the Council of Experts on Environmental Issues (SRU) of the year 2011 the concept of “ecological imperative” was used to indicate the principle under which all economic and social aims, otherwise considered to be relevant, must be reconciled and balanced. (SRU 2011, 27).

3. GDP vs. sustainable development

GDP /GNI³ is still regarded as a key indicator for the performance of national economies; it is still used worldwide as a compass for politics and the public opinion in the judgment of the economic development of a given country and of the success or failure of its economic policies. This is probably the reason why that this leading economic indicator has also been included in the German federal sustainability strategy since 2002, not only as an independent target quantity but also as a reference quantity in other indicators of the German sustainability strategy, such as energy and resources productivity, or in relation to traffic. Precisely with reference to this positioning in the set of indicators of the *sustainability strategy*, a new discussion on the informational value of GDP was sparked after the first critical evaluations, as early as in the 1980s. (For more details see: Diefenbacher/Zieschank 2010).

In the meantime it has become clearer and clearer that the main goals of a sustainable development, if we take them seriously, are scarcely compatible with everlasting economic growth and with a more and more material-intensive and energy-intensive economic model in the East and in the West. The narrow connection, already mentioned above, between greenhouse gas emissions, land consumption, extinction of species and environmental impact on one side, and global economic growth on the other side, is not merely casual and raises the question as to whether there might be an equally far-reaching political managing of economic processes of another kind.

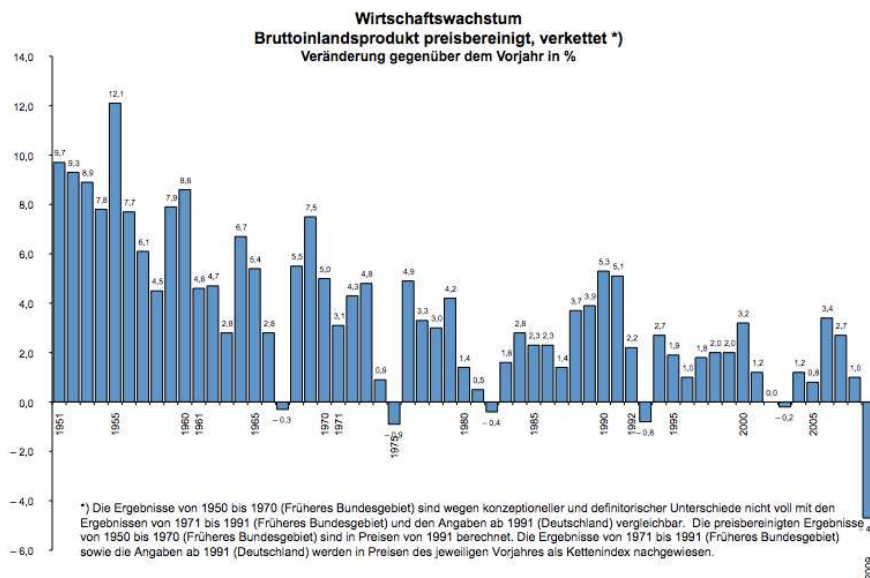
This perception is countered by many politicians and representatives of public life, who are still strongly convinced that solving social and economic problems through quantitative growth, and achieving a remarkable welfare improvement as well, has been a successful strategy during long phases of the last few decades.

Therefore, the severe slump in economy in the wake of the financial and economic crisis (see graph 1) has been seen as a serious threat:

³ While in the last few years statistics discussions among experts have been prone to adopt gross national income (GNI) as a parameter, the change has not yet reached public opinion. GDP refers to the market value of all goods and services produced for final use or consumption within a certain country in a given year. GNI equals gross domestic product (GDP) minus primary income payments to the rest of the world plus income receipts received by economic entities within the country from the rest of the world.

