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The Evolution of the Italian Framework to Measure Well-Being

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Recently, a new approach for measuring well-being was developed by eighteen European countries in the wake of the "Beyond GDP movement" started in the 1990 and continued by the Stiglitz Commission. Among these European economies, eleven of them use measures of well-being for monitoring public policy. The Italian Statistical Institute (Istat) jointly with the National Council for Economics and Labor (CNEL) developed a multi-dimensional framework for measuring "equitable and sustainable well-being" (Bes) and since 2013 Istat publishes an annual report on well-being. The Bes framework is continuously updated to take into account new challenges: the exploitation of new data sources, to produce better indicators; new ways for making the communication more effective and foster public awareness; the inclusion of well-being indicators in the budget documents, as established by law. Especially for the latter, the Italian Bes can be considered a forerunner and, more generally, the Italian experience is one of the most relevant at the European level, showing potential of become a benchmark for other countries. This article illustrates the development of the Italian Bes, focusing on its recent progresses and challenges.

Key words: Multidimensional well-being; beyond GDP; SDGs; composite indices; policy evaluation; official statistics.

1. Introduction

As reported by M. Wolf (Financial Times, 30 May 2019) in March 1809, leaving the US presidency, Thomas Jefferson wrote that "the care of human life and happiness, and not their destruction, is the first and only legitimate object of good government". Echos of this brilliant intuition are scattered across history, recall Bob Kennedy's famous speech "GDP measures everything except that which is worthwhile". But only in recent years has it been translated into a suitable set of indicators useful for setting and monitoring the policy agenda.

Along this path an important step was made in 1990 when the United Nations launched the Human Development Report (HDR), which laid the foundations for the definition and measurement of the concept of development, embracing non-income related dimensions (UNDP 1990). The HDR laid on the "capability approach" of Amartya Sen and Martha Nussbaum, focusing not on how much a nation produces, but how people who live there

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are doing (Sen 1989; Nussbaum and Sen 1993). Well-being, poverty and inequality must be assessed in the space of capacity, that is the real opportunities that people have to live the life they value. Economic resources and material goods should be understood as means for the realization of functioning, that is people's real achievements. The approach is people-centered: the individual is an end and a means for development. In the same period the World Bank's World Development Report introduced an international poverty line based on 'a dollar a day' and identified just over a billion people – a fifth of the world population at the time – as living in extreme poverty (World Bank 1990).

Ten years later, in 2000, the Millennium Development Goals (MDGs) were proposed by the UN, combining the stimulus of previous years' UN conferences and the OECD's ambition to agree on an international set of indicators to measure development progress and well-being. Later on in 2007, when the "Istanbul Declaration" (OECD 2007) was signed by the UN, the World Bank and the European Commission to highlight the need to measure the progress of societies going "beyond the GDP", several initiatives aimed at measuring well-being with economic, social and environmental statistical indicators were already in place worldwide. Finally, on September 2015 the UN General Assembly adopted the 2030 Agenda for Sustainable Development, in which the Global Goals strive to end poverty, protect the planet and ensure prosperity for all (UN-DESA 2016).

In this long-standing effort, the work of the Stiglitz Commission (Stiglitz et al. 2009) represented another important pillar, stressing how important it is to propose well-being as a multidimensional phenomenon, with different dimensions measured on a micro or macro population level (i.e., households, regions, countries) across time. In line with the proposal presented by the Stiglitz Commission, the OECD first developed a framework for measuring well-being in 2011, as part of the broader Better Life Initiative (OECD 2013). The OECD's initiative inspired and urged several national statistical offices (NSOs), government departments and international organizations to set structured initiatives for the measurement of well-being through extensive collection of social, environmental and economic indicators.

The use of well-being indicators to shape and assess public policies is a further step along the road that has been implemented in a heterogenous way across countries, as OECD (Exton and Shinwell 2018) and the Horizon 2020 project MAKSWELL (Making Sustainable development and WELL-being frameworks work for policy, Tinto et al. (2018) have documented.

Among the international experience, the Italian initiative named "equitable and sustainable well-being" Benessere equo e sostenibile (*Bes*), can be considered as a forerunner presenting a measurement system up to date and a notable example for the inclusion of well-being indicators in the budget documents. Bes, initially run by the Italian National Institute of Statistics (Istat) together with the National Council for Economics and Labor (CNEL), refers to 130 indicators, available at national and regional level, organized across 12 domains. The indicators are updated two times a year, once jointly with the dissemination of the annual report on well-being (in the 7th edition, Istat 2019). The Bes framework is continuously updated to take into account new challenges such as the exploitation of new data sources, to produce better indicators. Most importantly, the most recent Budget law (L. 163/2016) assigned to the well-being indicators to measure the way in which public policy tries to foster citizens' well-being. Italy is the first country in

the European Union to include well-being as one of the objectives of the Government's economic and social policy. Istat contributed to the selection of the subset of 12 Bes indicators that are now included in the budget documents, accounting for its updating and real-time estimation.

The increasing importance of well-being indicators in the political debate requires new ways for making the communication more effective and fostering public awareness. Bes has developed different strategies for dissemination. Presentation of the data is based on an in-depth analysis of the dashboard of several indicators. This approach is considered best suited for studying complex multidimensional phenomena (Stiglitz et al. 2018b). At the same time, Istat has experimented with the use of composite indices, aggregating indicators by domain, in line with the wake of other international experiences, and especially of *Human Development Index* (HDI) by the UN (UNDP 1990, 2010). Throughout the text, in accordance to the existing literature (Saisana and Tarantola 2002; Harvey 2020), we will refer to an individual indicator (something that measures a specific concept) as an "indicator", while we will refer to an aggregated (composite) index (a single score made by mathematically combining several other scores) as an "index". All in all, the Bes framework can be considered as a reference point for public debate and a good example to be considered at national and international level.

This article aims to share the experience of the evolution of the Bes, focusing on its recent progresses in dissemination and its practical use to improve the discussion on the budget plan. In particular, Section 2 will describe the current framework for measuring well-being in Italy, starting from a historical account and later concentrating on the maintenance and development process. Section 3 will explain how Istat is addressing the issue of the communication of the results and the different approaches adopted, with pros and cons. Section 4 will analyze the use of well-being indicators for policy evaluation and Section 5 will conclude.

