The Index of Sustainable Economic Welfare: A Comparison of Two Italian Regions
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Abstract

The Index of Sustainable Economic Welfare (ISEW) proposed by Daly and Cobb in 1989 provides a more down-to-earth representation of the well-being of a society than GDP does, since its definition involves also variables that are not included in the conventional national accounts (such as social and environmental issues). Recently there has been an increasing interest in calculating this index also at local levels. Following this strand of literature, aim of this paper is to provide a comparison between ISEW and GDP trends for two central Italian regions, Tuscany and Marche, over the years 1999-2009. In particular, we try to explain how differences in the level of GDP are reflected in differences in ISEW levels between these regions. Finally, we discuss and propose further adjustments in calculation of the ISEW.

Keywords: GDP, Well-Being, Sustainable Development, Index.

1. Introduction

The 1993 revision of the System of National Account (SNA) prepared under the auspices of the Inter-Secretariat Working Group on National Accounts underlined that neither the Gross Domestic Product (hence GDP) nor the Net Domestic Product are measures of welfare (SNA, 1993). Following this suggestion, at the beginning of 2008, the French President Nicolas Sarkozy involved prominent scholars such as Joseph E. Stiglitz, Amartya Sen and Jean-Paul Fitoussi to create a Commission on the measurement of economic performance and social progress with the aim first of all to identify the limits of GDP as an indicator of economic performance and social progress and then to pay attention to additional aspects such as well-being and environmental and social sustainability.

The main critiques of GDP as a measure of progress and well-being that have been emphasized by this Commission are the following: it does not take in account non-monetary costs and benefits such as household labour or environmental degradation, natural and human capital, capital depreciation, income distribution and defensive expenditures (Stiglitz et al., 2009).

As pointed out in the report of the New Economic Foundation (NEF, 2008), there are at least four distinct approaches to the measurement of well-being. The first one consists in developing extended sets of indicators to measure physical or socio-economic factors. Following this approach, the recent System of National Account...
includes a detailed system of Integrated Economic and Environmental Accounting (UN, 2003). The remaining three approaches are based on sets of individual indicators, and the main difference among them consists in the way in which these indicators are combined together. A representative example of the second approach is the Human Development Index (HDI), proposed by the United Nations Development Program, consisting in a composite indicator that brings together a set of well-being indices.\(^1\) The third approach is subjective and consists in measuring well-being through self-reporting in order to quantify the relative importance of different environmental, economic and social factors. It is the most direct approach and it is based on asking a single question about happiness or life satisfaction. Finally, the last approach proposes to convert all the given well-being components into a single (monetary) unit. This last approach is the easiest to understand for economists and policy makers because it uses simple definitions and indicators. However, the main critical point of this approach is that it converts social and environmental costs and benefits into a common unit of measure.

One of the most important examples of indicators based on the last approach is the so called Index of Sustainable Economic Welfare (ISEW), introduced by Daly and Cobb (1989).\(^2\) The main novelty of the ISEW is to propose some adjustments to the GDP: for instance it adjusts personal consumption to account for inequalities; it adds health and education in the public expenditure; it considers domestic labour as well volunteering ones; it adjusts for service flow from consumer durables. In additions, the ISEW subtracts to the final value the environmental emission costs, the defensive expenditures, the expenses for commuting, car accidents and personal pollution control, social costs (for instance family breakdown or crime), the depreciation of natural capital (resource depletion, land loss and so on). Finally, it takes into account long term climate change costs. Nevertheless, this is not the only index proposed with the aim of improving the GDP: alternative proposals are the Measure of Economic Welfare (MEC) introduced by Nordhaus and Tobin (1972), the Human Development Index (HDI) by UNDP (1990) and the Sustainable Net Benefit Index (SNBI) introduced by Lawn and Sanders (1999).

