



The Measurement of Welfare, Wellbeing and Sustainable Development

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ABSTRACT

Recently the attention of the statistical community has again focussed on the measurement of societal development from a broader perspective than GDP. A plethora of initiatives have been initiated, including the Stiglitz-Sen-Fitoussi report, to tackle this measurement issue. In this paper we present a preliminary version of Statistics Netherlands' indicator set which links the concepts of welfare, wellbeing and sustainability. The model is partially based on economic theory as well as insights from other social sciences and wellbeing literature. Based on a conceptual model we conclude that the progress of societies should be measured by a set of indicators for 1) current welfare and wellbeing (quality of life); 2) intergenerational sustainability of societies (capital); and 3) the impact on other countries.

Key words: Sustainable Development Indicators, Welfare, Wellbeing, Sustainability

1. INTRODUCTION

There is a wide-spread feeling that society needs a better statistical 'compass'. It is argued that in defining our societal goals we should go "beyond GDP" and that statistical tools need to be developed that address a broad range of issues relating to quality of life and sustainable development. "GDP and Beyond" (EU), "Measuring the progress of societies" (OECD), "Sponsorship measuring progress, well being and sustainable development" (Eurostat/INSEE) as well as the Task Force for Measuring Sustainable Development (UNECE/Eurostat/OECD) are all examples of this renewed attention for these issues. Particularly after the publication of the seminal Stiglitz-Sen-Fitoussi (SSF) report the call for such a new statistical framework is stronger than ever.

Since 2007, Statistics Netherlands has also intensified its work in this field through the development of a Sustainability Monitor. The first version was published in February 2009 (CBS et al., 2009), with the second being scheduled for February 2011. The project was carried out in conjunction with the Dutch government's policy institutes for economy, environment and social issues. The publication has achieved a fair amount of success in the policy setting although improvement is possible here.

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This paper provides a preliminary glimpse into the conceptual framework and the indicator set that underlies the second edition of the Sustainability monitor.

The conceptual framework links the concepts of wellbeing, welfare and sustainability. It is based on insights from the “capital approach” from economic theory as well as other social sciences. This operationalisation of sustainable development is also consistent to the Brundtland definition which states that ‘Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED 1987).

Based on this definition we propose a set of sustainable development indicators (SDI) consisting of three dashboards focusing on respectively (i) the quality of life of the present generation, (ii) the opportunities of future generations to pursue their welfare goals (based on the amount of capital that the present generation has left behind) and (iii) the international dimension, i.e. the impact of the Netherlands countries on the quality of life and future growth possibilities of the least developed countries.

2. OPERATIONALIZING SUSTAINABLE DEVELOPMENT

Despite the influence of the Brundtland report its definition of sustainable development is multi-interpretable and has therefore lead to a variety of approaches to produce SDIs. There are two prominent approaches that can be discerned: the future oriented approach and the integrated approach (See the final report of the Working Group for Statistics of Sustainable Development (CES, 2008)).

The integrated approach stays very close to the original Brundtland report, as it tends to have indicators for the three dimensions of sustainability named earlier. The SDI sets based on the integrated approach are often produced in close cooperation with policy makers making them highly policy relevant and visible.

The future oriented approach is sometimes referred to as the capital approach and has its origins in economic theory. It builds on the work of the founding fathers of economic growth theory such as Ramsey, Hicks and Friedman. The future oriented approach stresses the amount of capital which is left to future generations in order to make sure that also the next generations will be able to pursue their welfare goals. One of the main advantages of this approach is its clear conceptual basis. Note that in the future oriented approach a narrower definition of sustainable development is derived from the Brundtland report than in the integrated view. SDI sets based on this approach only view indicators related to the future generations as measures of sustainability.²

The Stiglitz-Sen-Fitoussi report has shown us that it is crucial to pay attention to the present as well as future aspects of welfare. They however stress that these two aspects should be distinguished in two separate parts of the dashboard. This is not often done in the integrated view for example. Stiglitz et al maintain that “the assessment of sustainability is

² Within the future oriented approach there are two varieties. There is the “monetary capital approach” that provides a composite indicator that reports the sustainability of a country in a single number. A good example is the World Bank’s “Where is the Wealth of Nations?” publication which monetizes all capital stocks. Its strength is of course that it provides a single value for sustainability. The second is the hybrid capital approach in which all capital stocks are measured in their specific measurement units (Kulig et al, 2010). We will not delve here into monetization and discounting which underlie the monetary capital approach and which are discussed extensively in the SSF-report.



complementary to the question of current well-being or economic performance, but must be examined separately” (Stiglitz et al., 2009).