Economic growth
Gross domestic product adjusted for prices, chained index*)
Change from previous year in %

Graph 1: Wirtschaftswachstum der Bundesrepublik Deutschland



The results from 1950 to 1970 (related to the territory of the Federal Republic of Germany before reunification) are not fully comparable with the results from 1971 to 1991 (related to the territory of the Federal Republic of Germany before reunification) or with data from 1991 on (present day Germany) on account of differences in concepts and definitions. The results adjusted for prices from 1950 to 1970 (related to the territory of the Federal Republic of Germany before reunification) are calculated in 1991 prices. The results from 1971 to 1991 (related to the territory of the Federal Republic of Germany before reunification), as well all data from 1991 onwards (present day Germany), are expressed in prices of the previous year as a chain index.

Source: German Federal Statistical Office

In the coalition agreement of the last German Federal Government, under the leitmotiv “prosperity for everybody” in the chapter Economic Growth and Recovery, you can find the following explanation for far-reaching measures: “In the present day situation we must overcome the slump in economic growth as quickly as possible and achieve a new, stable and dynamic recovery.” Among the measures adopted there was also a “growth acceleration law”, which came into force in early January 2010. (This quotation should merely serve as a typical, historical example for a way of thinking which is well established in the USA and in Europe).

The fact that there might be economic growth without any improvement in welfare - namely when the negative external effects of growth mentioned above neutralise welfare improvements⁴ - was accepted only slowly and initially only in some parts of economic theory. But the opposite is also possible: an improvement in the quality of life unrelated with economic growth. However, the conceptual conclusion of decoupling the concept of social welfare from economic GDP-growth still seems to be far from being envisaged, and not only in Germany.

Earlier critical discussions about further developments in statistical economic reporting, had already expressed concerns primarily related to the merely **quantitative addition of private, corporate and state activities**.

As an illustration of the meaning of this aspect: all growth stimulus measures recently adopted throughout the world should lead to an increase in GDP, since their declared goal is higher turnover. The “neutrality” of GDP as regards the quality of the goods and services produced is based on the assumption of an the same evaluation for all kinds of economic activities, which can turn out to be a wrong estimate from the point of view of welfare aspects.

Another aspect must be added to this respect: at least in the USA and in Great Britain the keeping of a positive GDP/GNI was connected both with private and public indebtedness at an unprecedented level and with the creation of virtual financial products, leading neither to sustainable development nor to an improvement in social welfare. Quite on the contrary, there arose an apparent prosperity, which was not based on productive capital, but on debt: in the USA alone, private debt amounts to 42 thousand million dollars and state debt to another 23 thousand million dollars, according to conservative estimates.

Along with the political decision to take further measures at federal level, aimed at stabilising global economy, the topic of the *shaping* of a sustainable or of a non-sustainable economic model turned up in the political agenda. In view of the equally gigantic conjuncture programmes mentioned above, amounting to over 2.8 thousand million dollars, the political dependence on positive economic growth rates is going to increase all over the world.

⁴ The authors understand social welfare as the sum of the material basis - prosperity - and of intangible components of wellbeing. In this perspective, the approach of sustainable development can be interpreted as a combination of intragenerational and intergenerational welfare, since the concept of sustainability also focuses on the consequences of today’s management of economy for different population groups and for future generations, which is not the case in the traditional welfare concept.

Therefore, the traditional orientation on GDP/GNI encourages an idea of welfare, which finally remains illusory while, at the same time, both the problem of indebtedness and the negative social and ecological consequences of quantitative growth are forgotten.

Indeed, so called defensive costs and negative external effects are likely to neutralise the growth rates achieved at the level of mere calculation. All measures taken after traffic accidents, the costs of crime and diseases caused by alcohol or drug abuse are included in GDP, just like the elimination of industrial waste or the renewal of building facades affected by the emission of air polluting substances. On one hand, these factors lead to an increase in GDP/GNI, but clearly not yet to an improvement in social welfare.

