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**The National Welfare Index as a Contribution to the
Debate on Growth and Welfare Measuring:
Construction Principle, Results and Conclusions**

Heidelberg/Berlin, November 2009

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1. Starting discussion on a possible correlate to GDP/GNI

Gross domestic product (GDP) has traditionally been regarded as a key indicator not only for the Western economies; it has been used worldwide as a compass for politics and the public opinion in the evaluation of the economic development of a country and of the success or failure of its economic policy. It is probably for this reason 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 criticisms of the 1980s. Sustainability strategies usually consider social justice, ecologic sustainability and a kind of economic development capable of being carried on in future. In this context, a turnover-oriented parameter, connected with the goal of continuous growth, clearly enters an area of conflict.

The strong political fixation on GDP or GNI¹ and on the corresponding growth rates has already been facing skepticism in the scientific environment for some time, above all because of the costs in production and consumption which do not contribute to an enhancement of social welfare. The negative side effects for the environmental, working and living conditions of a given society, which could derive from economic growth, range from damages to water, soil and the air to the irreversible depletion of natural resources and to the social marginalization of those who cannot keep pace with the pressure to compete. The only reaction to these effects often lies in compensatory expenses, e.g. for the repairing of the environmental damage and the reproduction of the previous welfare level. In the calculation of GDP/GNI, however, these expenses are evaluated positively. Moreover, in the last few decades it has become clearer and clearer that these expenses presumably do not contribute to the construction of a sustainable social development. At the same time, a series of value creating activities is not considered in GDP/GNI, although they give a positive contribution to social welfare; this applies, among others, to value creation through housework and voluntary work.

In the perception of politics and the public opinion, however, welfare improvement has been very strongly connected with quantitative economic growth for many years, as a consequence of

¹ While in the last few years statistics discussions among experts have been prone to adopt gross national income (GNI) which differs from GDP only by the balance of primary incomes with the rest of the world, this change has not yet reached public opinion. The study mentioned here also adopted the term GNI.

the strategy of solving economic and social problems with economic growth, which was quite successful for a long time. In this way, it was only slowly and at first only in economic theory, that the possibility of economic growth without welfare improvement was accepted, especially when the negative external effects of growth consume the achieved welfare improvement.² And the opposite can also be the case: an improvement in the quality of life, which is not accompanied by economic growth. In spite of this, the mere conceptual conclusion that the idea of social welfare should be detached from the economic growth paradigm, still seems difficult to accept, if not openly revolutionary, and not only in Germany. As a matter of fact, such a conclusion would lead to the rejection, or at least to a supplementation of the leading indicator of the status of a given society, now dominating in politics, economics and public opinion.

In the last few years a lively international discussion developed on how social progress and welfare can be better measured, concerning both contents and methods; not only the scientific environments, but also the EU, the OECD and the United Nations are taking part in this discussion. A whole series of reporting systems and indexes were published: all together, they cover many gaps of welfare measuring, although they were not explicitly designed to this purpose: social and environmental reporting systems, environmental economic accounts and indicators for the evaluation of the quality of life. However, in order to be able to oppose an adequate alternative to GDP/GNI it will be necessary not only to conceive complementary reporting systems and indicator systems, but also to sum up the different aspects of welfare calculation in *one* index.

2. The National Welfare Index – the construction principle

In order to be able to discuss the deficits of national product calculations up to now, we suggest an aggregated index composed by many partial indicators. After an evaluation of the approaches to an alternative welfare measuring, developed up to now internationally, the conceptual approaches of the “Index of Sustainable Economic Welfare” and the “Genuine Progress Indicator” seem to be already a reliable basis which has proved its value in different country case studies but which is also capable of being improved and expanded.