3. A MEASUREMENT SYSTEM FOR SUSTAINABLE DEVELOPMENT

Our indicator set adheres to the following guidelines:

1. The dashboards should be based on a clear conceptual framework which is based on a broad range of scientific literature.
2. The set of SDI would have three separate dashboards: “needs of the present”; “needs of the future” and the “international dimension”.
3. We are not aiming for overall composite indicators, but rather a set of indicators for each of the three dashboards.
4. The dashboard should resonate with policy makers.

It is beyond the scope of this paper to describe the complete conceptual model in this short paper (see Smits and Hoekstra, 2010 for details). The system is inspired by conceptual models from the Global-project (OECD, 2009) and the National Accounts of Wellbeing (NEF, 2009) as well as an extensive review of the social sciences literature (economic theory, happiness, social production function, experimental economics, behavioural economics, Sen’s capabilities approach and Maslow’s pyramid). The dashboards are provided in the annex and described briefly below.

3.1. Dashboard 1: Quality of Life

The Stiglitz-Sen-Fitoussi-report acknowledges this concept has many different connotations because it is covered in many different scientific fields (economics, psychology, “happiness” etc) under different scientific names. In general terms it refers to the life satisfaction of humans. It is useful to distinguish a subjective (wellbeing) and an objective component (welfare).

Table 1 (in the annex) shows the preliminary dashboard which was developed at Statistics Netherlands. The categories are derived primarily from Sen’s capabilities approach and Maslov’s pyramid. We also scanned relevant indicators sets such as Eurostat’s Sustainable Development Indicators, the UN’s indicators for Sustainable Development and Millennium Goals.

Note that for each category we have tried to combine subjective and objective indicators in a systematic way so that the difference between wellbeing and welfare are elucidated. It also provides policy makers the opportunity to see whether objective improvements in society are also leading to an increase in satisfaction of its citizens.

3.2. Dashboard 2: Capital

To achieve a certain quality of life, resources (or capital stocks) are required. If future generations are to have the same quality of life as the present they will require a sufficient amount of capital. The dashboard (Table 2) distinguishes five types of capital which were identified in the final report of the Working group for Statistics of Sustainable Development (CES, 2008): Economic, financial, human, natural and social capital.

For each type of capital a number of themes have been identified. These have been chosen based on the extensive literature about these capital stocks as well as handbooks such as the System of National Accounts (SNA) and System of Environmental and Economic Accounting (SEEA). For each theme a headline indicator is chosen.



3.3. Dashboard 3: The International Dimension

So far we have discussed the quality of life of the present population and future generations within a country. However, the Brundtland definition of sustainable development rightly includes the international setting: developments in one country should not be at the expense of the quality of life of the citizens of other countries (current or future). The third dashboard (Table 3) therefore covers this field.

Societies are interconnected through trade, immigration and a variety of other relationships. For our dashboard on the international dimension we have identified three main areas in which indicators are necessary: environmental impacts, knowledge transfers and income flows.

4. CONCLUSIONS AND FUTURE STEPS

The tables 1-3 which are provided in the annex are the first preliminary version of the Sustainable development indicators which will be published in the second version of the Dutch Sustainability Monitor. Minor adjustments may occur on the basis of discussions with policy makers and institutes in the near future. We have already investigated the main international data sources at Eurostat, United Nations, the World Bank and the OECD and have found that many of these indicators are available for a wide variety of European (and other) countries.

