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*Well-being indicators and local planning:  
the use of the BES indicators in the Italian  
regional planning*

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## INTRODUCTION

During the last 20 years, the debate on what well-being is and means has grown significantly. For several decades, GDP has been the only real measure of growth, used by both policy makers and researchers to describe and interpret the progress of countries. Nonetheless, since its very invention, GDP has been criticized as an inadequate measure of progress – and by its own creator, as we will see in a few pages. GDP is in fact a quantitative measure of how rich a country is, in terms of the monetary value of the overall production of that country. But GDP says nothing neither about the distribution of wealth among citizens, nor about the quality of life that that wealth guarantees.

The work of Amartya Sen has certainly enriched and re-positioned the debate: with its work from 1985, *Commodities and Capabilities*, Sen “pioneered the construction of measures of aggregate performance that meaningfully incorporate noneconomic factors, including health, education, safety, civil freedoms, and environmental integrity” (Feder et al. 2018). With its emphasis on human capabilities and on how they affect the functioning of individuals and societies, Sen moved the focus of the debate on the need to build reliable measures of well-being, capable of representing not only the economic (i.e. quantitative) elements, but also those other elements that qualitatively affect people’s lives.

Since then, many researchers and international bodies followed the example and invested time and resources on the effort of building such measures. The UN “Human Development Index”, the OECD “Better Life Index” and the report from the Stiglitz-Sen-Fituossi commission, that we are going to analyze more in detail in the next pages, are only the most famous among the several attempts made at an international, national and local level to measure well-being.

But why is the measure of well-being so important in the first place? In our opinion, there are two main reasons:

- A theoretical reason: measuring well-being is important because it gives researchers and citizens meaningful information concerning how people live, in terms of (among other things) how long and healthy they can expect to live, how they are educated, if and how much they work, how safe is the environment where they live, how they spend their free time and what public and private services they have access to.
- A practical reason: measuring well-being is important because the same meaningful information can (and should) also be used by public decision makers to make informed choices and plan their political and administrative activities on the basis of reliable data, that allow equally reliable comparisons in space and time.

In this thesis we are going to address both these reasons, as they are strictly related and need to be analyzed and explained together. Our main goals are in fact two: on the one side, we want to describe how well-being is measured in Italy, how it is used today in public planning activities and what are the actual limitations of this use; then, on the other side, we want to propose our own framework, to effectively include well-being indicators in planning activities and to relate them, at the same time, with the planning and the budgetary documents.

In the first chapter, we are going to examine the debate over the measurement of well-being, focusing on the most important international experiences on this topic. We will analyze more in detail the results of the Stiglitz-Sen-Fitoussi commission and the “Better Life Initiative” from OECD. We will conclude the chapter with a brief description of what statistical indicators are.

The second chapter will be dedicated to the Italian experience of well-being measurement. We are going to analyze the “Indicatori del Benessere Equo e Sostenibile”, the 130 Italian well-being indicators created and measured by ISTAT. We will also focus on the method used by ISTAT itself to build the composite indicators of well-being, i.e. those measures of well-being that collect data and information from various simple BES indicators.

The practical use of the BES indicator in Italy will be the main topic of the third chapter. We are going to see how the BES indicators are supposed to be used today in the national, regional

and local planning activities, analyzing the most important national laws that enforce the use of these measures. We will also focus on how other researchers faced the problem of integrating the BES indicators in the public planning activities, especially at the regional and local level.

In the fourth and final chapter, we will start with an empiric analysis of how the regional planning activities are actually performed. We will see how both national and local legal systems are simultaneously enforced, generating several differences between the regional programming documents and, therefore, complicating the work of researchers and decision makers in terms of building meaningful analysis and comparisons, that are crucial to ensure effective planning activities. We will also see how different sources of information are used in different regions, thus complicating again the work of researchers and policy makers. Then, we will build our own framework for planning cycles, that relates, at the same time, planning documents, budgetary documents and well-being measurement. Finally, we will mention the limitations of our works and will also set the direction for future analysis.

