By Invitation

GNP & Beyond: Searching for New Indicators– A View in Retrospect

Udo E. Simonis

World wide, GNP has been and still is not only the basic accounting concept but also the dominant societal goal and performance indicator. However, the question is on the agenda again whether time has come to look for alternative concepts and indicators. National and international committees are at work and may generate fresh ideas or reactivate older ones. This paper deliberately looks at the early attempts made to get out of the impasse and to break the deadlock of outmoded concepts. The expectations that again roam about indicate that something serious is at stake and that in due course a breakthrough might be possible, the author hopes.

Udo E. Simonis is Emeritus Professor (Environmental Policy Studies) at Social Science Centre Berlin (WZB). E-mail: simonis@wzb.eu

The Problem

"The day of the GNP is over…". It was in the year 1970, when John Kenneth Galbraith, the well-known US-American economist (and former ambassador to India) wrote this sentence. Since then, the GNP was and still is with us, not only as a basic accounting concept but also as the dominant societal goal and performance indicator. Recently, however, again the question is on the agenda whether time has come to look for alternative concepts, to introduce and use new indicators. National and international committees came up with some fresh ideas, or are about to engage in a more thorough study of the weaknesses and deficiencies of the traditional accounting systems. The research interest on such new approaches was due to two major reasons:

- the discontent with the traditional indicators and accounting systems, and
- the need for better steering capacity regarding recent economic, social and environmental problems.

In this paper, we shall present a view in retrospect, by looking at the

early attempts made to get out of the impasse and to break the deadlock of outmoded concepts. As with other research themes, this one also turns out to be quite controversial. And that makes a new consensus difficult to achieve. However, the expectations that again roam about indicate that something serious is at stake and that in due time a breakthrough might be possible.

The Critique

With the general political debate about the negative effects of rapid economic growth in the industrial countries which started in the late 1960s, some of the inherent deficiencies of the traditional business and national economic accounts came to the fore. The respective critique of the Gross National Product (GNP) as a welfare indicator was focussed on two points:

- the growth process leads to social losses and environmental damages that are not reflected in the economic accounting systems,
- structural changes that are positive for welfare are not or not adequately reflected in those systems.

Besides the dominance of economic indicators as such, the concomitance of insufficient or even misleading indicators was deplored. To review the debate, two major perspectives have to be addressed here.

GNP as a Welfare Indicator in Rich Countries

The traditional national accounts are restricted - with a few exceptions - to the inclusion of market related products, services and transactions only. Consequently, the gross national product calculated

- may be deficient

  or

- may include erroneous and misleading valuations.

Arguments of the first type concern all products and disproducts that do not go through a market, as for instance the "product" leisure, the internal activities of private households, and the social and environmental costs of private production and consumption. Arguments of the second type concern many state activities, the discrepancy between exchange value and intrinsic value, planned obsolescence, structural inflation and others. Regarding valuation, the national accounts do not (and cannot) make a difference between good and bad expenditures. For instance, all consumer expenditures are treated as positive transactions. Shigetu Tsuru (1974) quite drastically described the ensuing problems regarding the rich, industrial countries.

GNP as a Development Indicator in Poor Countries

The market forces determine the weight with which products and services enter the national accounts. As a large

part of need satisfaction in the developing countries is based on subsistence economy (particularly food and dwelling), these needs are not registered adequately or even at zero price. Changes (improvements and impairments) in subsistence economy thus are not mirrored in the national accounts. And in reverse, if economic growth in structurally handicapped economies takes place in medium and large enterprises and for the world market, the living conditions of large parts of society may not improve. In both cases, the GNP calculated cannot be a reliable development indicator. This inbuilt error of the national economic accounts may have far reaching consequences, when governments and aid donors measure success only with the growth rate of GNP.

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The Invention

The suggestions made as to these (and other) points of critique, focus on two major points:

- On rethinking the premises of the traditional accounting systems, especially the borderline between market and non-market activities, the classification of outputs, infrastructure and leisure, and the inclusion of social and environmental costs.
- On scaling down the efforts for a welfare oriented national product and constraining the national accounts to market activities only.