2. The Current Framework for Measuring Well-Being in Italy

2.1. The Beyond GDP Movement in Italy

In 2003 the network "Sbilanciamoci!", comprising 49 Italian organizations and civil society networks working on public spending and economic policy alternatives, proposed a composite index to measure development, the Quality of Regional Development Index (QUARS). The proposed framework was set up along seven dimensions of development at regional level (Environment, Economy and Labor, Rights and Citizenship, Health, Education and Culture, Equal Opportunities, Participation). QUARS compared the "quality of development" at regional level (Lazio and Piemonte), and provincial level (provinces of Trento and Ascoli Piceno) and at municipal level (Arezzo and Cascina). The proposal of seven dimensions represented a novelty in the Italian debate, while the comparison of different territories using also social and environmental indicators stemmed from a previous experience launched years earlier by the national daily business newspaper "Il Sole 24 Ore" (Il Sole 24 ore 2019).

Other experiences reinforced the attention on social and environmental issues. In the 1990s Legambiente (*League for the Environment)* and Ambiente Italia (*Environment*

Italy) started to publish the "Urban Ecosystem", a summary index on the environmental quality of the provincial capitals. In 2010, Confartigianato, a confederation of artisans and small enterprises, composite index based on information related to quality of life, cultural resources and the environment, together with GDP.

Istat contributed to this research effort to expand expanding the availability and use of social indicators in Official Statistics (Sabbadini and Maggino 2018) by means of the introduction of the "Multipurpose Survey System" in the 1990s. This step was important because it gave the Italian community the opportunity to reinforce the dissemination of social indicators even before the Istanbul Declaration, which stressed the important role of official statistics as a key provider of data useful for monitoring the progress of societies.

2.2. *The Bes Project*

In the wake of international and national experiences, Istat, together with the National Council for Economics and Labor (CNEL), launched an inter-institutional initiative in December 2010 aimed at developing a multi-dimensional approach for the measurement of "equitable and sustainable wellbeing" (Bes). The proposal was in line with the recommendations issued by the OECD and the Stiglitz Commission (Stiglitz et al. 2009).

The project has been characterized by a participatory process, involving civil society, academia and national experts. All of them were involved in the definition of the framework and in the selection of indicators. This approch led to a wide acceptance of the framework.

As a first step, the attention was focused on defining the Italian well-being, searching for its most notable dimensions. To perform this task, a joint "Steering Group on the Measurement of Progress in Italian Society" was set up. The Steering Group included representatives from enterprises, professional associations, trade unions, environmental groups such as WWF and Legambiente, Italian cultural heritage groups, women's groups, consumer protection groups and the civil society network. At the same time, between October 2011 and February 2012, Italian citizens were asked for their opinion on the dimensions of well-being elaborated by the Steering Committee, through a dedicated website that included both a short questionnaire and a blog. The questionnaire was filled in by 2,518 people on a voluntary basis. In the same period, a further extensive consultation was set up using the Multipurpose Survey *Aspects of daily life* that reached 45,000 people aged 14 years and over, representative of the population resident in Italy. Respondents were asked to give a score from 0 to 10 to a list of 15 dimensions of well-being.

The results of the consultations and the evidence coming from international experience were the input for the Steering Group to the definition of the domains. The following 12 domains were identified: health; education and training; work and life balance; economic well-being; social relationship; safety; landscape and cultural heritage; environment; subjective well-being; politics and institutions; research and innovation; quality of services.

As a second step of the process, indicators were selected to be included in each domain. For this process Istat started up a Scientific Committee with more than 80 experts in different domains of well-being. The selection of indicators was a crucial step, in the sense that "what we measure" affects "what we do" (Stiglitz et al. 2009). The following criteria were used for the selection:

- form part of the Official Statistics,
- time series availability (starting from 2004),
- sub-national availability (Italian regions – NUTS2),
- clear interpretation of the relationship amid indicator and the well-being evolution (UN–IAEG-MDG 2013),
- both objective and subjective measures were included,
- attention to international comparisons.

The activity of the Scientific Committee on the production of new indicators questions in pre-existing surveys. For instance, questions on trust in institutions and questions on perception of landscape and environment were added in the annual multipurpose survey on *Aspects of daily life*. Through this process, 134 indicators were identified as representing the 12 domains of well-being.

According to the definition of the well-being framework, attention was focused on identifying equity amid social groups and geographic areas of the country, and sustainability for future generations.

Equity and sustainability are cross-cutting characteristics related to all dimensions of well-being. Measuring equity leads to focus on the distribution of well-being across regions, socio-economic groups, gender and age, while the concept of sustainability mainly relates to inter-generational comparison.

The importance of equity and sustainability for the definition of well-being is addressed by international literature. Since the 1980s Amartya Sen has stated the need to consider inequality on information more closely related to living standards (Sen 1989). Furthermore, the recommendations defined by the Stiglitz Commission (Stiglitz et al. 2009) stated that considering inequalities in human conditions is essential for assessing quality of life across countries and social groups. The How's Life? report (OECD 2011) dedicated special attention to inequalities as a central element in wellbeing assessment, providing a valuable presentation of multidimensional inequalities related to every dimension. In 2018, the importance of measuring equity and sustainability was further reaffirmed by the OECD-hosted High-Level Group on the Measurement of Economic Performance and Social Progress (HLEG) (Stiglitz et al. 2018a).

These suggestions were identified in the Italian Bes, which presented and analyzed indicators by regions (NUTS2), gender and age groups. At the same time, specific indicators were included in the framework to take into account sustainability for future generations.

2.3. The Development and Maintenance of the Bes Framework

After the definition of the framework and the first release of the Istat report in 2013 (Istat 2013), the agenda then focused on the development and maintenance of the framework adopted to measure well-being. The division in charge of well-being has planned an annual review of the indicators, taking into account new information needs and new data sources. The proposed were first discussed with the Scientific Committee and, after the end of its mandate, with the Commission of Users of Statistical Information (CUIS) and with experts in the field. This approach makes it possible to maintain the original inspiration of Bes as a common tool within the community. Following this procedure in 2017, a broad revision of the set of indicators was carried out to improve timeliness and to strengthen the

structure of the Landscape and Cultural Heritage, Research and Innovation and Quality of services domains.

From the beginning, Landscape and Cultural Heritage was characterized — more than other domains — by an exploratory approach. It was not one of the domains proposed by the Stiglitz Report and it remains a unique case in the international panorama of well-being statistics. However, some of the indicators of the original set described macro-trends or context factors, and proved to be quite invariant or unobservable in the short term, hardly fitting for a yearly report. Therefore, the revision carried out in 2017 led to an improvement of the domain by strengthening the representation of short-term trends and identifying new indicators. This led to a substantial reorganisation in which five of the original indicators were discontinued due to quality issues. Four new indicators were introduced, either to replace the discontinued ones (Density and importance of museum heritage for Endowment of cultural heritage; Spread of rural tourism facilities for Quality assessment of Regional programs for rural development), or to expand the coverage of the concept map (Impact of forest fires and Pressure of mining and quarrying activities, referred to the component of the natural landscape).