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 a

² Under social welfare we understand the sum of the material basis (prosperity) and of the supplementary immaterial components of wellbeing. In this perspective, the guideline of sustainable development can be understood as a combination of intra- and intergenerational welfare, since the concept of sustainability also considers the consequences of the present day management of the economy for various layers of the population and for future generations, differently from the traditional concept of welfare.

form. On the whole, the NWI includes 21 variables in its basic variant, 19 and 23 variables respectively in its modified variants.³

- The NWI starts from the basic quantity “private consumption”. This starting point is based on the assumption that private consumption, the consumption of goods and services on the part of households, causes a positive utility and therefore contributes to welfare.
- On account of the reflections based on the theory of welfare, according to which a supplementary income for a poor household causes a greater supplementary welfare than for a rich household, private consumption is weighted with income distribution. The more unequal income distribution is in a given society, the lower the NWI, if all other conditions are equivalent.
- Then, value creation through housework and voluntary work, unpaid in the market, is included. The decision not to consider these forms of value creation in GDP/GNI was already the object of controversial discussions at the time of concept building for national accounts.
- Six indicators reproduce supplementary social factors: on one hand, the welfare creating public expenditure on health care and education is added, 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 basic form 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 a modified form of NWI they are not taken into account, in order to allow a concentrated representation of the essential ecologic and social corrections as well as of the value creation unpaid in the market.
- A supplementary variant of NWI also includes the net new indebtedness of public households (with a negative value) and public expenses on 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 from official statistics, in other cases there are

³ Exhaustive explanations concerning the calculation and the foundation of each single variable are included in the final report quoted above, in chapter 8, while the list of variables is also to be found in the appendix of this text.

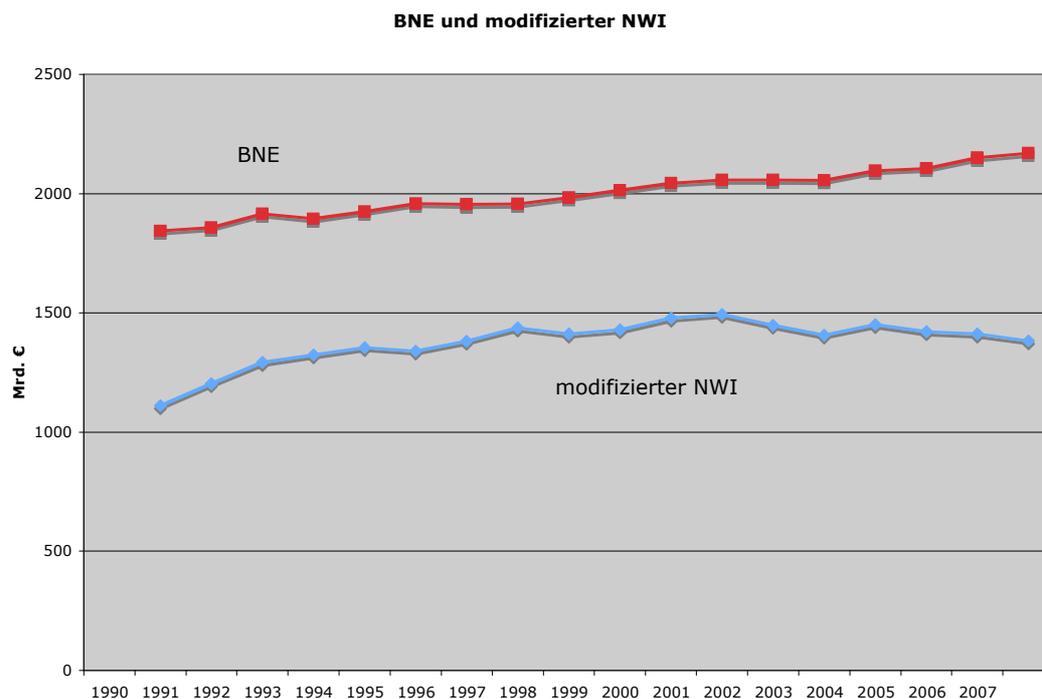
only assessments that must be proved with a further development of NWI through deepening analyses. Also the problem of monetarisation can not yet be always solved in a completely satisfactory way with the data and methods available.