During the last few years a lively international debate has developed as to how social progress and welfare “beyond GDP” can be measured in a better way with respect to contents and methodology. Among the participants in this debate there are not only representatives of science (whose best known result is the Stiglitz/Sen/Fitoussi-Report of 2009) but also institutions like the EU, the OECD or the World Bank.⁵

Already in 2008 the European Economic and Social Committee stated:

„GDP is an important indicator of economic growth but, as a policy guiding instrument, it is inadequate to meet the challenges of the 21st century.“

A whole series of reporting systems and indices capable, as an ensemble, of filling in many gaps in welfare measuring were published in Germany, too, although they were not always explicitly conceived to that purpose; among them there are social and ecological reporting systems, the Ecological Economic Accountancy of the German Federal Statistical Office as well as several indicators for the assessment of the quality of life. Nonetheless, in order to be able to counter GDP/GNI with an alternative at the same level, it will be necessary not only to conceive integrative reporting systems and indicator systems, but also to sum up the various aspects of a welfare accounting in *one* single index.

The two following chapters are devoted to the construction of an integrative information basis for GDP/GNI as well as to the empirical results of the first calculations for a “National Welfare Index”

⁵ For a quick review see the home page of the EU Commission about the topic “beyond GDP” <http://www.beyond-gdp.eu/>. The OECD is running an international initiative for the measuring of social progress: http://www.oecd.org/document/32/0,3746,en_21571361_46558043_47823328_1_1_1_1,00.html; in 2011 the World Bank presented a new report about “The Changing Wealth of Nations”.

4. The construction principle of the National Welfare Index

In order to be able to discuss the traditional deficits in the calculation of social product this article suggests the use of an index based on several components. It must be stated in advance that, in this context, there is a requirement for certain working procedures which *cannot* be carried out in the framework of national accountancy because of methodological reasons, as well as on account of the definition of the institutional tasks of the German Federal Statistical Office: firstly, the German Federal Statistical Office is actually focussed on parameters for which market prices are available and, secondly, it cannot include any ecological damage or any developments considered to be socially negative.

Neither are evaluations or normative decisions concerning a sustainability strategy, such as, for example, including equality among generations, tasks of statistics.

Therefore, the further explanations regarding the National Welfare Index (NWI) will not start from the conviction that the NWI might lead to an expansion or to a kind of modernisation of national accountancy.

The related work is rather to be seen in the context of the research projects of the German Federal Environmental Office and of the Federal Ministry for the Environment, Environmental Protection and Reactor Security.

The new National Welfare Index (NWI) is a monetary quantity, i.e. all included variables are provided in monetary form as yearly flux quantities, or could theoretically be provided in such form. On the whole, the NWI includes 19 variables in its basic variant.⁶

- The NWI starts from the basic quantity “private consumption”. This starting point is based on the assumption that private consumption, i.e. the consumption of goods and services on the part of households, generates positive utility contributing to welfare.
- On account of the reflections based on the theory of welfare, according to which the same supplementary income in a poor household generates a greater supplementary welfare than in a rich household, private consumption is weighted with income distribution. The more unequal income distribution is in a given society, the lower is the NWI, if all other conditions are equivalent.
- Value creation through housework and voluntary work, unpaid in the market, is also included. The decision not to consider these forms of value creation in GDP/GNI

⁶ The list of all variables is to be found in the appendix of this text

was already the object of controversial discussions at the time of the conceptual definition of national accounts.

- Six indicators reproduce supplementary social factors: on one hand, the welfare creating public expenditure on health care and education is added while, on the other hand, the cost of crime and the cost of traffic accidents are subtracted.
- Ecological factors are represented by variables 11 to 19: expenses for the compensation of environmental damage, damage costs on account of different environmental impacts and substitution costs for the use of non-renewable resources.
- Lastly, the NWI, in its enlarged version, includes two economic indicators, the net change in the value of fixed assets and the net change in capital accounts. Both variables are subjected to strong fluctuations and have a remarkable influence. In the basic version of the NWI they are not considered, in order to allow a synthetic representation of the essential ecological and social corrections as well as of the value creation unpaid in the market.
- A supplementary variant of NWI, which cannot yet be corroborated with empirical data, also includes the net new indebtedness of public households (with a negative value) and public expenses aiming at ecological transformation (with a positive value).