A general innovation introduced in the Environment domain concerns the way indicators are organized and analyzed, according to the categories of the DPSIR model Driving Force, Pressure, State, Impact, Response (Figure 1). The conceptual scheme breaks down the relationship between the natural system and the anthropic system into successive phases, connected to each other through a causal circuit. Following this pattern, innovations were introduced in order to improve territorial representativeness, to merge indicators that provided information on different aspects of the same phenomenon, and to enrich the information provided on the stress exerted on water resources and waste management.

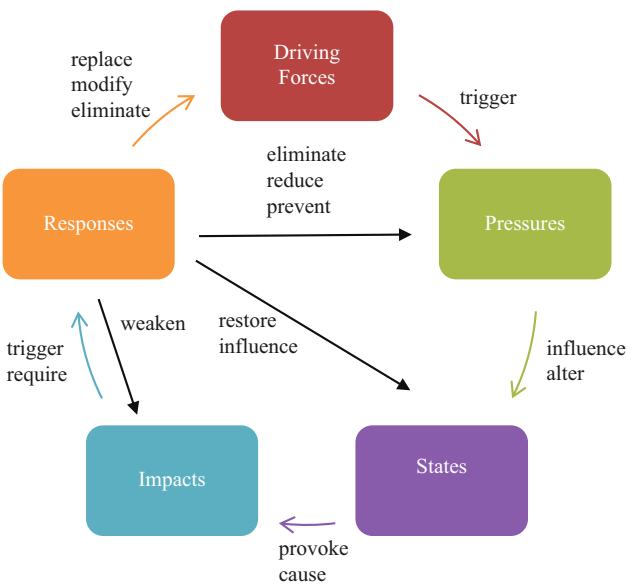

Fig. 1. The causal framework DPSIR "driving force, pressure, state, impact, response" for describing the interactions between society and the environment.
Source: elaboration on Istat (2017).

With regard to the Research and Innovation domain, it was reformulated with the aim of broadening the measurement of the different components that interact with innovation, leaving aside the aspects more closely related to the performance of firms, which are discussed in depth in other Istat publications (See Istat annual reports on competitiveness, http://www.istat.it/it/competitivita). The reformulation of the domain is characterized by three components:

1. the maintenance of the information on research and development, with the addition of a measure relating to investments in intellectual property, now included in the national accounts,
2. the introduction of an indicator on employment in cultural and creative industries, and
3. the inclusion of an indicator to measure the country's capacity to attract highly educated young people.

This approach was echoed in the work carried out by Eurostat within ESSnet-Culture, which proposed an estimate of cultural (and creative) employment based on the cross-reference between the classification of economic activities (NACE Rev. 2) and the classification of occupations (ISCO-08). In light of the increased focus on the cultural and creative component, the domain has been renamed "Innovation, research and creativity".

The revision of the Quality of Services domain identified weaknesses due to partial coverage of phenomena and lack of timeliness of some indicators. In order to strengthen its structure, the conceptual scheme was reorganized, at the same time taking into account different typologies of services (social services, infrastructure and mobility) and their main characteristics (Allocation and Accessibility; Effectiveness and Satisfaction). An analytical matrix was used for the analysis, which was also useful for the elaboration of the composite index, based on the coverage of each cell of the matrix.

In 2018, improvements were mainly related to checking for the relevance of the selected domains and to the multidimensional analysis. With regard to the first point, a set of questions was included in the Istat Consumer confidence survey to evaluate the importance of the 12 domains for measuring people's well-being and quality of life. Respondents were asked to evaluate each domain on a scale between 0 and 10 (See Figure 2). The results confirmed that all 12 domains are considered significant, with average marks between 7.4 (politics and institutions) and 9.5 (health). At the same time, a new section was introduced in the report to present analyses on the multidimensional characteristics of well-being. The first two contributions were devoted to the determinants of subjective well-being and to the vertical inequality.

Finally, in the last edition of 2019 of the report (Istat 2019) the analysis of indicators by region, gender and age group was accompanied by an analysis of indicators also by educational level, in order to enhance the evaluation of equity.

3. Dissemination of the Results: Dashboard and Composite Indices

Communicating the results is an important step to take into account in order to succeed in redirecting citizens' focus on well-being.

Many different and complementary approaches can be used in the analysis of well-being and in the dissemination of results. For instance, one can either opt for the analytical

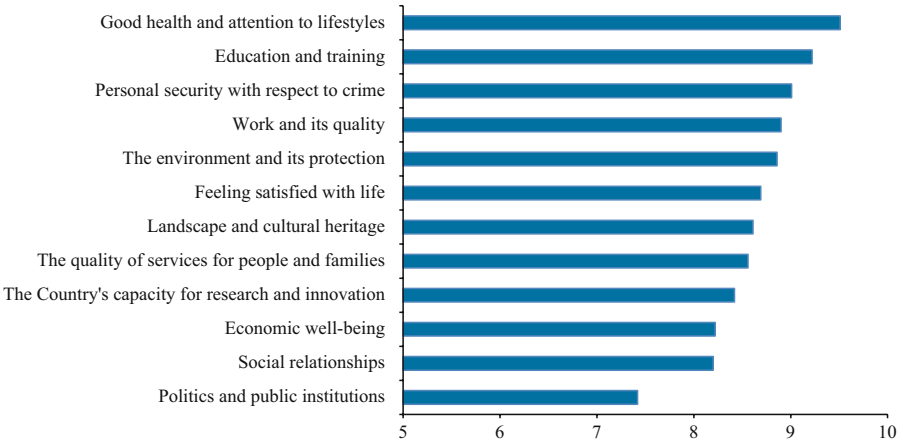

Fig. 2. Average score attributed to the Bes domains (between 0 and 10). Italy. Year 2018. Data from Istat Consumer confidence survey 2018.

comment of a dashboard of several individual indicators or the use of one or more composite indices aggregating conceptually unrelated indicators. While the former has the advantage of providing a detailed picture, it does not allow for easy public communication and easy comparisons across countries and over time (Ciommi et al. 2017; Bleys 2012). On the other hand, composite indices can be very useful for summarizing multi-dimensional realities, for supporting decision-makers, and for the dissemination of findings; even if complex concepts are very difficult (some says impossible) to capture with only one index ("different numbers are useful for different purposes, and local context is important in selecting which numbers matter for what", Stiglitz et al. 2018b) – there is a long-lasting and never resolved scientific duel between aggregators and non-aggregators: for some hints read on, for an overview see Greco et al. (2019), for a detailed analysis see Sharpe (2004)).