There are two more areas which we have not yet discussed but which are very important in our current research agenda:

1. Satellite accounts. The indicators in the measurement system we have proposed come from many sources with different methodological and conceptual approaches. It would be extremely beneficial if these indicators came from a measurement system in which each of the indicators was measured using harmonized concepts. The satellite accounts of the national accounting system provides such a system. Statistics Netherlands is therefore expanding or introducing satellite accounting (environmental accounts, productivity accounts, R&D knowledge accounts, labour accounts, human capital accounts, social capital accounts as well as a time use module).
2. Visualisations and communication. A difficult issue for a set of SDIs is how to communicate them to the policy makers and the greater public. What is the message which the indicators are sending? This is why we are investigating aggregation and visualisations techniques in order to communicate the indicators set in the most effective way.



References and footnotes

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Annex 1. Dashboards for Sustainable Development

Table 1: Quality of Life

Theme		Indicator	Development (from 1995)	EU rank
PERSONAL				
Health	S	Self reported health		
	O	Psychological health		
	O	Healthy life expectancy		
Housing	S	Satisfaction with housing		
	O	Quality of housing		
Education	S	Satisfaction with own education		
	O	Education level		
Leisure time	S	Too little time for hobbies/interests		
	O	Traffic jams (time loss)		
	O	Leisure time (hours)		
Income security	S	Satisfaction with own financial situation		
	O	Long-term unemployment		
	O	Pension reserves		
LIVING CONDITIONS				
Safety	S	Feelings of insecurity		
	O	Reported crime		
Inequality	S	Satisfaction with social inequality		
	O	Income inequality		
	O	Inequality men/women		
Family and friends	S	Satisfaction with family life		
	S	Loneliness		
	O	Contact with friends/family		
Social participation	S	Satisfaction with neighbourhood		
	S	Satisfaction with diversity in neighbourhood		
	O	Vicinity of amenities		
	O	Community work		
Institutions	S	Trust in democracy		
	O	Voter turnout		
Environment	S	Satisfaction with green areas		
	O	Nature reserves		
	O	Air quality		
OVERALL INDICATORS				
Wellbeing	S	Satisfaction		
Material welfare	O	Consumption of households		

S- Subjective indicator

O-Objective indicator

Table 2: Capital

Capital type	Theme	Indicator	Development (from 1995)	EU rank
Natural capital	Land	Population density		
	Biodiversity	Biodiversity-World		
		Biodiversity-Netherlands		
	Climate	Greenhouse gas concentration		
		Historical CO2 emissions		
	Energy	Energy reserves-World		
		Energy reserves - Netherlands		
	Materials	Mineral reserves-World		
		Mineral reserves-Netherlands		
Soil quality	Soil quality			
Water quality	Water quality			
Air quality	Air quality			
Human capital	Labour	Hours worked		
	Health	Healthy life expectancy		
	Education	Educational attainment		
Social capital	Citizens	Generalised trust		
		Shred norms and an values		
	Companies	Knowledge networks		
Institutions	Trust in democracy			
Economic capital	Physical capital	Capital stock		
	Knowledge	R&D capital stock		
Financial capital	Debt	Net financial position Netherlands		

Table 3: The international dimension

Theme	Indicator	Development (from 1995)	EU rank
Environment	Export raw materials		
	Import raw materials		
	Import energy		
	Export energy		
	Import wood		
	Export wood		
	CO2 embodied in consumption		
	CO2 embodied in export		
	CO2 embodied in import		
	Land use embodied in consumption		
	Land use embodied in export		
	Land use embodied in import		
	Water use embodied in consumption		
	Water use embodied in export		
	Water use embodied in import		
	Energy use embodied in consumption		
	Energy use embodied in export		
Energy use embodied in import			
Knowledge transfers	High tech exports		
	High tech imports		
	FDI outflows		
	FDI inflows		
	Immigration of higher educated people		
	Emigration of higher educated people		
Trade and Aid	ODA		
	Remittances		
	Tax barriers		
	Import from developing countries		
	Import from LDC's		
	Micro credit		