The reliability of data bases still differs considerably from a variable to the other. While some values are based on easily accessible primary data taken from official statistics, others are based on mere estimates which must be verified through deepening analyses in the context of a further development of the NWI. On the other hand, the problem of monetarisation cannot yet be always solved in a completely satisfactory way with the data and methods available.

The National Welfare Index is not intended to replace GDP/GNI but rather to *integrate* it as an informational counterpart.

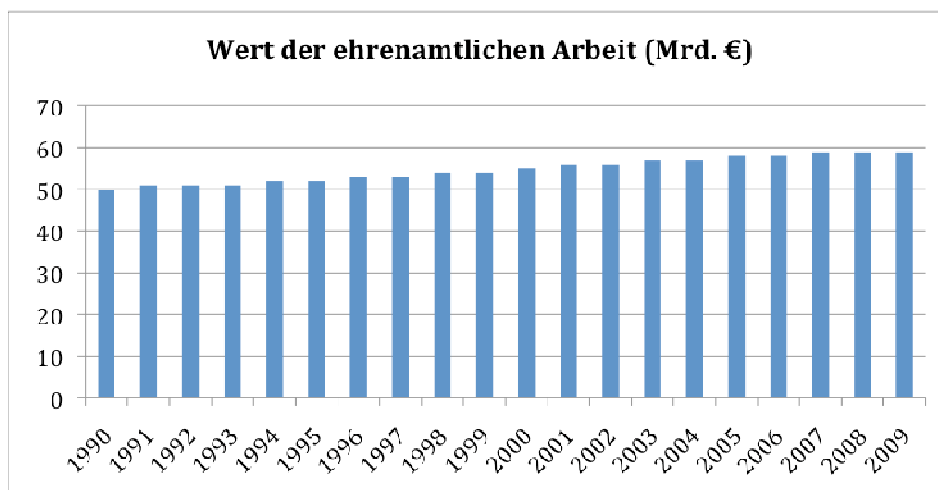
5. The results of the National Welfare Index

The following paragraphs are devoted to the discussion of two selected components of the NWI: the development of voluntary work and the development of the costs of CO₂ emissions.

Voluntary work is also part of the economic value creation of a country. The reason why it is not considered in GDP (just as in the case of housework production), lies in a normative decision of the committees which carried out the standardisation of national accountancies focussing on paid work. The non-inclusion of voluntary work leads to a systematic depreciation of this kind of work in the calculations of value creation in the whole economic system and, therefore, it needs correction also from the point of view of a social development of the country oriented on the common good (see graph n° 2 below). In the period considered only two years (1992 and 2001) are available with precise statistics on time use. Other values in the time series must be estimated through suitable extrapolation or interpolation methods.

Graph 2: development of voluntary work

Value of voluntary work (in thousand million €)

