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Going regional: An index of sustainable economic welfare for Italy

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ABSTRACT

The Index of Sustainable Economic Welfare (ISEW) is a monetary measure of sustainability and economic welfare aimed at overcoming some of the limitations of the Gross Domestic Product (GDP). In particular it accounts for the value of externalities, for the distribution of income and for the natural resources depletion. Since its formulation in 1989 by Daly and Cobb, the ISEW has been calculated for a number of nations. More recently, there has been an increasing interest in assessing sustainable welfare also at sub-national levels.

Following this trend, the aim of this paper is to provide an empirical application of the ISEW for Italy and for all its regions and macro-areas over the years 1999–2009. In particular, we compare the ranking of the Italian macro-areas and regions based on ISEW with the corresponding rankings based on GDP. This is the first empirical analysis in the literature that provides estimates and comparisons of the ISEW for all the Italian regions and macro-areas over a long period of time.

Another important novelty of this paper concerns the introduction of a weighting scheme to adjust private consumptions based not only on inequality but also on poverty.

Empirical results show substantial differences between the regional ranking based on ISEW and the traditional classification based on GDP, revealing, moreover, that the Italian regions are characterized by a high variability in terms of their sustainable and economic welfare.

1. Introduction

Since World War II, the Gross Domestic Product (GDP) has been used by economists as a measure of macroeconomic performance of countries. However, in particular after the Stiglitz-Sen-Fitoussi Commission's report, it has been widely recognized that the GDP is an inadequate measure of well-being and social progress, mainly because it does not take into account any of the following relevant socio-economic issues: domestic, volunteer and unpaid work, quality of life, human happiness and satisfaction, environmental degradation, natural and human capital, income distribution and defensive expenditures (i.e. expenses aimed to amend the damages caused by economic growth); see Stiglitz, Sen, and Fitoussi (2009).[1]

During the last decade of the XX century, there has been an increasing interest in studying sustainable development and in introducing welfare measures that could be interpreted as alternatives to GDP. Several classification schemes have been recently proposed in the literature aimed at classifying these alternative measures and thus helping policy-makers in selecting proper sets of indicators.

According to Bleys (2012) the existing classification schemes can be divided in two categories. The first one focuses on the origin of the indicators, in terms of the academic research field in which it has been defined and implemented (e.g. *extended economic accounts*, *social indicators*, *psychological indicators*). However, this type of classification ignores the interdisciplinarity of well-being. A second category of classifications is based on the objectives for which the indicator has been proposed. Among the several classifications belonging to this second group, we refer here in particular to the one proposed by Goossens et al. (2007), which divides the measures into three classes: indicators *replacing*, *supplementing* and *adjusting* GDP. However, as stressed by Bleys (2012), also the objective-based classification has some drawbacks. In particular,

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[1] In 2008, the President of French Republic Nicolas Sarkozy involved prominent scholars in the *Commission on the measurement of economic performance and social progress*. The commission, headed by the Nobel laureates Joseph Stiglitz and Amartya Sen and coordinated by the prominent French economist Jean-Paul Fitoussi, aimed to study and discuss methods for improving the quality and the adequacy of statistical information on economy and society. The Commission produced a report, whose main aims were (i) to identify the limits of GDP as an indicator of economic performance and social progress and (ii) to consider what additional information might be required for the identification of more relevant indicators of social progress.

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it gives too much importance to GDP; moreover, it groups in the same class indicators that are devoted to capture different concepts.[2]

Measures replacing GDP aim at providing a broader interpretation of welfare and well-being and are not directly comparable with GDP. Relevant examples are the Human Development Index; the Index of Economic Well-Being introduced by Osberg and Sharpe (2002); the Ecological Footprint discussed in Rees (1992); the Better Life Index proposed in 2010 by the Organisation for Economic Co-operation and Development (OECD); the Italian Measure of Equitable and Sustainable Wellbeing (BES), an initiative launched in 2011 by the Italian National Council of Economics and Labour (CNEL) and the Italian National Institute of Statistics (ISTAT).

Indicators supplementing GDP – such as the Millennium Development Goals – are intended to "complement GDP with additional information on the environment and social conditions, either by the creation of satellite accounts or by relating GDP to other social and environmental indicators" (Bleys, 2012, p. 358).

Measures adjusting GDP, instead, start from national accounts' indices such as GDP or Gross National Product (GNP) and try to improve them by subtracting or adding social- and environmental-related components. The most common measures that belong to this class are the Measure of Economic Welfare introduced by Nordhaus and Tobin (1972), the Economic Aspects of Welfare Index proposed by Zolotas (1981), and the Index of Sustainable Economic Well-being (ISEW) proposed by Daly and Cobb (1989).

The Measure of Economic Welfare (MEW) proposed by Nordhaus and Tobin (1972) can be considered a pioneering proposal among the adjusting GDP measures. The MEW maintains the original structure of GDP, but it introduces some modifications, in particular subtracting the economic value of all the activities that do not contribute to welfare (such as car accidents or legal expenses). In addition, the index takes into account new components such as leisure time.