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

3. The National Welfare Index – results

The comparison between GNI and the aggregated National Welfare Index composed of social, ecological and economic partial indicators in its modified form for the period from 1990 to 2007, results in the following chart:

GNI and modified NWI



Red line: GNI - Blue line: modified NWI

The main result of the comparison is represented by the *progression* of the curves, which shows if GNI indicates the direction of welfare change correctly. The difference in the development of both 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 falls considerably in the following few years. The factors accounting for the decrease in GNI are, particularly, the

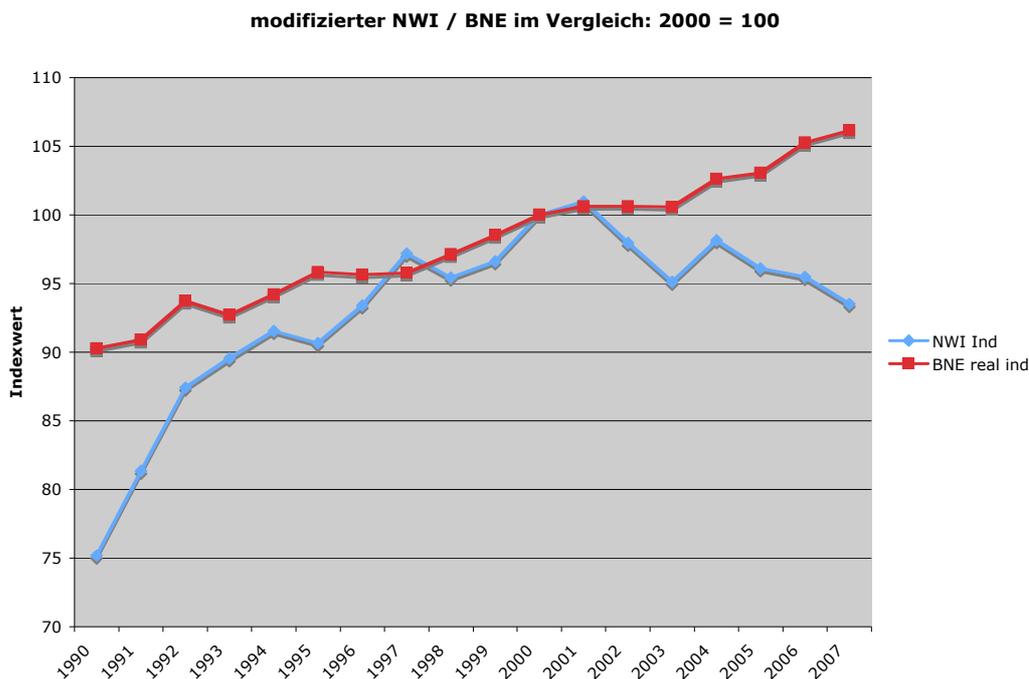
growing inequality in income distribution and the negative external effects in the environmental domain, the quantitatively largest item of which is represented by replacement costs for the consumption of non renewable resources. Positive factors going into the calculation such as, particularly, the value of housework and voluntary work can not compensate this trend with their growth.

The visible difference in the levels of GNI and NWI is to be ascribed to the structural difference in the construction, since the respective calculations use a different basis. 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 of NWI and (in the context of the observation of welfare!) GNI is meaningless, though, since welfare measurements are ordinally scaled. This implies that a double numeric value does not necessarily mean that welfare in a given society has exactly doubled. Welfare measurements are directionally stable; therefore, a higher value always shows a welfare improvement and a lower value a welfare reduction.

The difference in the progression of the curves becomes even more evident if both parameters are normalized to the year 2000 = 100

Modified NWI / GNI in comparison: 2000 = 100

Blue line: NWI
 Red line: GNI



4. Conclusions for the political debate

Although it may never be possible to give an “objective” answer to the question of the “real” welfare of a country, the different progressions of the curves of NWI and GDP/GNI succeed in clarifying it.

Complementary welfare measuring in the form of an index at the same level as GDP/GNI reminds us of the central reflection as to whether a country’s welfare should be the final goal and the role of economic growth should be configured differently in future, considering its ambivalence first of all with respect to sustainability issues.