Regarding the intentions of most of the proposals on reforming national accounting and the use of GNP, two major approaches can be differentiated: improvements and extensions.

Improving Traditional Indicators

Studies on the basis of the concept presented by Reimut Jochimsen (1966) suggest to define "development" by two components:

- the scale of economic activity (measured by conventional GNP per capita and
- the degree of integration (measured by the deviation of the remuneration for production factors, especially wage differences).

The respective argument is straightforward. The scale of economic activity and the degree of integration are interdependent, but need not coincide: the scale may grow, but integration may decline. If so, has there been "development"? To give some food for thought, take this example:

- The scale (GNP per capita) has grown in a year by 5 % (on an index: from 100 to 105),

  while

- the degree of integration (DI) has declined by 5 % (from 100 to 95).

Has development taken place in that country (region, or sector)? Traditional

wisdom would say "yes". In the new wisdom (GNP + DI), the answer would depend on the weight given to the two components.

In this context, another approach comes into view, the suggestion made by Hollis B. Chenery et al. (1974). On the basis of the conventional national accounts, a conjunction was suggested between a goal of growth and a goal of distribution, in the form of an "Equal Weights-Index". We will come back to the specifics later on.

Another interesting suggestion was made by Edwin G. Dolan (1971), separating the conventional GNP in:

- GNP I = that part of the GNP generated with renewable resources and leading to recyclable wastes, and
- GNP II = that part of the GNP generated with exhaustible resources and ending with non-degradable wastes.

The decision rule following Dolan's differentiation is rather simple: Maximise GNP I, and minimise GNP II! Unfortunately, this differentiation is flawed with a number of measurement problems for which the current statistical systems may not provide the necessary instruments.

Extending the National Accounts

Regarding the studies on the revision and extension of the conventional national accounts, some lead to far-reaching changes and quite drastic adjustments in the outcomes.

First, the proposal on the inclusion of an environment aggregate into the economic accounts must be mentioned. One the one hand, ecosystem services are not or only inadequately registered. On the other hand, efforts to repair nature are registered. The production of air filters and sewage plants enter the accounts in the same way as the production of bread and TV sets do. The extraction of oil, the mining of minerals and the opening of recreation areas enter the accounts at market value, the value a market-oriented society is willing to pay.

The real caprice of the traditional accounts regarding the environment however is that a damage done to the environment only enters the accounts when that damage is being treated. By contrast, the impairment of the produced capital is continuously registered by regular depreciation of tangible fixed assets. The rectification of environmental damage enters the accounts with the financial or physical investments made. In addition, it seems reasonable to at least calculate real environmental damages and to establish additional environmental accounts, either by

- divesting all transactions regarding the preservation of environmental assets from the other aggregates (enterprises, state, households) and transferring them to a separate aggregate "environment",
- and/or to introduce figures on environmental damages not yet treated.

To establish a comprehensive system of environmental information is depen-

dent on the availability of data, but also on the costs involved in doing so. The respective preferences, no doubt, vary greatly among regions and states.

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Regarding the efforts made towards a welfare oriented revision of the national accounts, the work by William Nordhaus and James Tobin on "Material Economic Welfare" (MEW) (1973), of Jan Drewnowski on the "Quality of Life" (1974), and of the Economic Council of Japan on "Net National Welfare" (NNW) (1974) are of high quality and deserve special interest. These approaches were intended to overcome the discrepancies between the national product and economic welfare, and to measure and plan for the quality of life.

With the NNW, the economic accounts are supplemented by monetary valuations of "welfare-positive" aspects of life, i.e. additions of categories on leisure, internal activities of households etc. to the traditional GNP, and "welfare-negative" aspects of life, i.e. subtractions of expenditures for nature restoration, for real environmental damages, for losses due to urbanisation etc. Furthermore, the categories of public and private consumption are newly defined, and the benefits of public capital stock are re-estimated, more on this in the concluding section.