## CHAPTER 1

### THE DEBATE ON GDP AND WELL-BEING

*“There is much casual evidence that people in the west are not becoming happier, despite economic growth” (Layard, 1980).*

Richard Layard’s statement from 1980 testifies that the separation between economic growth and well-being is far from being a problem that has arisen during the last years. Economic growth has historically been measured through one of the most used indicators of our times: Gross Domestic Product, or GDP. Since its invention in 1934, GDP has often been used by economists, politicians and the public opinion to judge the success and progress of nations. But as its own creator Simon Kuznets stated, “The welfare of a nation can scarcely be inferred from a measurement of national income” (Kuznets, 1934).

GDP is indeed a measure of national income. More precisely, it measures the total amount of finished goods and services produced in one country, usually on a yearly or quarterly basis. GDP can be calculated using different methods, namely starting from expenditures, production, or incomes. In other words, GDP gives a numerical measure of the dimensions of the economy of a country, and it is usually used as the core indicator in judging the economy of a country over time, or with respect to other countries. Finally, GDP is often adjusted by inflation (to obtain the so-called ‘real GDP’) and divided by the population to obtain GDP per capita: an indicator often used, either implicitly or even explicitly, as a substitute for social welfare and a measure of the standards of living in a country

The problem is that the use of GDP and GDP per capita as a measure of welfare and of standards of living doesn’t follow from any theoretical reasoning, but just comes from practical use (van den Bergh, 2009). In fact, GDP was never designed to measure social or economic welfare (Kubiszewski et. al. 2013).

Nonetheless, an increase in GDP is perceived by politicians, journalists, the public opinion, and sometimes even economists, as the main goal that a country should achieve, whereas a decrease in GDP is often by itself a good reason to ask for government resignation. As we write this thesis, the COVID-19 health emergency has been producing several negative effects on the world economies, with many journalists and analysts focusing on the unavoidable decrease in GDP rather than on other indicators (like unemployment) or the loss in terms of standards of living.

### **1.1 What's the matter with GDP?**

The thing that must be stated very clearly when we talk about GDP is that it is a measure of growth, not progress. Economic growth and societal progress are in fact very different concepts and big problems arise when they are confused or overlapped.

One first point is that standards of living cannot increase forever, or, at least, non proportionally with respect to growth. Van den Bergh (2008) states for instance that “extrapolation of a 2% yearly growth rate 1000 years into the future would result in a GDP that is  $(1.02)^{1000} \approx 400$  million times the current GDP. It is difficult to imagine that individual or social welfare could increase to such an extent. This suggests that if there is a positive (average) correlation between GDP and social welfare, it should be very close to zero” (p. 119).

Moreover, GDP is also a ‘gross’ measure of domestic product, in the sense that it doesn’t care about the differences among the goods and services that are produced. Nonetheless, necessary goods (like water, food and good air to breathe) or personal and social needs, like company and freedom, cannot be exchanged with other and less-than-necessary material goods. In other words, substitution is not always possible, and GDP will never be able to capture these kinds of differences.

To make a brief and very schematic summary, we could say that GDP has been criticized on the basis of three different approaches<sup>1</sup>:

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<sup>1</sup> From here and until the end of the paragraph, we will follow Burchi Gnesi, 2015.

- GDP is a monetary measure of production of goods and services, but it does not take into account (and therefore does not measure) real life. Strictly speaking, GDP only measures the overall production level of a country in terms of how many dollars this production is worth, but if this production benefits people or not is not even at stake. Being a metric based only on money, it takes into account the value of a good or service only in terms of its monetary value, and not in the terms of the benefits that the individuals and the society as a whole can grasp from it. Let's make an example to explain this point: let's say that a big tanker crashes near the shore, so tons of oil spill out of the boat and pollute miles and miles of coast. Of course, this would have extremely negative consequences on the people living along that coast, and on the environment as a whole: nonetheless, all the activities that would be needed to clean up the area would still cost (probably a lot), thus increasing GDP in a way that we could hardly define beneficial.
- GDP only measures what has a monetary value, so it does not consider all those works and services that does not have such a value but still produce benefits for individuals, families, groups and society as a whole. Examples of these works and services are domestic work, care work, and also education, at least the one that is given at home or in other social and religious contexts.
- Individual preferences and diversities are completely ignored by GDP. This must be intended not only in the sense of what people like and do not like, but also in terms of those personal elements (like gender, age, health conditions), environmental elements (climate, pollution) and social and political elements (regulations, social norms) that greatly influence people lives.