This reflection can be further specified:

1. The NWI opens the chance of recognizing and strengthening other sources of prosperity and welfare, such as a more equitable income distribution, the valuation of social networks and citizens’ commitment, the reduction of environmental impacts and the consumption of non renewable resources.
2. The other sources of welfare mentioned above also create an important “buffer” in times of economic downturn. As a matter of fact, according to our thesis, the NWI should not show the drastic slump in GDP/GNI in the last reporting periods in the same proportion (but the relevant accounting results will be available only in one or two years’ time).
3. The dependence of a society on economic growth rates as a central orientation quantity is decreasing. It is not a matter of political normative restrictions on economic growth, but rather of considering firstly that, because of the quantitative development level achieved in the meantime in modern economies, the annual growth rates tend to fall even in “normal” economic conditions. Secondly, in various Western countries the GDP key data have been kept artificially high through massive indebtedness strategies, through the corresponding bubble of monetary assets – from real estate to financial derivatives - and income generation from financial markets. A Welfare Index of modern construction should be able to deliver early warning signals.
4. Vice versa: on one hand, welfare, expressed with the partial dimensions that were introduced in the project, can keep growing even if traditional economic growth diminishes or stagnates. Even more: on the other hand, a continuous increase is not problematic in principle, differently from GDP growth, which is usually not sustainable, at least environmentally.

5. The stronger orientation to 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.
6. The NWI concept does not ignore the automatism of the existing growth imperatives, characterized by interest payments on investments, enhancement of industrial productivity, international competition and globalization, as well as some safeguard of social systems, although these growth imperatives can not prevent a recession. However, other differentiations have been undertaken: between the growth of financial parameters and the growth of physical parameters related to mass or energy flux as well as to the impact on the environment and nature. The growth of private income and state revenue of a country are not a problem as such, and the financial growth of deposits does not cause any damage to ecosystems. Socially and politically relevant aspects of such enhancements could, for instance, broach the issue of the welfare variables related to income distribution as well as of the degree of indebtedness. On the contrary, it will not be possible to avoid limiting the physical size of economic growth on account of climate or environmental policies, sustainable-economy and normative-ethical reasons, or of issues of intra- and intergenerational justice and the safeguard of creation.
7. The conclusions drawn from an alternative index, complementary to GDP/GNI, go towards a detachment of economic growth from energy and resources consumption, not only in relative, but also in absolute quantities. At the same time, the question of ecological renewal of economy and society has been raised. Catchwords in this context are “green innovations” and investments, a strengthening of the so called “eco-industries”, incentives to resource savings and efficiency enhancements as well as turning away from material products as a frequently dominating basis for life satisfaction in different layers of society.

8. The question about the extent to which a stronger qualitative growth in the sense drafted in this text can really provide sufficient environmental improvements, new jobs, new competitiveness and a reduction in state expenditure, can not be answered with the help of a welfare calculation like NWI, but the issue can be addressed more adequately, at least.

The new reporting system contains a whole series of political potentials. So, the informational basis of political decision making improves, through the comparison with the progression of GDP/GNI on one hand – an advantage also with regards to the visibility and the public communicability of alternative welfare calculations – and, on the other hand, on the basis of social trends covered by the partial variables of the index. Moreover, the allocation of reliable and differentiated information about a complementary view of economic development represents an important basis for the participation of the citizens to a social target discussion: What does social progress mean and how can it be achieved?

5. Consequences for the implementation

As already explained, the NWI should not replace GDP but rather complement it. To that purpose, the respective up-to-date values of the NWI should be calculated and published regularly in the next few years. “Ex-post-corrections” of the underlying values could be necessary if an improvement of the data bases can be achieved.

The authors regard the NWI as suitable to be included as a complementary variable to GDP in the set of indicators of the German sustainability strategy.

A further methodological securing of the NWI should occur in the near future. In addition to this, the official statistics should be enabled to produce an improved data base for some variables, for instance in the calculation of time use for housework and voluntary work, of noise and soil damage.

Besides, in our view more comparative research should be done on the NWI in other countries in order to test the international applicability of the concept.

Appendix:

Set of core variables for the national welfare index

	Variables (Basic variant)	Value
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 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 and 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 which are not included in the modified form of NWI

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

Complementary variables of the second variant of NWI (in appendix 1)

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

Further planned complementary variables:

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