For the Bes initiative (Section 2) Istat has primarily adopted the dashboard approach. Proposed indicators are presented, analyzed and commented yearly in a report on Equitable and Sustainable Well-being in Italy (Bes reports – eight reports published so far since 2013). For each of the 12 well-being domains, a specific chapter is devoted to the analysis of the level of indicators, their evolution over time and the comparison across regions, gender, age and level of education. Since the 2018 report (Istat 2018) Istat has decided to complement these analyses with immediate summary measures, based on the dashboard. We can get a glimpse of temporal trends by counting how many indicators have improved or deteriorated in the latest available year (Figure 3) providing an initial outlook of the evolution of well-being. For example, in 2018 in Italy over 50% of the 115 indicators for which comparison is feasible show an improvement in all areas of the country. Over the last year, in Italy, in the majority of domains over 50% of the indicators improved, while lower values are recorded in the domains Work and life balance (41.7%), Social Relationships (44.4%), Landscape and Cultural Heritage (44.4%) and Environment (46.7%) (Istat 2019). Moreover, we can get a glimpse of the overall representation of relative levels of well-being in the Italian regions by observing the distribution by quintiles

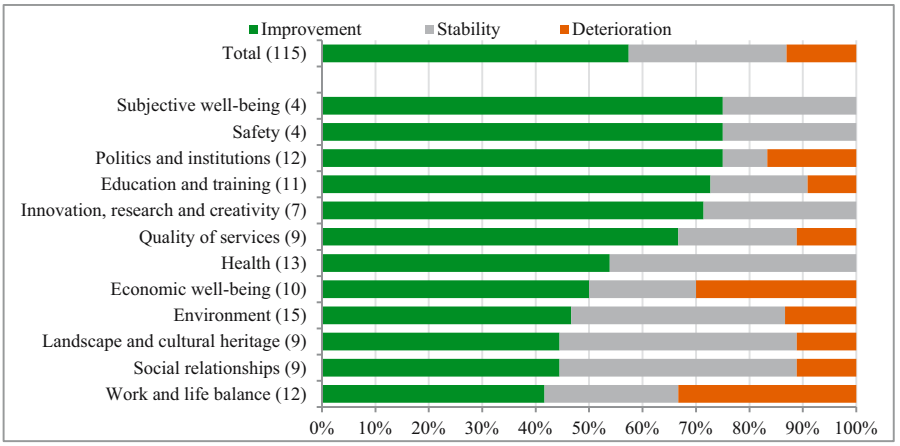

Fig. 3. Trend of Bes indicators: comparison between latest available year (in most cases 2018) and the previous one by domain. Percentage of total comparable indicators. Italy.
Source: Istat (2019).

of the indicators in the most recent available year (Figure 4). This figure shows how the geography of equitable and sustainable well-being reflects the traditional Italian territorial gradient, with the northern regions showing higher levels of well-being compared to the central and southern regions. The provinces of Bolzano and Trento have the highest levels of well-being, with 53.2% and 60% of the indicators in the highest quintile respectively, and less than 10% at the opposite extreme in the first quintile.

The lowest levels of well-being are recorded in Calabria and Sicilia, with 56.3% and 52.1% of the indicators falling in the first quintile, respectively (Istat 2019).

Yet, the dashboard approach (even if accompanied by these counting schemes) fails to fulfill the strong demand for a synthesis of all the data, while it is true that composite indices provide an easy tool to compare complex dimensions effectively, also over time,

REGIONS and GEOGRAPHICAL AREAS	Quintiles					Number of available indicators
	I	II	III	IV	V	
	(0–20)	*(20–40)*	*(40–60)*	*(60–80)*	*(80–100)*	
Piemonte	8,4	18,5	28,6	31,9	12,6	119
Valle d'Aosta/Vallée d'Aoste	15,5	12,1	12,9	21,6	37,9	116
Liguria	15,0	20,8	22,5	25,8	15,8	120
Lombardia	12,6	13,5	15,1	22,7	36,1	119
Bolzano/Bozen	9,9	10,8	11,7	14,4	53,2	111
Trento	9,1	0,9	12,7	17,3	60,0	110
Veneto	9,2	18,3	13,3	31,7	27,5	120
Friuli–Venezia Giulia	5,0	11,8	16,0	29,4	37,8	119
Emilia–Romagna	12,7	18,6	13,6	26,3	28,8	118
Toscana	8,3	12,5	32,5	30,0	16,7	120
Umbria	10,3	22,2	31,6	20,5	15,4	117
Marche	5,9	21,9	27,7	28,6	16,0	119
Lazio	21,7	35,0	18,3	13,3	11,7	120
Abruzzo	12,5	43,3	21,7	17,5	5,0	120
Molise	26,5	31,6	11,1	14,5	16,2	117
Campania	57,5	15,0	10,8	6,7	10,0	120
Puglia	38,3	30,8	12,5	9,2	9,2	120
Basilicata	31,9	31,1	16,0	6,7	14,3	119
Calabria	56,7	13,3	7,5	6,7	15,8	120
Sicilia	52,5	15,8	13,3	9,2	9,2	120
Sardegna	26,1	33,6	13,5	14,3	12,6	119
North	6,5	17,1	14,6	41,5	20,3	123
Center	9,8	26,2	40,2	18,0	5,7	122
South and Islands	48,4	24,6	13,1	11,5	2,5	122

Fig. 4. Bes indicators by region and quintile. Percentage distribution. Latest available year (in most cases 2018).
Source: Istat (2019).

facilitating the communication with the general public and promoting accountability (Saisana and Tarantola 2002 and OECD and JRC 2008). They make it possible to measure multidimensional concepts in a way that is usually easier to interpret than finding common trends in many separate indicators. In fact, a complex concept is easier to communicate in the form of a unique number than in the form of an overabundance of indicators (Greco et al. 2019; Saltelli 2007; Stiglitz et al. 2018a). That is why composite indices have seen a general, steep growth in use and impact over the past two decades (Becker et al. 2017; Greco et al. 2019). That is why composite indices have seen a general, steep growth in use and impact over the past two decades (Becker et al. 2017; Greco et al. 2019), even if several criticisms from different angles are still raised against composite indices (Kuc-Czarnecka et al. 2020): first of all the reduction of information they induce is not always desirable (Ravallion 2011, 247; Stiglitz et al. 2018b, chap. 2); secondly, composite indices are considered problematic because their construction involves arbitrary assumptions that have to carefully assessed, for example about the weighting procedure, which has strong implications but it is seldom justified (Saltelli 2007, Stiglitz et al. 2009), or because they are accused of not being based on sound (economic) theory (Ravallion 2010); thirdly, sometimes they are just examples of the abuse of metrics (Muller 2018; Saisana et al. 2011; Wilsdon 2016). The computation and use of composite indices was also discussed in the Bes Scientific Committee for the measurement of well-being (Section 2).