There have been several attempts in measuring ISEW at national level\(^3\); see, among others, Australia (Lawn, 2008), Austria (Stockhammer et al. 1997), Belgium (Bleys, 2006), Chile (Castaneda, 1999) and the State of Maryland (Posner and Costanza, 2011). Nevertheless, it seems a very hard exercise to perform cross-country comparisons due to problems in the availability and in the comparability of the data.

Partly due to these limitations, in the recent years, there has been an increasing interest in measuring progress at a regional level.\(^4\) A first effort to calculate ISEW at regional level has been proposed by the New Economic Foundation (NEF, 1994) for the UK’s regions. The interest in a regional ISEW is mainly driven by the increasing attention in monitoring progress and well-being of the local communities where people live.

Also for Italy several analyses have been proposed: pioneering works have calculated the regional ISEW for the Province of Siena in the year 1999 (Pulselli et al., 2006), for the Provinces of Modena and Rimini (Pulselli et al., 2008) and for the whole Tuscany Region using data from 1971 to 2006 (Pulselli et al. 2011). Following these first applications, Brugnoli (2009) computed the regional ISEW index also for the Lombardy Region over the period 2000-2004 and Carta and Porcu (2010) for the entire Italy in the year 2006.

As underlined by several scholars, the ISEW shows some criticisms essentially based on the arbitrary list of adjustment items and also on the monetary valuation methods used to measure the non-market welfare components; however, as stressed by Posner and Costanza (2011), “it is better to be approximately right than precisely wrong” (pag. 1973).\(^5\)

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\(^1\) The HDI is composed of three elements: GDP per capita, life expectancy at birth, and education levels, assessed in terms of literacy and school enrolment rates. It is reported annually for 177 countries.

\(^2\) In the mid-1990s, the Redefining Progress Organization revised the ISEW methodology publishing the Genuine Progress Indicator (GPI). Only minor differences exist between ISEW and GPI and usually they are treated as equivalent.

\(^3\) ISEW and GPI have been calculated and compared for over 20 countries. See, in particular, Posner and Costanza (2011) for a detailed review of the empirical comparison between GPI and ISEW at national scale.

\(^4\) See Posner and Costanza (Posner, 2011) for a detailed summary of GPI and ISEW studies at the sub-national scale.

\(^5\) This sentence was attributed to Keynes. The original quote “It is better to be vaguely right than exactly wrong” comes from Curveth Read (Logic, deductive and inductive, 1898, pag. 351).
2. Methodology and data

2.1. The traditional Index of Sustainable Economic Welfare

In the original idea of Daly and Cobb (1989), the ISEW was a substitute measure for the GDP. In fact it is an integrated index of economic development composed of a list of several economic items. It allows for the integration of the traditional measures of macroeconomic performance included in the GDP’s definition, with additional information about social and environmental aspects.

In details, the ISEW is defined by the following equation:

\[ ISEW = C^* + G^* + I^* + W - D - E - N \]  

where \( C^* \) is the personal consumption expenditure (as calculated in the GDP) adjusted for income inequality. In fact, private consumption is not representative of the level of economic welfare because any additional amount of income would increase welfare more for a poor family than for a rich one. Therefore consumptions are adjusted taking into account the inequality in income distribution, measured by the Gini index; the result is a weighted consumption. \( G^* \) is the non-defensive public (government) expenditure. The main idea is that it is not easy to convert an increase in public defensive expenditure to an increase in welfare; in fact, as Guenno and Tiezzi (1998) discussed, about 50% of the total public expenditure \( G \) included in GPD is a defensive expenditure and should not be added to the ISEW calculations. \( I^* \) includes consumer durables, net capital growth and changes in the net international investment position. The last four variables (\( W, D, E, N \)) are not part of the GDP definition. The first one, \( W \), has a positive impact on the ISEW, and represents the non-market contribution to the welfare (such as domestic labours). The remaining items contribute negatively to the final value of the index: \( D \) is the defensive private expenditure, and it is subtracted from the ISEW because an increase in \( D \) means an increase in social costs associated with crime, divorce, commuting, unequal income distribution as well as health costs due to accidents on the road and in the workplace, therefore corresponds to a loss of well-being. Item \( E \) represents the costs of environmental degradation (associated with habitat loss, localized pollution, depletion of non-renewable resources and climate change). Finally \( N \) is the depreciation of natural capital.