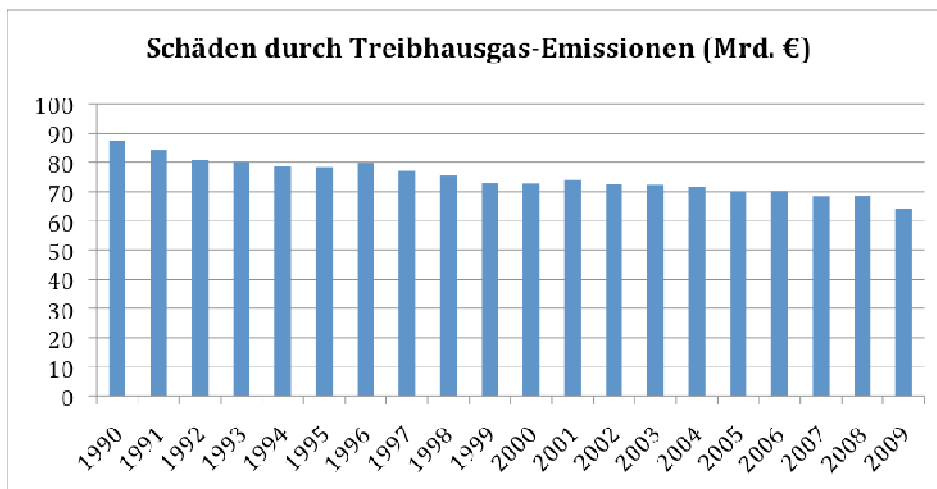


Source: Diefenbacher/Held/Rodenhäuser/Zieschank 2011

The value of voluntary work is included in the NWI calculations in accordance with a very prudent approach assessing it at the hourly rate of unqualified work. An increase in voluntary work is usually evaluated positively as a sign of social cohesion. When social services are replaced by voluntary work, such a development might be an indication of the reduction of benefits as well.

In the following paragraphs the cost estimation for greenhouse gas emissions will be discussed as an example of ecological component. Greenhouse gas emissions, expressed in CO₂-equivalents, are available in long time series in the data bases of the German Federal Statistical Office and of the German Federal Environmental Office. The average external damage cost per tonne of CO₂, which ought to take account of the negative impact on climate and public health as well as of material damage and crop failure, can be found in the methodological convention of the German Federal Environmental Office (2007); in that convention it was decided to adopt an average price of 70 €/t, while the estimates of the studies used in the methodological convention varied between 14 €/t and 280 €/t. Social costs resulting from the environmental impact caused by greenhouse gas are not considered to be sustainable in the sense of a positive contribution to ecological, economic and health-related development. Therefore, damage arising from the consequences of climate change has a negative impact on the index. As for volume and development see graph n° 3 below:

Graph 3: development of damage from greenhouse gas emissions

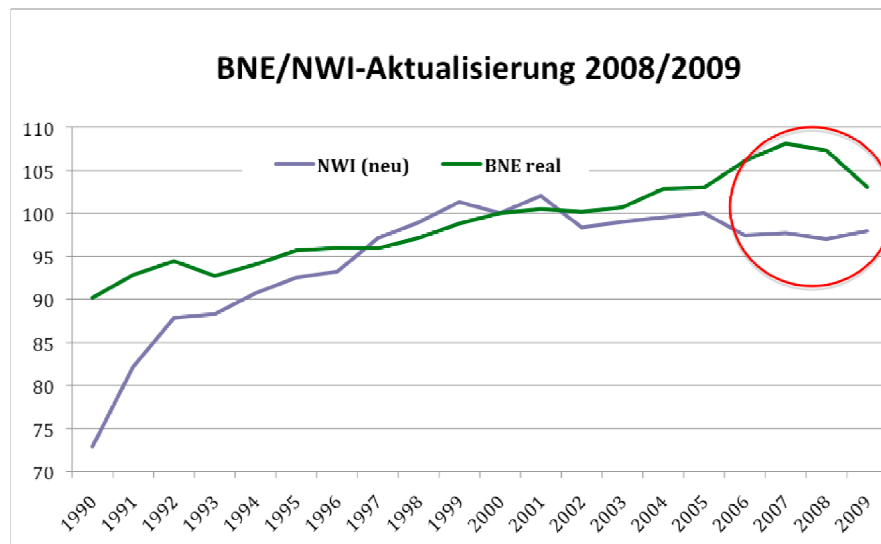


Damage from greenhouse gas emissions (in thousand million €)

Source: Diefenbacher/Held/Rodenhäuser/Zieschank 2011

The comparison, carried out for the period from 1990 to 2009 between the GNI and the National Welfare Index in its basic version, which aggregates social, ecological and economic specific indicators, results in the following picture as shown in graph n° 4.

Graph 4: comparison between Gross National Income and the National Welfare Index in Germany (graphs normed 2000 = 100).



GNI/NWI updating 2008/2009 NWI (new) GNI (real)

Source: Diefenbacher/Held/Rodenhäuser/Zieschank 2011

The main result of the comparison is represented by the *progression* of the curves, which shows whether GNI indicates the direction of welfare change correctly or not. The difference in the development of the two indexes shows that this is probably not the case: while GNI grows quite constantly through the whole period, the modified NWI reaches its maximum in the year 2000 and shows a falling trend in the last few years.