From a general perspective, composite indices for well-being should provide, in a consistent way, both spatial and temporal comparisons. Cardinal measures are usually more appropriate than counting measures for the measurement of well-being (Mauro et al. 2018), but there is not a well-established methodology to produce composite indices, and researchers have to deal with potentially difficult and problematic issues, such as standardization of variables, implicit weighting, management of substitutability rates. Actually composite indices could "differ in the dimensions and indicators selected, the transformations applied to the indicators, the assumed substitutability between indicators and the relative weights given to them" (Decancq and Lugo 2013, 3).

Furthermore, at the time of the Scientific Committee's work, one of the most important composite index was the *Human Development Index* (HDI), developed by the UN (UNDP 1990, 2016). It currently uses a min-max normalization (with fixed goalposts) and an aggregation based on a simple geometric mean. It is a summary measure of average achievement in three key dimensions of human development: a long and healthy life, educational attainment and having a decent financial standard of living. Even if it has attracted (and it is still attracting) some criticism (Ravallion et al. 2012; Klugman et al. 2011; Kovacevic et al. 2010), the HDI proved to be enormously useful in shifting attention to other development outcomes beyond income and in setting up a healthy competition between countries on their HDI rank. When it is published it usually leads to national and international press coverage comparing different countries, which in turn can be used by civil society as a lever to pressure their governments (Stiglitz et al. 2018b). As remarked by Nobel Laureate A.K. Sen (initially skeptical about aggregations) this media and public attention would have not been received by a simple set of indicators and the success of HDI in fostering debate on human development would not have occurred if the exercise had stopped before a composite index was created (Sharpe 2004). The HDI has been modified and improved over the years. First, HDI releases were based on the arithmetic mean, but in

2010, to account for inequalities, the arithmetic mean was replaced with the geometric mean because the geometric mean reduces the level of substitutability between different dimensions of well-being, and at the same time it ensures that a given percentage decline in each one of the individual indicators has exactly the same impact on the HDI. "Poor performance in any dimension is now directly reflected in the HDI, and there is no longer perfect substitutability across dimensions. This method captures how well rounded a country's performance is across the three dimensions. As a basis for comparisons of achievement, this method is also more respectful of the intrinsic differences in the dimensions than a simple average is. It recognizes that health, education and income are all important, but also that it is hard to compare these different dimensions of well-being and that we should not let changes in any of them go unnoticed" (cf. UNDP 2010, 15).

As the HDI experience shows that the success of a composite index is due not only to its statistical rigor, but also to its simplicity and communicability. Thus, the Scientific Committee for the measurement of well-being suggested that Istat, given its role as a producer of official statistics, should adopt a simple, transparent, easy to interpret, but not completely compensatory, aggregation method. After some analyses and experimentations, and following the ten-steps procedure proposed by the OECD (OECD and JRC 2008), Istat has decided to adopt an aggregation method developed by Mazziotta and Pareto (Mazziotta and Pareto 2016; Istat 2015) that provides the composite AMPI (*Adjusted Mazziotta–Pareto Index).* AMPI normalizes each individual indicator between 70 and 130, but to make it easier to interpret the results, this interval is shifted so that Italy is assigned 100 for the base year 2010. AMPI aggregates normalized indicators by computing their arithmetic mean and then penalizing the result with respect to the variability between them.

Istat introduced composite indices for the first time in its 2015 report (Istat 2015), one or two for each domain, and extended their use at the regional level in the 2017 report (Istat 2017).

In the following years, some issues emerged in the use of AMPI, in particular when commenting on the evolution of well-being over time (Bacchini et al. 2020). In fact, in the normalization step the search for the minimum and maximum is performed along all the time series in each domain. Then, a constraint on the base year is introduced. These two ways of considering the time dimension might conflict with each other. AMPI, by construction, defines equilibrium as the situation in Italy in 2010. Therefore, if we aggregate two Italian indicators, one already at its best in 2010, and stable over time, and another one that steadily improves from 2010 onwards, then AMPI would unduly impose more and more burdensome penalties at the composite index over burdensome penalties at the composite index over time. As a further and more specific example consider the raw indicators POL3 – Trust in judicial system and POL12 – Prison density for Italy from the domain Politics and institutions (Istat 2017). The Italian average of POL3, along the time span 2010–2016, is 4.3. The Italian average of POL12, in the same time span, is 127.2. From 2010 to 2015, POL3 falls from 4.6 to 4; in the same period POL12 – that is negatively polarized (the lower, the better) – improves from 151 to 105.2. Considering POL3 and POL12, with respect to their average values, the situation for Italy is almost exactly symmetric in these two years. Then again, in 2010 AMPI does not impose any penalization, while in 2016 AMPI imposes a penalization of 4.6 points, as if the first indicator (that fell) is much more important than the second (that rose).

Moreover, the growth rate of the composite index cannot be easily decomposed in the temporal dynamics of the individual indicators, and fails to provide a measure of social progress that can be juxtaposed with the classical GDP index (as opposed, among others, to the *Well-being Index* by the Portuguese Institute of Statistics, (INE Portugal 2017), or *The Canadian Index of Well-being* by the University of Waterloo; University of Waterloo 2016).

For example, consider the composite index *Health*, elaborated for the period 2009-2016 (Istat 2017). The index is made up of five individual indicators: *SAL1 Life expectancy at birth*, *SAL2 Healthy life expectancy at birth*, *SAL3 Physical status index*, *SAL4 Psychological status index*, *SAL9 Life expectancy without activity limitations at 65 years of age*. In Figure 5 the composite index for Italy is presented in two variants that combine different choices for normalization and aggregation: AMPI (with its own normalization) and index numbers + geometric mean. The main deviations of the two trends are actually due to the normalization process rather than the aggregation method. Between 2012 and 2013, AMPI improved by 0.4%, while index numbers + geometric mean worsened by 0.8%. In fact, the raw indicator SAL9 decreased by 4.2%, while the other raw indicators changed very little. However, even if the raw indicator SAL1 increases by just 0.4%, AMPI normalization leads to much more variability and the normalized indicator improves by 4.4%, overcompensating the change in SAL9 and dragging the composite up. In fact, index numbers completely respect percentage changes, but do not control for variability. A similar case can be made for 2014–2015.