F. Thomas Juster's (1973) proposal of a new framework for measuring economic and social performance is even more ambitious. Income and output, he presumes, are dependent on capital stock, and therefore comprehensive stock accounting is asked for, stocks that should be differentiated according to:

- reproducible material and immaterial stocks,
- human stocks,
- socio-political stocks,
- natural resource stocks.

So far, Juster's concept has not been empirically tested. Two concepts that have been tested will now be looked at in some detail: the growth and distribution index, and the net national welfare index.

The Innovation: Growth & Distribution Index

For planning purposes indices can be developed and implemented that reflect several goals at the same time. Such a welfare index was presented in a collaborative study by the Institute of Development Studies at the University of Sussex and the World Bank's Development Research Centre (Chenery et al. 1974), in the form of an "Equal Weights-Index" (EWI) and a "Poverty Weights-Index" (PWI). Assuming a welfare function of a society as:

$$G = W_1G_1 + W_2G_2 + W_3G_3 + W_4G_4 + W_5G_5$$

Where G stands for the increase in welfare of a society, W_1 (etc.) for the weight given to group 1 of that society and G_1 (etc.) for the growth rate of income over a period of time (a year). The traditional GNP is an index where the weight for the growth of income of all (in our example: five) groups are equal to their share (the quintile) of aggregate income. The basic weakness of that premise in the case of a developing country becomes obvious, the moment you look at the normal income distribution which is approximately like as follows:

Quintile	1	2	3	4	5	Aggregate
Share of Aggregate Income (%)	53	22	13	7	5	100

In this case, the share of the upper two quintiles of population is 75 % of GNP. The growth rate of GNP thus measures essentially the growth of income of the upper 40 % of the population only, while 60 % have nearly no weight. Therefore, an alternative welfare measure could be developed on basis of the historic political principle of "one man – one vote": i.e. setting the weight W in the above equation proportional to the number of the people in each group – the "Equal Weights-Index". Doing so, the growth of income of, let say, 1 % in the lower quintile would have the same weight as a 1 % increase in any other quintile.

Put differently, the conventional GNP index assumes that the welfare effect of an additional income is equal, and independent from the scale of income received. That quite obviously is false thinking. On the basis of the figures in the table above, a 1 % increase of income in the upper quintile has a weight nearly eleven times (53:5) as high as a 1 % increase in the lowest quintile. Installing an "Equal Weights-Index" (EWI) would imply that, contrary to the GNP index, an income increase in the lowest quintile would be given eleven fold priority.

Replacement of the rather abstract income quintiles by social groups, like small farmers, tenants, agricultural workers, makes the potential of this approach for developing countries clear and more concrete. The implications of a "Poverty Weight-Index" (PWI) would even be more spectacular.

Use of the EWI in industrial countries would have another interesting effect: it could help in differentiating "development" from "over-development".

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Still, a reservation has to be made. EWI and PWI provide a welfare measurement based on economic growth and distribution of income only. It does not include other categories of welfare, e.g. private and public stocks. Nonetheless, this approach signifies a radical reorientation in measuring economic and social

performance – and of respective practical policies.

The Innovation: Net National Welfare Index

A different practical example was developed by a Committee of the Economic Council of Japan. The "Net National Welfare Index" (NNW) (1974) originates from a thorough modification of the GNP concept. It is not to replace the GNP as this is thought to be necessary for measuring effective market demand. Instead, the NNW is intended to supplement GNP in measuring national welfare, its regional and temporal development.

The NNW is composed of nine aggregates, partly revisions of well-known categories (like private and public consumption), and partly new supplements (like environmental damages and losses from urbanisation). Much thought is given to revise the conventional categories, especially by introducing the idea of "defensive expenditures", i.e. private and public expenditures that are basically unwanted, but structurally necessary. Valuating internal household activities and other non-market activities, and estimating the costs of pollution and urbanisation are other major innovations.