The factors accounting for the decrease in the NWI are, particularly, the growing inequality in income distribution and the negative external effects in the environmental domain, the quantitatively largest item of which is represented by replacement costs for the consumption of non-renewable resources. Positive factors going into the calculation such as, particularly, the value of housework and voluntary work, which are also growing, cannot compensate this trend.

The difference in the levels of GNI and NWI in absolute terms is to be ascribed to the structural difference in their construction, since the respective calculations are carried out using different bases. However, it can also be interpreted in the sense that not all results of activities leading to economic value creation contribute to the enhancement of welfare as well.

The exact corresponding numeric value both for NWI and (in the context of the observation of welfare) GNI is often overestimated, since welfare measurements are ordinally scaled. This implies that a twofold numeric value does not necessarily mean that welfare in a given society has exactly doubled. Welfare measurements are only directionally stable; therefore, a higher value always shows a welfare improvement and a lower value a welfare reduction.

For this reason both curves in graph n° 4 are normalized to the year 2000 with an index value of 100.

6. Conclusions for the political debate

One of the central theses in favour of a sustainable economy could be the statement that *economic growth per se* is no longer in the spotlight: historically, the latter has always been controversial from the point of view of ecology but, additionally, in the last few years, new imbalances have been created from the points of view of social distribution, of excessive financial indebtedness and of the related theme of generational justice.

A better objective for a country might be an increase in *social welfare*, which includes the natural and social capital available as well.

These reflections can be deepened in three different fields:

6.1 Increases in social welfare without economic growth

The NWI opens the chance of recognizing and strengthening other sources of prosperity and welfare, such as a more equitable income distribution,⁷ the evaluation of social networks and citizens' commitment, as well as measures in fighting dependencies: costs merely caused by the abuse of alcohol, tobacco and drugs can be estimated in the order of 56 thousand million euro yearly. Reducing environmental impacts and the consumption of non-renewable resources is an option as well. Up to date the fact that *avoided* environmental damage definitely contributes to an indirect growth of social welfare has been underestimated.⁸

Remarkably, the other sources of welfare mentioned above create an important "buffer" in times of economic downturn. As a matter of fact, in the last reporting periods the NWI has not reflected the drastic slump of GDP/GNI in the same proportion, which is already visible in the updating of NWI for the year 2009 (see Diefenbacher/ Held/ Rodenhäuser/ Zieschank 2011).

As a consequence, the dependence of a society on high economic growth rates as a central orientation quantity is implicitly decreasing.

⁷ Research on Happiness I gives some hints to the fact that a more just society is also a happier society (see Wilkinson & Pickett 2010).

⁸ An indication to this respect can be seen in commentaries made by visitors from large towns located in developing and emerging countries who appreciate the relatively cleaner rivers and the lower level of smog they experience in Germany.

Consistently with these reflections and, as the Enquete Commission of the German Federal Parliament on “Growth, Prosperity and Quality of Life” now also recognises, it should be considered that, because of the quantitative development level achieved in the meantime in many old national economies, the annual growth rates tend to fall even in “normal” economic conditions. This happens on the foreground of statistical basic effects, demographic change and increasingly saturated markets in certain areas, such as domestic sales of food, textiles, cars etc.⁹

Therefore, welfare, when expressed with the components introduced in the NWI research project, can keep growing even if traditional economic growth diminishes or stagnates.

Lastly, even a slight, continuous increase is not problematic in principle, differently from GDP/GNI growth, which is usually not sustainable, at least environmentally, as it was argued above.

6.2 Remarks on economic transformation

The stronger orientation towards overall social welfare allows a stronger reference to qualitative growth, if we want to sparkle discussion on the “core” of traditional economic arguments: while GDP/GNI is fully neutral, not to say unconcerned, with respect to sustainable or non-sustainable economic activities, in the context of a differentiated welfare calculation an evaluation is made, which may be advantageous, in the middle or long term, for countries having elaborated and applied a sustainable strategy in a target-oriented way.