The point that emerges quite clearly is that growth (and economic growth in particular) is not the same as development or progress. We have long used GDP as a measure of both concepts, as an increase in GDP was supposed to be directly correlated with the development of a country: and it certainly is, or, better, *is part of* that development. An increase in GDP is, in fact, a simple sign of economic growth, i.e. a sign of an increase in the wealth of a country. But this increase does not say much about the real conditions and standards of living of individuals, whereas this is actually what is at stake, on the contrary, when we talk about human and social progress. When we say that something is "progressing" or "developing" we

mean (as many dictionaries confirm) that a better, more advanced condition has been achieved. Therefore, social progress and development deal with how well people live or, in other words, with well-being: they are all about improving living standards and increasing the opportunities for individuals to develop their inner potential. Therefore, progress and development are much broader concepts than simple growth and entail many more different dimensions and aspects than the mere economic ones, like for instance health, education, safety, environment and so on.

But if GDP is not the right indicator for progress and development, how should we measure them? Is GDP completely useless, or could we adjust and integrate it to obtain a better measure of the well-being of a country? To overcome the limits of GDP as a real measure of well-being, three approaches have been tried:

- Adjusting GDP: this approach has been promoted since the '70s, when the work of Nordhaus and Tobin "Is growth obsolete?" was first published. Since then, many other attempts have been tried in order to modify the GDP index and build more 'open' indicators, capable of taking into account other aspects rather than the mere monetary value of production. The most recent ones are the Index of Sustainable Economic Welfare (ISEW) (Jackson & Marks, 2002; Jackson, McBride, Marks, & Abdallah, 2007) and the Genuine Progress Indicator (Hamilton, 1999). Both indexes take into account social and environmental aspects, like income inequality, domestic labor, volunteering and environmental degradation.
- Integrating GDP: this approach consists in the use of GDP *together with* other indicators that respond to the need of measuring well-being with a broader approach. Probably, the most famous methodology is the one built by the United Nations Development Program (UNDP), known as Human Development Index (HDI). The HDI takes into account health (indicator 'life expectancy'), education (indicators 'expected years of schooling' and 'mean years of schooling') and standards of living (indicator 'Global National Income – GNI per capita'). The indicators are used to build an index for each domain: the three indexes are then combined to calculate the HDI. The HDI methodology does not include environmental changes and degradation (at least for those aspects that are not directly related with life expectancy).

- Replacing GDP: this is the most radical approach, whose aim is to completely substitute GDP as a measure of well-being. During the last 10-15 years, the so-called “beyond GDP” approach have produced several, very interesting projects, the most famous ones being the Stiglitz-Sen-Fitoussi Commission and the OECD Better Life Initiative, that we will analyze more in detail in the next paragraphs. Following these projects, many national governments have launched their own initiatives and promoted their indexes and indicators systems – like also Italy, as we will see in the rest of this thesis. Other “Beyond GDP” approaches are those that focus on happiness, often integrating it with other elements like life expectancy and satisfaction (see, for instance, the Happy Life Expectancy Index from Veenhoven (1996), that uses both demographic statistics and *ad hoc* surveys).

## **1.2 The Stiglitz-Sen-Fitoussi Commission**

An important step in overcoming GDP as a unique measure of well-being and progress has been the Commission on the Measurement of Economic Performance and Social Progress.