The formal relationship between GNP and NNW is like this:

GNP	NNW
C_{pr}	$C'_{pr} = C_{pr} - D_{pr} + T_1 + T_{nm} + V_k$
C_{st}	$C'_{st} = C_{st} - D_{st}$
I^b_{pr}	$I^{n'}_{pr} = I^n_{pr} + I^n_{ntpr} + I^n_{hmpr}$
I^b_{st}	$I^{n'}_{st} = I^n_{st} + I^n_{ntst} + I^n_{hmst}$

Explanation

C_{pr} = private consumption; C_{st} = public consumption; I_{pr} = private investments; I_{st} = public investments; D_{pr} = defensive expenditures, private; D_{st} = defensive expenditures, public; T_1 = assumed and attributed leisure; T_{nm} = assumed and attributed household work; V_k = use of stocks of infrastructure and long lasting consumer goods; I^n_{ntpr}, I^n_{ntst} = private resp. public net investments in intangible capital; I^n_{hmpr}, I^n_{hmst} = private resp. public net investments in human capital

As to be expected, the results of this type of welfare measurement in Japan differ quite significantly from the conventional measurement of the gross national product. There is no need here to go into the details (see Maruo 1974), but the aggregated comparison could be illustrative. For the period under consideration, 1955 – 1970, the relation between NNW and GNP decreased from 1.15 (1955) to 0.92 (1970), i.e. welfare in Japan was growing less slowly than the gross national product.

Studying and implementing the NNW approach thus may help in the formulation of welfare oriented policies.

In appraising the NNW approach one may say that the basic idea is straightforward. Many, so not all of the flaws of the GNP concept were debated, and for some of the main deficiencies convincing answers were found. Explicitly considering natural resources, the damages to the environment, the increase in de-

fensive (unwanted) expenditures, the inclusion of non-market activities reflect the changing preferences in society. Studying and implementing the NNW approach thus may help in the formulation of welfare oriented policies.

Outlook

To wind up, some presumptions shall be made as to the future development of our topic, both with regard to practical steps of official statistics and to the economic, social and environmental policies based upon them. Some points could be significant:

- The national accountants should seriously consider and take up the critique put forward, and switch from the sporadic and partial to a continuous and systematic revision of the concepts, particularly regarding the environmental effects of economic growth.
- Work on the determination of welfare indicators will continue and new corrective concepts will be tested. The official acknowledgement of such a concept however may not take place. Gross national product (GNP) and net national welfare (NNW) are too different concepts to find consensus in kicking the one out in favour of the other. This is more so, as such consensus needs to be international in character. But they at least could go in parallel, as has happened in Japan and elsewhere.
- Besides methodologies and the controversies about them, there are the vested economic interests. There still are many "growthmen" among us, and there are the young and dynamic "growthnations" – and they may continue to be strong and dominant.
- Parallel to the work discussed here, the social indicator research activities will continue and may get new impetus (OECD 1976, Sheldon & Moore 1968, Simonis & Simonis 1976, Wilcox et al. 1974). This, however, may not happen in an integrative but a very partial way, focussing on sectors such as education, health, dwelling, leisure.
- The possibilities of proceeding towards a comprehensive and systematic integration of economic, social and environmental variables, of complementary methods, of objective and subjective indicators exist, but implementation at this point in time seems rather unlikely. Growth scepticism has been growing, now doubt. But economic growth is a strong idea and in great demand by many people on this planet. Still, survival and sustainability are ultimate goals. And therefore, searching for new concepts and new indicators will continue.
- This paper has shown that we are living in a "knowledge society"; so many thoughts on deficiencies and possibilities. Unfortunately, the paper has also shown that we are living in a "forgetting society"; so many thoughts got lost, or were not implemented.
- Despite this rather sceptical appraisal of the topic, the search for

new concepts and indicators is on again. This is important, for methodological reasons and with regard to contents, for cooperation between academic disciplines and with regard to quality oriented economic, social and environmental policies.

We started with a quote from John Kenneth Galbraith. That quote was incomplete. So, we should end with the complete sentence. And that goes like this: "The day of the GNP is over. Not completely of course. Most economists master only one set of ideas in a lifetime. Those who learned that an expanding GNP is the goal of public policy will cling to their thesis as a life raft in a storm, as to them, in some degree, it is" (*Asahi Evening News* 31. 8. 1970).

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