According to this argument, a new orientation away from energy intensive and material intensive production and towards qualitative development would be particularly beneficial. At the beginning there could be the elimination of environmentally detrimental subsidies: in Germany alone, 48 thousand million euro are granted every year, either in subsidies to activities which are directly connected with an intensification of land use, of energy and material consumption, or in agricultural subsidies, in free distribution of CO₂ emission certificates, in EU fishing subsidies, scrapping bonus etc., or, as exceptional measures, in tax benefits for the exemption of kerosene from energy tax, electricity and energy tax cuts for the manufacturing industry or the forfeit taxation of corporate fleets (for more details see German Federal Environmental Office 2010a).

⁹ The German model, with its very high level of export, recently praised by international organisations like OECD, is not transferrable, as a concept, to most remaining European states.

The conclusions drawn from an alternative index complementary to GDP/GNI move in the direction of a detachment of economic growth from energy and resources consumption, not only in relative terms, but also in absolute quantities.

To this respect, energy savings and, especially, savings in the use of materials in production and in consumption play a decisive role (German Federal Environmental Office 2010b, Ekins/Meyer/Schmidt-Bleek 2010). In the German manufacturing industry the percentage of material costs amounts to about 48% of production costs (data referred to the year 2008), which is more than twice as much as labour costs amounting to 18%. An increase in this percentage, just like an increase in the productivity of labour over a period of many years, would offer ecological and economic advantages at the same time, through savings potential and an improvement in resource efficiency, without any losses on the part of companies or consumers.

At the same time, the question of ecological renewal of economy and society has been raised. Catchwords in this context are “green innovations” (Jänicke 2008), or the internationally acclaimed concept of a “Green New Deal” (Barbier 2009) and relative investments, which not only lead to a strengthening of the so called “eco-industries” but can also affect large spheres of the whole economy. A considerable contribution to this “mainstreaming” is due to the German machine building industry (see Deutsche Bank 2008).

Nevertheless, the NWI concept does not ignore the automatisms of the existing growth imperatives, characterized by interest payments on investments, the enhancement of industrial productivity, international competition and globalization, as well as some safeguard of social systems, although these growth imperatives cannot prevent recessions. However, other differentiations have been undertaken: between the growth of financial parameters and the growth of physical parameters related to material or energy flux as well as to the impact on the environment and nature. The growth of the private income and the state revenue of a country is not a problem as such, and the financial growth of deposits as such does not cause any damage to ecosystems. But socially or politically relevant aspects of such enhancements, for instance, can be analyzed through the NWI variables related to income distribution as well as through the degree of private or public indebtedness.

All new approaches envisaging “green growth”, sometimes with elaborated model based calculations, try to minimise the *physical* input and output of economic systems preserving, temporarily, the same profit and income basis (see OECD 2011b, Jaeger et al. 2011, Meyer 2011). According to the estimates available, value creation achieved with environmentally relevant products, clean technologies, services and procedures now amounts to about 8% of the traditionally calculated gross domestic product in Germany.

To what extent a stronger qualitative growth in the sense described above will bring about really sufficient ecological relief, new jobs, better competitiveness and a relief in state expenditure cannot be established through a welfare calculation like NWI, but it can, at least, be brought into discussion in a more suitable way.

6.3 Remarks on cultural change

The fact that the aspect of social welfare is likely to be more strongly discussed in future is a result of the perception that economic growth and mass production played an important role in Germany during the years of reconstruction, and with due cause. However, nowadays the question arises as to whether the importance of material goods as a basis for personal wellbeing, success and life quality should not be assessed differently.

While income has been growing for decades in the USA, in Switzerland and in Germany since World War II, personal life satisfaction has been keeping a fairly constant level since the mid-1970s; material wealth does not seem to be an automatic guarantee for life satisfaction, as the research carried out on satisfaction and happiness showed (Layard 2005 and Ruckriegel 2012). While Miegel (2010) finally insists on a cultural change in view of the negative consequences of the postulated everlasting growth, Fromm described already in 1979, nearly prophetically, both the deficits and the system-immanent or external limitations of industrial systems:

“The scope of this great promise, and the marvellous material and intellectual achievements of the industrial era, must be visualised in order to understand the trauma that the beginning perception that it might not be fulfilled is producing today.”