In 2009, the President of France Nicolas Sarkozy asked the economists Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi to create a commission to review the economic and statistical information needed to evaluate national economies. This task was felt as very urgent not only by President Sarkozy: economic and social data are certainly used by politicians and administrators to make informed decisions, but are also used by citizens, that compare these data with their everyday experience in order to make coherent choices for their lives. A supposed increase or decrease in the GDP of a nation, or in the production of specific sectors, might push politicians to support one industry rather than another, and individuals to make important choices, like buying a house or moving to another city or country. In other words, the problem is that “what we measure affects what we do; and if our measurements are flawed, decisions may be distorted” (Stiglitz et al. 2009, p. 7). So, for instance, if we decide not to include environmental deterioration within the calculation of GDP, we might think that the choice between increasing GDP *or* increasing environmental protection is a rational one, whereas those goals might be pursued both at the same time.

Focusing only on GDP also generates another big issue: when progress and well-being does not increase as much or as fast as GDP does, people develop some forms of disillusion and skepticism with respect to statistical data, as these data demonstrate to be apparently incapable of providing a plausible description of the world. This could happen for several reasons: an incorrect measurement of the right concepts and indicators, for instance, but also the use of the wrong statistics or the inability of these statistics to capture relevant phenomena. GDP, for example, would probably rise as traffic increases, but certainly not the perception that individuals have of their everyday life.

All this given, the Commission set for itself the following goal:

The Commission's aim has been to identify the limits of GDP as an indicator of economic performance and social progress, including the problems with its measurement; to consider what additional information might be required for the production of more relevant indicators of social progress; to assess the feasibility of alternative measurement tools, and to discuss how to present the statistical information in an appropriate way. (p. 7)

Three problems are at stake here:

- The limits of GDP as an indicator of economic performance and social progress: even though international standards have been set up, calculating GDP is far from being a simple task. GDP is in fact a measure of the monetary value of the overall production of a country, but the value of goods and services produced can vary consistently over time. Things are getting more and more complicated because of the fast technology innovations that constantly change the economic landscape, making less valuable goods and services that we felt as necessary until a few years ago. Moreover, there are goods and services whose monetary value is difficult or impossible to define, like healthcare or child-care, especially in terms of their quality.
- What additional information are required to produce more relevant indicators: from a strict economic point of view, other indicators exist that are much more reliable than GDP to measure well-being, like NDP (Net Domestic Product, that entails also

depreciation and is therefore more difficult to calculate) or net national disposable income (that also captures the income generated by residents abroad, and the income received from abroad). The measurement of the value of services, especially those offered by public administration, should also be improved. Finally, an effort should be made to consider together income, wealth and consumption, as only the three concepts together offer a real representation of well-being from an economic point of view.

- Assess the feasibility of alternative measurement tools: the problem is not only to find measures that matter, but also measures that can be measured in practice and that, at the same time, give a coherent image not only of how much wealth there is, but also of how this wealth is distributed. Also, effective variables should be introduced to measure the “quality of life”.

The result of the work of the Commission was a Report, published in 2010, addressed to politicians, policy makers, academics and the civil society. The Report tries to give practical answers to solve the problems stated above, and to offer a new framework that takes into consideration current well-being, in terms of both economic and non-economic terms, and the sustainability of this well-being through time.

The most important problem to be addressed in doing so is to “accommodate the tension between inclusiveness and measurability” (p. 85). Let’s take for instance the mere measurement of the economic aspects that affect well-being: while calculating them, it would be of great importance to take into account as many products and services as possible, even those that people “give to themselves”, like child care, housekeeping or parents’ education of children. Nonetheless, these aspects are extremely difficult to measure, and too many assumptions must often be made to calculate them, thus undermining the usefulness of the indicators. Therefore, the need for inclusiveness must always be counterbalanced by measurability, i.e. the possibility for a concept to be actually measured in a way that is statistically consistent.

The Commission faced this problem using some methodological rules. One of this rule was to start with relatively narrow measures, and then increase inclusiveness, moving towards

broader indicators of living standards or complementing existing indicators with additional indicators covering neglected dimensions of well-being, without necessarily attempting to aggregate all the dimensions into a single summary index of living standards.