So doing, the final value of the index is obtained as an algebraic sum of all the items, depending on their positive or negative contribution to welfare. The main element of novelty in the ISEW compared to GDP is taking into account the inequalities in the distribution of income, the household labour and the social and environmental costs.

2.2. A regional application

Aim of this paper is to apply the regional ISEW methodology to two Italian Regions: Tuscany and Marche. Both are located in the central Italy and in comparison with all the Italian central regions (Emilia-Romagna, Marche, Lazio, Tuscany and Umbria) they are characterized by the most similar values of GDP per capita. In this analysis, we focus on the period of time 1999-2009.

3. Results

First of all we have calculated GDP per capita for both the Italian regions of interest. As displayed in Figure 1 (on the left), GDP per capita shows a very similar path over time in the two regions: it increases between the years 1999 and 2008 and decreases in the last year available. We note that in each year GDP per capita is higher in Tuscany than in Marche. In addition, the ratio of Marche’s GDP over Tuscany’s GDP \( GDP_M / GDP_T \) remains approximately constant over time (in particular, \( 0.91 \leq GDP_M / GDP_T \leq 0.93 \)) as shown in Figure 2. This first result reflects the relative economic conditions of the two regions.

What we do not expect is that the same result does not occur for the ISEW values. Figure 1 (on the right) shows the ISEW trends for both the regions. We note that ISEW is greater in the Marche Region than in Tuscany for each year. In particular, Figure 2 shows that the values for Marche are always at least 1.2 times higher than for the Tuscany (\( 1.21 \leq ISEW_M / ISEW_T \leq 1.46 \)). Therefore, it seems that the sustainable economic welfare in the Marche
Region remains constantly higher than in the Tuscany Region, although the economic progress measured by the traditional GDP shows the contrary. Figure 2 shows also that the distance between the two regions in terms of ISEW has reduced over time.
From Figure 2 it is also possible to identify different trends over time: from 2001 to 2003 the distance in ISEW values between Marche and Tuscany increases, while from 2003 to 2006 the distance reduces. For the years before 2001 and after 2006 the ratio remains approximately constant.

From the previous graphics, we have noted that the ISEW values are greater in Marche than in Tuscany, while for the GDP we have found the contrary; this implies that the components that are not included in the GDP but are part of the ISEW, have a greater impact on Marche that on Tuscany. Nevertheless, in the aggregation procedure for the construction of the ISEW index we lose lots of information and, at a first glance, we are not able to affirm that the greater value for ISEW is due to a greater extent contribution of implementation of environmental policy or a lower contribution of the non-market activities. For a deeper investigating, we have to decompose the overall ISEW value into its single components and then analyze their dynamic over time.

### 4. Conclusions

The GDP growth is usually considered a main target by governments and it is often considered also as a measure of good administration for policy makers. Recently, several indicators have been proposed for correcting or replacing GDP, among which the Index of Sustainable Economic Welfare (ISEW). This index is an instrument able to put together traditional economic accounting with environmental and social variable under a sustainability viewpoint. Several applications of the ISEW have been proposed for different countries mainly at local levels. This paper is aimed to be one of the first attempts to compare Italian regions in terms of ISEW over time.
It is possible to extend the analysis of this paper in several directions. First of all we are interested in extending our preliminary analysis to all the Italian regions. This is not an easy task, as the calculus of ISEW at sub-national level implies to collect and make comparable lots of data that are not immediately comparable.

Secondly, we believe that the ISEW should take into account also the issues of gender inequality and of poverty; this could give a more detailed picture of the administrative management of a Region and provide relevant information to the policy makers.

References


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