Index of sustainable economic welfare (ISEW)

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The Index of Sustainable Economic Welfare (ISEW)

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1 Introduction

The Index of Sustainable Economic Welfare (ISEW) by Daly and Cobb (1989) is partly based on the MEW, and partly on other work (e.g. Zolotas, 1981). The most important difference with MEW is the explicit attention for environmental damage costs and natural resource depletion, and the explicit attention for the distribution of income. Other differences with MEW are a different approach to the calculation of the net capital stock,[1] another approach to non−market activities (it omits leisure time and values household activities differently), and a different definition of defensive expenditures (including, for example, expenditures on national advertising and car accidents).

2 Methodology

Daly and Cobb stress that income distribution is an argument in the social welfare function. They do not, however, examine this issue at great length. They use the pre−tax income distribution in the US to develop an index of "distributional inequality" with which aggregate personal income in the accounting year is weighted.

In contrast to Nordhaus and Tobin's MEW, the ISEW does take environmental damage and natural resource depletion explicitly into account. The ISEW distinguishes between water pollution, air pollution, noise pollution, loss of wetlands, loss of farmland, and long−term environmental damage. Assessments of environmental damages for specific years are taken from literature (especially Freeman, 1982) and extrapolated to other years. The depletion of mineral and fuel resources is valued at their *total* production value. Long−term environmental damage includes climate change and depletion of the ozone layer.

3 Process

ISEW is calculated by adjusting conventional national income accounts by the factors mentioned above. It is partly based on a reclassification of expenditures and partly on the valuation of income distribution and environmental damages. In the original study, changes in environmental pollution and resource stocks were valued with "off−the−shelf" values from the literature. As such, the method would not prevent a more sophisticated approach towards the valuation of environmental externalities.

4 Review

4.1 Evaluation results

The ISEW method gives an *ex−post* assessment of the economic performance of an economy over a time period of a year. Aspects of sustainable development that are included are economic and social performance (income distribution), environmental damage and resource depletion. It does not, however, contain explicit sustainability standards or norms against which social or environmental changes could be evaluated.

4.2 Experiences

Daly and Cobb (1989) estimate that GDP per capita in the USA over the period 1951−1986 almost doubled (1.9 percent annually). The growth in sustainable economic welfare over that period was only 20 percent, however (0.53 percent annually). The development of ISEW over time shows that per capita welfare increased during the 1950s and 1960s, levelled off during the 1970s and decreased during the 1980s (growth of per capita ISEW during 1980−1986 is −1.26 percent per annum). The increasing "gap" between conventional GDP and ISEW has given rise to the so−called "threshold" hypothesis. This hypothesis claims that economic growth contributes to economic welfare only up to a certain point, beyond which extra growth starts to deteriorate the quality of life (Max−Neef, 1995).

Since its publication a number of attempts have been made to improve the ISEW and to apply it to other countries (e.g., Austria, Chile, Germany, Italia, Netherlands, and Sweden, see: Stockhammer *et al.*, 1997 and Friends of the Earth, undated).

4.3 Combinations

The ISEW method depends on the monetary valuation methods that were described earlier in this report. ISEW also depends on the measurement of physical flows of pollutants and natural resource extractions for a country in a particular year.

4.4 Strengths and weaknesses

The ISEW method is rather complete in its coverage of aspects of sustainability. This wide coverage, however, also led to some rather arbitrary assumptions. For example, as no reliable estimates of future damage were available at the time of construction of the ISEW, this damage was arbitrarily set at $ 0.50 per barrel of oil (or its equivalent, including nuclear energy) consumed. Notwithstanding its completely arbitrary valuation, long−term environmental damage accounted for more than 60 percent of total environmental damage and natural resource depletion in 1986. In a critical paper, Neumayer (2000) argued that the proponents of ISEW consider their results too easily as evidence for the “threshold” hypothesis. By contrast, Neumayer argues that the widening gap between GDP and ISEW might be “the artifact of highly contestable methodological assumptions” (Neumayer, 2000, p. 348).

4.5 Further work

Further work on ISEW would include methodological work on its most arbitrary assumptions (see above). Some improvements to the original concepts have already been made (e.g. Stockhammer *et al.*, 1997), but there is still work to do (see, e.g., Neumayer, 2000). One direction would be to integrate ISEW with results of other assessments of environmental externalities at the national level, e.g., from the Green Accounting Research Project (GARP) (Markandya and Pavan, 1999; Markandya and Tamborra, 2005). Another direction would be to apply the tool to ex−ante analysis of alternative policy developments.

4.6 References

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