Given the risk that AMPI composite indices could be poorly interpreted and could consequently send misleading messages, Istat currently only publishes composite indices in the regional factsheets at the end of the Bes report to help in reading about how well-being at the regional level has evolved. However because of renewed pressure for clarity and simplicity in communication (see also Section 4), we think that the time is now ripe to reconsider the aggregation methodology and the use of composite indices as an important aid for commenting on the evolution of well-being and on regional inequalities. Indeed,

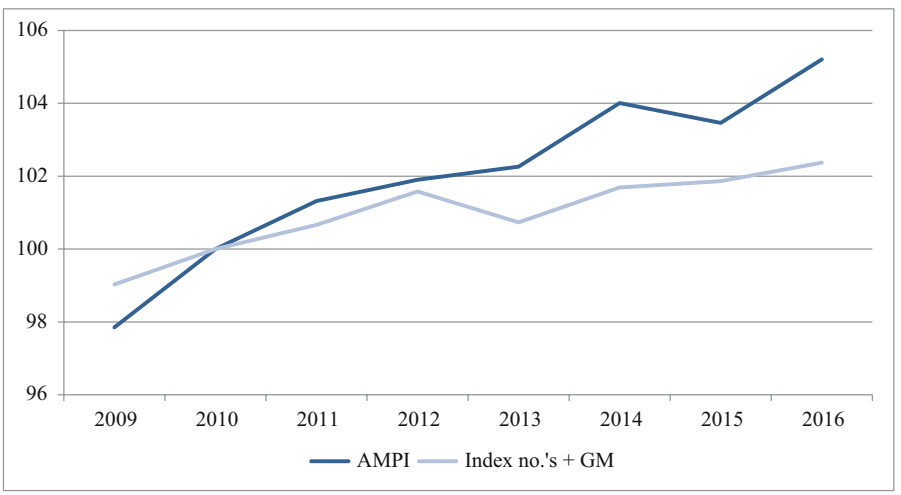

Fig. 5. Composite index health computed with two different normalization and aggregation techniques (AMPI; index numbers and geometric mean). Italy. Years 2009-2016. Data from Istat (2017).

the use of a multidimensional framework demands a comprehensive metric that can compute the progress/decline in well-being over time. However, the identification of such a metric, similar to the integrated system currently adopted to produce GDP measures, is a difficult task (Durand and Exton 2019) and requires more work and deliberation.

4. Well-Being and Policy Making

The opportunity to shift policy makers' focus from the exclusive pursuit of economic growth to a broader consideration of people's well-being and sustainability has had considerable impetus in recent years from the 2030 Agenda on Sustainable Development Goals (SDGs) and through the OECD promotional activity that, starting in the 21st century, recognized that measuring well-being was very important both for the credibility and accountability of public policies. Starting with the OECD's initiative, Stiglitz et al. (2018a, 103) pointed out that "well-being indicators could be used in the different stages of the policy cycle, from identifying priorities for action, to assessing the pros and cons of different strategies to achieve policy goals, to allocate the resources (budgetary, human, political) needed to implement the selected strategy, to monitor interventions in real time as they are implemented, and to assess the results achieved and take decisions on how to change policies in the future".

Along the same line of thought, one of the initial objectives of the Italian Bes was to provide sound quantitative support to policy makers, possibly covering all the phases of the policy cycle as suggested also by Stiglitz et al. (2018a, 103) (Figure 6). Since 2017, the Italian experience had represented an example of the implementation of this approach since well-being indicators are deemed, by law, to be a target in the budget plan. Nevertheless, some work still needs to be done to fully consider them in all phases, especially *Evaluation*.

4.1. The New Budget Law and Well-Being Indicators

In 2016, Italy adopted a law that introduced the indicators of well-being in the budget documents (L. 163/2016). This act was among the most important achievements of the

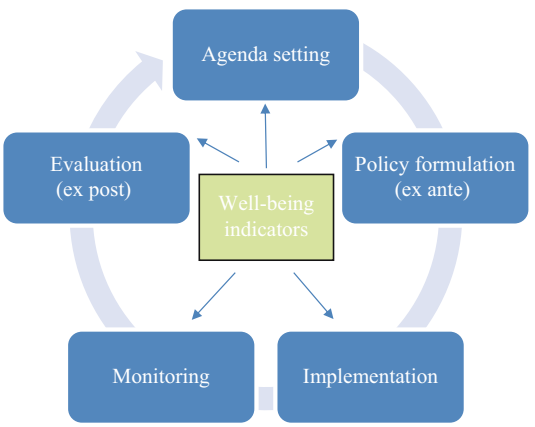

Fig. 6. The policy cycle.
Source: elaboration on Stiglitz et al. 2018a.

efforts addressing the importance of well-being for public policy. Under this act, the effects of fiscal measures must be considered against a selection of well-being indicators. This process includes two new annual reports provided by the Ministry of Treasury. The first one, published in April, is an annex to the Planning Document on Economic and Financial Policy (DEF–Documento di Economia e Finanza) in which the Government outlines the policy actions to be undertaken in the next three years. The report includes an analysis for each well-being indicator on recent developments, as well as two sets of projections of expected developments; one concerning past trends, and the other on the expected impact of measures included in the DEF (policy scenario). In February, a second report presented to Parliament includes an update of the analysis on the well-being indicators, based on the Budget law for the current year approved before the end of the year by the Parliament. This report takes into account changes in the macroeconomic scenario and specific measures set out in the current Budget law.

These two new reports add new perspectives to the policy debate and open the discussion to new directions, some of which were highlighted by Istat (Istat 2016) and the Parliamentary Budget Office (UPB 2016) during the hearings in preparation of the final draft of law 163/2016.

The timing of the two reports puts more pressure on current statistical processes since Istat's updating of the indicators is not always aligned with the timing indicated in the law, due to the organization of complex production processes. In addition, updating the selected well-being indicators means new econometric models are defined and estimated and are able to consistently address the relationship between marcoeconomic variables and well-being indicators. Hence, it is important to assign adequate resources to this task, and to limit the number of indicators (recalling that the full Bes framework includes 130 indicators).

These considerations illustrate how the process set up by the new law required strong investment, a testing period and some scope for adjustment before demonstrating the full capacity of the well-being indicators in policy debates. Parts of these issues have been addressed and suitable solutions have been put in place, as described below; further remarks about usability and interpretation of results will be addressed based on the initial implementation.