Following this first attempt, Daly and Cobb (1989) introduced the Index of Sustainable Economic Welfare (ISEW), which includes also variables that are not incorporated in conventional national accounts; for instance, it adjusts household consumption to account for inequalities; it comprises only health- and education-related public expenditure; it considers both domestic and volunteering labour. ISEW takes into account also the negative effects due to the environmental emissions and to the depreciation of natural capital. As stressed by England (1997), ISEW is the only attempt so far that is able to overcome most of the drawbacks of GDP as a measure of welfare, by taking into account the welfare effects of both macroeconomic activities and social inequalities as well as the effects of economic growth on the environment. The construction of ISEW involves three main steps: (1) an inequality-adjusted calculation of personal consumption; (2) the inclusion of benefits arising from unpaid work; and (3) the deduction of defensive expenditures and environmental damages; see Clifford, Halstead, and Rowe (2007).

The ISEW has been extensively implemented at national level, in particular, in the United States (Daly & Cobb, 1989), Germany (Diefenbacher, 1994), the United Kingdom (Jackson & Marks, 1994; Jackson et al., 1997), the Netherlands (Rosenberg & Oegema, 1995), Sweden (Jackson & Stymne, 1996), Austria (Stockhammer, Hochreiter, Obermayr, & Steiner, 1997), Italy (Carta & Porcu, 2010; Guenno & Tiezzi, 1998), Chile (Castañeda, 1999), Finland (Hoffrén, 2001), Czech Republic (Scasny, Kopecky, & Cudlinova, 2002), Poland (Gil & Sleszynski, 2003), Thailand (Clarke & Islam, 2005), Belgium (Bleys, 2006), Australia (Lawn, 2008).[3]

Several of these country-specific empirical studies showed that the trends of ISEW and GDP have been quite similar only up to a given period of time (that is around the 1970s or early 1980s, depending on the country). Afterwards, the trends of the two indicators started diverging. Inspired by this empirical evidence, Max-Neff (1995) introduced the so-called "threshold theory", observing that "for every society there seems to be a period in which economic growth (as conventionally measured) brings about an improvement in the quality of life, but only up to a point – the threshold point – beyond which, if there is more economic growth, quality of life may begin to deteriorate" (Max-Neff, 1995, p. 117).

Partly due to the lack of comparable data across countries, the number of international comparisons based on ISEW has been very limited, while there has been, in recent years, an increasing interest in measuring ISEW at regional and local level. One of the first attempts of regional analysis has been proposed by Jackson, McBride, Abdallah, and Marks (2008) for the UK's regions. Other studies involve the British Columbia province in Canada (Gustavson & Lonergan, 1994), the Flanders (Bleys, 2013), the UK country of Scotland (Moffatt & Wilson, 1994), the Alberta province in Canada (Anielski, 2001), parts of Vermont State in USA (Costanza et al., 2004), the U.S. State of Maryland (Posner & Costanza, 2011), the Siena province in Italy (Pulselli, Ciampalini, Tiezzi, & Zappia, 2006), and four cities in China (Wen, Zhang, Du, Li, & Li, 2007).[4]

As Clarke and Lawn (2008) stressed, several weaknesses in measuring ISEW at sub-national levels arise. First of all, accessibility of data at any sub-national level is usually limited and that forces researches to use several proxies. Moreover, there is a lack of universal agreement as to what should or should not be included, thus leading to a lack of uniformity among the sub-national applications.

The computation of ISEW at local level for Italy was firstly due to Pulselli et al. (2006) for the Province of Siena. Following that pioneering work, other analyses have been proposed for the provinces of Modena and Rimini (Pulselli, Bastianoni, Marchettini, & Tiezzi, 2008), for the Tuscany Region using data for some years between 1971 and 2006 (Pulselli, Bravi, & Tiezzi, 2012), for Lombardy Region over the period 2000–2004 (Brugnoli, 2009) and for the Marche Region (Balducci, Chelli, & Gigliarano, 2013).

The aim of this paper is to compute ISEW for Italy and for all its regions and macro-areas, providing also a ranking of the Italian macro-areas and regions based on ISEW in comparison with the ranking based on GDP. We focus our analysis on the decade 1999–2009 and, in order to guarantee completeness and accuracy of the resulting values, we calculate the index in each year of the period of analysis. This is a strength of our work because, at the best of our knowledge, this is the first attempt to provide a time series of the ISEW for Italy and for its regions and geographical macro-areas.

Another important novelty of this paper concerns the introduction of a weighting scheme for private consumptions based on poverty indices. To take into account the unequal distribution of income, the original version of the ISEW uses the Gini index of inequality. However, also poverty is negatively related with well-being, but this is not considered in the standard ISEW methodology, in which only inequality is taken into account. In fact, inequality and poverty, though sometimes related, are not

[2] For instance, following this objective-based classification, the Human Development Index and the Ecological Footprint are both classified as "replacing GDP measures", yet the former concerns well-being while the latter is a measure of sustainability. See Bleys (2012) for a more detailed critical analysis.

[3] See, in particular, Posner and Costanza (2011) for a detailed review of the several empirical country analysis.

[4] See Posner and Costanza (2011) and Clarke and Lawn (2008) for a detailed review of ISEW studies at sub-national scale.