Moreover, Fromm stated that more and more people would become aware that “happiness or even maximum possible pleasure do not result from the unrestricted satisfaction of all desires and do not lead to well-being;” (Fromm 1979, 14).

In 1976, in the former Kingdom of Bhutan it was suggested to replace the leading economic concept of “Gross Domestic Product” with another concept, i.e. with “Gross National Happiness”, and to take the latter as the prevalent development philosophy for the country and as the long-term goal of social development processes.

Furthermore, there is an emancipation effect going hand in hand with these various reflections: the transition from the concept of growth to the concept of welfare corresponds to the role change from a mere “consumer” to a “citizen”, who is interested and partaking in the shaping of public life.

An economic actor, completely unsuspecting of both happiness research and growth criticism, having taken advantage of an increase in turnover and of its own role as a fuel supplier in many economic processes up to date, the Royal Dutch Shell corporation has now, remarkably, dealt with the question of a voluntary reduction of demand; a study called “Signals and Signposts” (Shell 2011) contains, for the first time, a warning that the further pursuit of the growth in energy consumption registered up to now would lead to serious negative consequences, undermining the very foundation of economic development. This is noteworthy, since, in many countries, *sufficiency strategies* have not yet been included either in environmental policies or in discussions of economic policies. A turnover reducing effect of economic demand, apart from single initiatives¹⁰ and from the free decisions of consumers, should, indeed, already be ascribed to cultural change, at least in Western industrial nations.

6.4 The National Welfare Index as an information tool

The new reporting system of NWI includes a whole series of political potentials. In this way, the informational background for political decision making might be improved, on one hand through the comparison with the progression of the GDP/GNI indicator and on the other hand through the recognition of the social trends about which the components of the index provide information.

On the whole, several political functions can be connected with the aggregated components of the NWI:

- An improved monitoring of the development of social welfare
- Information for political decision makers (‘engineering function’)
- Monetary evaluation of the measures taken in the context of a sustainable development
- Beginning of new goal definition processes
- Information for political learning processes (‘enlightenment function’).

Moreover, the creation of reliable and differentiated information about a complementary understanding of economic development represents an important starting point for the participation of citizens in the discussion on the purpose of social development: What is the meaning of social progress and how can it be achieved?

¹⁰ For example in the case of “Sundays without cars” during the oil crisis, which was not, in fact, the result of free discernment, but it was introduced because of the dependence on fossil fuel.

Appendix 1

Core set of variables for the national welfare index

	Variables (Basic variant)	Plus and minus sign for NWI calculation
1	Index of income distribution	
2	Weighted consumption expenses	+
3	Value of housework	+
4	Value of voluntary work	+
5	Public expenditure on health care and education	+
6	Consumer durable goods Costs / Benefits	+/-
7	Travelling between home and workplace	-
8	Costs of traffic accidents	
9	Costs of crime	-
10	Costs of alcohol, tobacco and drug abuse	-
11	Compensatory social expenses due to environmental impact	-
12	Damage from water pollution	-
13	Damage from soil pollution	-
14	Damage from air pollution	-
15	Damage from noise	-
16	Loss or profit from changes in wetland areas	+/-
17	Damage from the loss of agricultural areas	-
18	Replacement costs due to the exploitation of non-renewable resources	-
19	Damage from CO ₂ emissions	-

Variables included in the enlarged form of NWI

20	Net change in fixed capital (without premises)	+ / -
21	Change in capital account	+ / -

New variables for a future variant of NWI

22	Net new indebtedness	-
23	Public expenditure on ecological transformation	+

Further variables under discussion:

	Costs of anthropogenically caused or favoured natural disasters	--
	Costs of the loss of species	--

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