4.2. The Selection of Indicators

How a system of indicators can be set up to inform policy making has been discussed in several publications (Martinuzzi et al. 2013; Swiss Federal Statistical Office 2012; UN 2014; Eurostat 2014a, 2014b; EU DGINS 2015), especially related to the issue of sustainability and well-being measurements.

In addition, in the Italian case selecting indicators from the whole set of the Bes framework was considered to be extremely sensitive. To address this, the new Budget law required the establishment of a high level Commission. The appointed members were: the Minister of Economy and Finance; the Istat President; the Governor of the Bank of Italy; two recognized experts Professor Enrico Giovannini and Professor Luigi Guiso. The Commission was to carry out the selection and to propose a suitable list of well-being indicators to be included in the policy process. Afterwards, the Commission proposal was to be discussed and approved by the relevant parliamentary committees.

This two-step process aimed to ensure both technical soundness and democratic legitimacy: the members of the Commission were entrusted with the scientific, methodological and operational expertise, while Parliament — as the representative body — was responsible for the final decision (Figure 7). Nevertheless, critical remarks were raised by some experts, who maintained that the lack of direct involvement of civil society representatives could weaken the credibility of the whole process (Gawronski 2017; Olini 2017).

Recognizing this issue, the Commission considered it crucial to define the criteria informing the selection process. With a starting point in the 130 Bes indicators, general considerations and specific criteria were discussed and published in a report (Comitato per gli indicatori di benessere equo e sostenibile 2017) to ensure that the whole process was transparent (see also Tinto et al. 2018).

The final list of indicators, unanimously approved by the parliamentary committees, includes 12 indicators:

1. Mean adjusted income (per capita),
2. Income inequality (quintile ratio),
3. Incidence of absolute poverty,
4. Life expectancy in good health at birth,
5. Overweight and obesity,
6. Early school leavers,
7. Non-participation in employment,
8. Employment rate of women aged 25–49 with preschool children versus women without children,
9. Victims of predatory crime,
10. Mean length of civil justice trials,
11. CO_2 and other greenhouse gas emissions (tons per capita), and
12. Illegal building,

Subjective indicators, in particular the indicator on life satisfaction, were not included in the final list, even if it has been argued that increasing the subjective well-being (as expressed by the individual perception of the level of satisfaction for his/her own life) should be considered the ultimate goal of policy (Layard 2011). However, the Commission followed a pragmatic approach: as subjective well-being cannot be easily linked to single

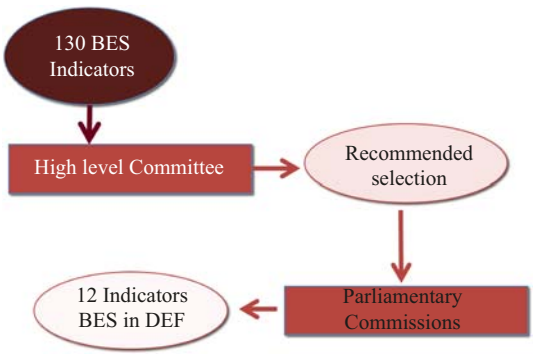

Fig. 7. The selection process.

policy measures, and it depends on a number of different factors that are out of the sphere of the Budget law, they opted for its exclusion.

4.3. *Lessons from the First Round of Implementation*

In 2017, the Ministry of Economy and Finance (MEF) (Ministry of Economy and Finance 2017) published the DEF including, for the first time, analysis related to a subset of well-being indicators. Only four indicators were considered: mean adjusted income; non-participation in employment; income inequality index; CO_2 and other greenhouse gas emissions. The subjective side of well-being – considered in the full Bes framework – was not included in the final selection of indicators. The debate about this choice is still open: on the one hand the need to fully into account the general level of well-being, on the other the intrinsic difficulty in linking a subjective indicator to economic measures, such as those in the Budget law, in a forecasting model. Moreover, this first selection cannot be considered to represent the different aspects of well-being and sustainability, yet it was used as a benchmark for the new procedure. The four chosen indicators were updated by Istat, whereas the MEF projected their development in the next three years both using the actual scenario (trend) and the measures included in the DEF (policy). See Figure 8.

The policy scenario appears most of the time as a *better world:* the introduction of new policies is expected to produce better effects in terms of well-being. The following February, the same procedure was repeated in the report presented to Parliament, taking into account the updated macroeconomic scenario and the recently approved Budget law. This report led to a revision of the expected target for the four well-being indicators. Following editions of the reports, up to the last one in the 2019 DEF, extended the analysis of recent trends to the 12 indicators, although projections are limited to the four indicators.

In order to examine results and possible weaknesses, one of the four indicators, *Non-participation in the labour market* is used as an example. Figure 9 shows the indicator and the four different scenarios presented by the Government in the three reports produced between April 2017 and April 2018. Some conclusions can be drawn from a comparison of

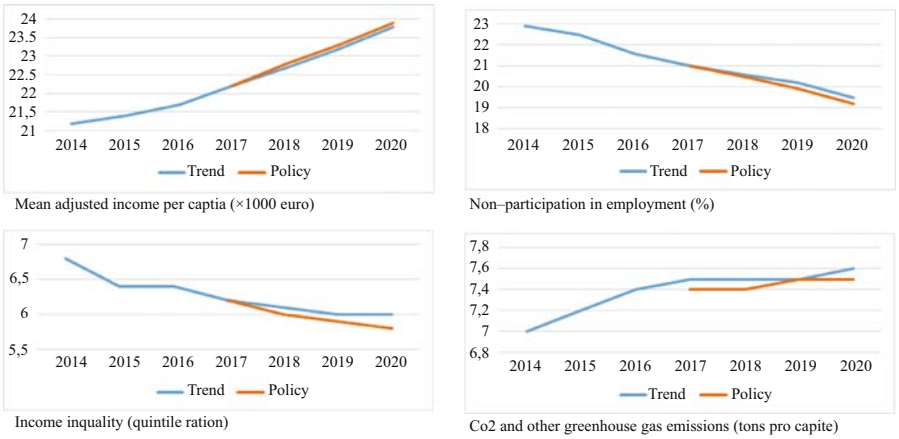

Fig. 8. MEF scenarios in the 2017 DEF. Data from Istat (observed data: 2014–2016) and MEF (forecasts: 2017–2020) from MEF (2017).

