

Exploring conceptual and methodological improvements to the Index of Sustainable Economic Welfare (ISEW)

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Summary

The ISEW is one of the indicators that have assumed a relevant role in the discussion of alternatives to the GDP. The development of a harmonized theoretical framework for the computation of the ISEW is a fundamental aspect to improve its recognition and acceptance by policy and decision makers, statistical offices, as well as international institutions.

A new theoretical framework for the ISEW is proposed, which is intended to overcome some of its main shortcomings. The changes introduced will also allow for a direct comparison of the results of the ISEW with those of the GDP, which are advantages over previous studies. Empirical applications are developed for two countries, which are consistent in demonstrating the advantages of using the proposed theoretical framework for the ISEW, which can provide a clearer picture of the trends of a country's welfare levels as well as the success of policies implemented.

Extended abstract

The development of a harmonized theoretical framework for the ISEW should be based on a broad consensus on the conceptual and methodological aspects of the indicator. The ISEW is a comprehensive indicator that requires input from many sources of information which attempt to characterize how the economic social and environmental dimensions come into play in the analysis of welfare and sustainability. There are many aspects associated with this assessment such as the present knowledge of how socio-economic and environmental systems operate, the availability of studies dedicated to modelling the physical world and the way this can be translated into monetary values, as well as the limitations and several degrees of uncertainty that are associated to indicators of this nature.

The discussion of the aspects mentioned is a fundamental step to improve the validity, acceptance and policy relevance of the ISEW. It is intended that the ISEW can represent a

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viable alternative or complementary leading indicator in the evaluation of a countries welfare and sustainability performance. It is also an objective that the ISEW can be implemented and used by different stakeholders such as policy and decision makers, international organizations, businesses, citizens, NGO's, among others.

This work proposes a set of changes to the ISEW's theoretical framework which are aimed at clarifying some of the main conceptual and methodological aspects, as well as to include additional environmental and social components which have a significant influence on welfare. These change build on previous work from the authors (Beça and Santos, 2010). There are four fundamental contributions for the ISEW's theoretical framework: a) distinguishing the flows of services from the stocks of capital that generates them, changing the way some environmental externalities are estimated, such as the social costs of green-house gases emissions, as well as the loss of wetland, forest and soil; b) improving the way private consumption and public expenses in health and education are adjusted, by the way this these influence welfare in a more comprehensive way; c) including additional components to account for health related aspects that diminish welfare, such as the consumption of legal and illegal drugs and overweight; and d) incorporating a more extensive accounting of the externalities associated with the loss in biodiversity, which take into account the introduction of alien invasive species, as well as marine and freshwater fisheries overexploitation.

The most significant consequence of the changes introduced is in clarifying the accounting of environmental externalities as flows uniquely, instead of mixing stocks and flows such as other authors have done (Daly and Cobb, 1989; Costanza, 2004). By eliminating the tampering effect of accounting externalities cumulatively, this not only has a substantial effect on the results of the indicator, but can also be influential in the validity, comparability, acceptance and policy relevance of the ISEW. This point is substantiated by the results obtained which are significantly different from those obtained with previous versions of the ISEW.

A frequent conclusion of the studies on alternative indicators to the GDP, such as the ISEW, is that there is a different path between the ISEW and GDP (Daly and Cobb, 1989; Cobb and Cobb, 1994; Stockhammer et al. 1997; Jackson et al., 1997; Anielski and Rowe, 1999; Lawn and Sanders, 1999; Clarke and Islam, 2005). In some cases there is even a decrease in time of the welfare indicators values, for which Max-Neef (1995) suggests the existence of a threshold point beyond which economic growth, measured in a conventional way, generates a decrease in quality of life or welfare instead of the increase suggested by GDP growth. The results obtained for the Modified ISEW are not pointing towards the existence of Max-Neef's threshold point as other studies have, which is mainly explained by the cumulative accounting effect as clarified before. However, there is enough evidence of a distinct behaviour between GDP and the ISEW, which challenges the notion of GDP as an adequate measure of welfare and the need to develop alternative indicators.

Empirical applications have been developed using this methodology to two countries with different socio-economical patterns, Portugal and the USA. The results obtained for the ISEW evidence a significantly different behaviour when compared to the GDP. For both case studies, the significant increase of the GDP is not matched by the ISEW and there are periods where the two indicators have a different behaviour. This challenges the dominant paradigm, which assumes that a GDP increase will lead to a general improvement of welfare.

These results can provide some suggestions for policy and decision making. The traditional use of GDP to support policy strategies, to make international comparisons, or to evaluate changes in welfare, is constrained by important and acknowledged limitations. The misvaluation of the contribution of environmental and social issues, present in the dominant paradigm, may contribute to a biased perception of policy and decision makers. For example, a social measure that results in improvements in health and education may not have a significant effect on the GDP, but may have a substantial influence on an indicator such as the ISEW. Therefore, decisions made mainly on the traditional paradigm, that an increase in GDP lead to an improvement in welfare may be biased and based in incomplete information.

References

- Anielski, M. and Rowe, J. (1999). *The Genuine Progress Indicator – 1998 Update*. San Francisco, CA, Redefining Progress.
- Beça, P., & Santos, R. (2010). Measuring sustainable welfare: A new approach to the ISEW. *Ecological Economics*, 69(4), 810-819.
- Clarke, M. and Islam, S. (2005). Diminishing and negative welfare returns of economic growth: an index of sustainable economic welfare (ISEW) for Thailand. *Ecological Economics* 54: 81-93.
- Cobb, C. and Cobb, J. (1994). *The Green National Product: a Proposed Index of Sustainable Economic Welfare*. Lanham, Maryland, University Press of America, Human Economy Center.
- Costanza, R. et al. (2004). Estimates of the Genuine Progress Indicator (GPI) for Vermont, Chittenden County and Burlington, from 1950 to 2000. *Ecological Economics*, 51:139-155.
- Daly, H. E. and Cobb, J. (1989). *For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future*. Boston, MA, Beacon.
- Jackson, T., Laing, F., MacGillivray, A., Marks, N., Ralls, J. and Stymne, S. (1997). *An Index of Sustainable Economic Welfare for the UK 1950–1996*. Guildford, University of Surrey, Centre for Environmental Strategy.
- Lawn, P. and Sanders, R. (1999). Has Australia surpassed its optimal macroeconomic scale? Finding out with the aid of 'benefit' and 'cost' accounts and a sustainable net benefit index. *Ecological Economics* 28: 213-229.
- Max-Neef, M. (1995). Economic Growth and Quality of Life: A Threshold Hypothesis. *Ecological Economics* 15(1), 115-118.
- Stockhammer, E., Hochreiter, H., Obermayr, B. e Steiner, K. (1997). The index of sustainable economic welfare (ISEW) as an alternative to GDP in measuring economic welfare. The results of the Austrian (revised) ISEW calculation 1955-1992. *Ecological Economics* 21, 19-34.