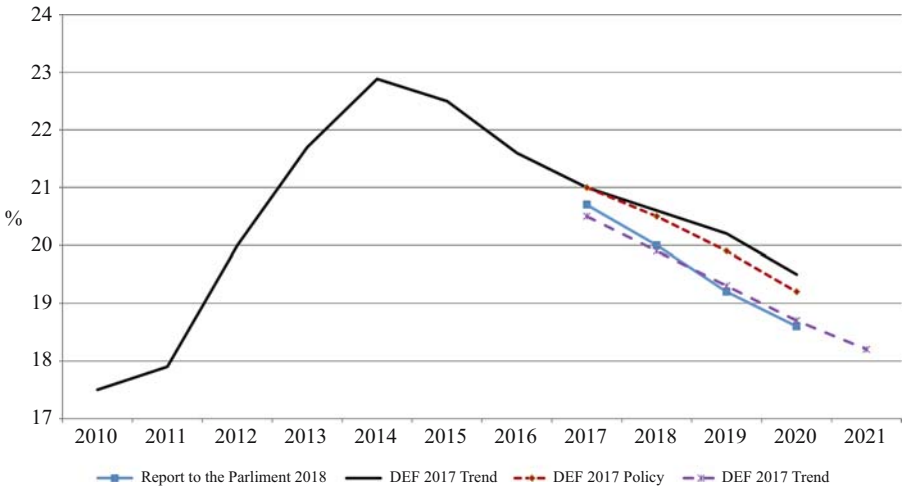

Fig. 9. Non-participation in the labour market –observed and forecasted rates. Italy. Years 2010–2021. Data from Istat (observed data: 2010–2016) and MEF (forecasts: 2017–2021).

indicator forecasts over time. The issue of the starting year for simulations is sensitive: the 2017 point forecasted in the first DEF was 0.5 percentage points higher than the observed one (included in the 2018 DEF), thereby implying an overall overestimation of the whole forecasting period. The estimate used for the Report to Parliament (RP) was not the final one but was surely more accurate, as it could already benefit from data published by Istat. This demonstrates that the preliminary estimation by the Government was more pessimistic compared to more recent estimates and that the economy performed better compared to the forecasts included in the first release.

This brings us to a key issue. Revisions of the indicators must to be correctly analyzed in order to disentangle the movements of the indicators in the different components: updating of the data, forecasting errors, different effects of the policy. Clearly, only the last one needs to be considered for the policy analysis.

With regard to the weakness of the framework highlighted in Subsection 4.1, a key point is timeliness, that is, aligning the time of data dissemination to the provision of the law. Istat, in cooperation with the National Statistical System, speeded up the dissemination process by enhancing some steps, whenever possible, and even producing preliminary pictures for some indicators.

Looking at the 12 indicators, three different approaches were adopted to fill the gap: for seven indicators only the dissemination phase was accelerated; for three indicators provisional data were produced (thanks to an improvement of the production process); two indicators were based on forecasting models (Table 1).

Table 1. Number of indicators updated with 3-months time lag, by method

No.	Method	Source
7	Currently available	Istat, Ministry of Justice, Cresme
3	Ad hoc estimates on provisional data	Istat, Ministry of Interiors
2	Models for ash estimates	Istat and Istat based on Ispra data

Once the well-being indicators were available for the last year, forecasting models developed by the MEF Department of Economic-Financial Analysis and Research were run. This activity was based only partially on past experiences, like for example for the indicator on income-inequality (Di Nicola et al. 2015) that integrates survey data, tax records and an estimate of tax evasion and erosion.

For the other indicators, a specific model has been developed that, like for the indicator for CO_2, runs on a different forecasting model, estimated to fill the data gap until the most recent year. When the complete policy cycle will be related to all well-being indicators, as suggested in Figure 6, the problem of the deviation that might be introduced by estimated data (for some indicators) will become more urgent with respect to the ex post evaluation of forecasted levels.

The full introduction of well-being indicators linked to all phases of the policy cycle is the main issue hindering process fulfillment. At present, the steps of "Policy formulation" and "Monitoring" are explicitly considered in the framework, the "Agenda setting" could be better defined, while "Implementation" and the "Evaluation" phases are not being directly addressed. All these issues need to be put to the attention of public debate to reach the goal of the well-being *revolution*: design and discuss public policies in term of their impact on well-being.

5. Conclusions

The international debate on the development and use of well-being indicators has grown in years, driven both by notable suggestions from the political and economic field (Stiglitz et al. 2009, Stiglitz et al. 2018a), and by the increasing number of measurement frameworks carried out by national and international statistical institutions. This huge effort to "go beyond GDP" has stimulated the policy discussion on enforcing the adoption of well-being indicators to assess the impact of budget plans on citizens' well-being.

The Italian experience can be considered as a forerunner. The Italian national institute of statistics (Istat) has developed a comprehensive measurement system of 130 indicators. The development of the debate on well-being has been fostered by the annual report on Italian well-being (in 2019 Istat published the seventh edition) and by Istat's role in national and international projects on the subject (MAKSWELL and GROWINPRO). These experiences were recognized in 2016 by the introduction of the law that made it possible to introduce 12 well-being indicators in the budget documents. In addition, the Italian Government is required to present the impact of its budget plan both on traditional macroeconomic main variables as well as their impact on the 12 well-being indicators.

This process entails new challenges and generates some drawbacks that will need to overcome in the near future: investment to improve the quality and the timeliness of the well-being indicators; identification of a metric to connect the different domains and the evaluation of composite indicators, for which the use of administrative sources such as tax registers to be associated to existing surveys (58% in the case of Bes), looks very promising; finally, the implementation of big data sources could be another important step (see, for example deliverable 2.2 and 2.3 of the project MAKSWELL (Van den Brakel 2019, 2020).

A better understanding of the determinants of well-being is another important issue. In the last two editions of the Bes report, we investigated inequalities such as those between

different generations and opposite social groups. These results are expected to be useful for the design of specific policies aiming to decrease inequalities.

Important progresses are also expected on the econometric side. The current forecasting models and the way in which they aim to address the relationship between well-being indicators and macroeconomics aggregate should be investigated in depth.

Finally, the use of well-being indicators in the budget plan requires fine-tuning of the evaluation phase, in order to identify the robustness of the relationship between policy and indicators. At the same time, this phase could be included in a specific task to extend the use of the sustainable and equitable well-being indicators to evaluate the public administration's performance (see Papi et al. 2020).

Addressing these challenges within the international paradigm of well-being appears ambitious, and reveals a set of different pathways, each of which opens up different and amplified perspectives, none of which is without a degree of coarseness. The Italian experience performed by Istat is an important reference for the international debate in promoting a well-being approach to the definition of public policy.

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