This approach led the Commission to:

- prefer the measurement of the monetary value of income rather than of products
- focus also on consumption rather than on simple income, in order to measure not only the money that people have, but the wealth that they can buy through it;
- focus on households, instead of nations as a whole;
- prefer the use of net indicators over gross indicators, that do not take into account depreciation, together with degradation and depletion of economic and environmental resources;
- use set of indicators that do not only focus on average values, but also on median values, to better reflect the distribution of resources, not only their amount;
- introduce subjective measures of well-being, that focus on how people feel instead of how much they have;
- focus on *capabilities*, i.e. set of activities and conditions that are perceived as fundamentals by individuals (like health, knowledge, social connections, or having a meaningful job) accompanied by the freedom to choose among the various combinations of these capabilities.

Following these standards and guidelines, the Commission set up a series of advices and recommendations, rather than a complete framework of indicators: the Report of the Stiglitz-Sen-Fitoussi Commission pinpoints a series of indicators that could be used to better measure the different economic, social and individual aspects of well-being, but neither defined a common set of indicators for all countries, nor gave the actual measurement rules and conditions for all the indicators, leaving these tasks to other organizations.

### **1.3 The OECD “Better Life Initiative”**

Another proof of the great interest in the late 2000’s and the first 2010’s for the topic of well-being is the Better Life Initiative, promoted by the Organization for Economic Co-operation

and Development - OECD. This initiative is of great importance for our research, as it might be considered the predecessor of the Italian BES indicators: their frameworks and overall structures are, in fact, very similar in many respects.

The aim of the OECD project is to answer important questions, like “Are our lives getting better? How can policies improve our lives?” and especially “Are we measuring the right things?”. This last question is actually crucial. In fact, as stated in the OECD website:

In recent years, concerns have emerged regarding the fact that macro-economic statistics, such as GDP, don't provide a sufficiently detailed picture of the living conditions that ordinary people experience. While these concerns were already evident during the years of strong growth and good economic performance that characterised the early part of the decade, the financial and economic crisis has further amplified them. Addressing these perceptions is of crucial importance for the credibility and accountability of public policies but also for the very functioning of democracy.

Societal progress is about improvements in the well-being of people and households. Assessing such progress requires looking not only at the functioning of the economic system but also at the diverse experiences and living conditions of people.<sup>2</sup>

Given this goal, the OECD has been working during the last 15-20 years in order to collect reliable data, and finally used them to build a coherent and complete framework of indicators to represent and give a consistent measure of the complex and multi-faceted concept of well-being. This effort brought to the publication, in 2011, of the first “How is Life?” report, that have been followed by the 2013, 2015, 2017, and 2020 editions.

The framework has remained the same in all the five editions of the report. It is multidimensional and covers 11 different domains, namely:

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<sup>2</sup> See <http://www.oecd.org/statistics/measuring-well-being-and-progress.htm>

- Income and Wealth
- Housing
- Work and Job Quality
- Health
- Knowledge and Skills
- Environmental Quality
- Subjective Well-being
- Safety
- Work-life Balance
- Social Connections
- Civic Engagement

These domains take into account economic conditions (Income and Wealth, Housing, Jobs and Earnings) and quality-of-life factors (Health, Knowledge and Skills, Environmental Quality, Subjective Well-being, Safety), with a focus also on how people relate with each other and how involved they are in their communities (Work-Life Balance, Social Connections, Civic Engagement). Each domain is composed of different indicators (ranging from two to eight per domain, for a total of 53), whose role is both to calculate average values for entire countries, and, at the same time, to spot inequalities. The importance of this aspect must be stressed out: indicators like household income, for instance, measure the average level of a quantitative or qualitative variable for the whole country, but do not reflect the different distributions of that variable among social groups. The different distribution of resources generates inequalities, that must be taken into account and measured via dedicated indicators.

The OECD report analyzes three different kinds of inequalities, namely gaps between population groups (e.g. between men and women, old and young people, etc.); gaps between those at the top and those at the bottom of the achievement scale in each dimension (e.g. the income of the richest 20% of individuals compared to that of the poorest 20%); and deprivations (i.e. the share of the population falling below a given threshold of achievement, such as a minimum level of skills or health).

The above-mentioned domains deal with current well-being, but the OECD framework includes also four further domains, whose role is to measure the resources for future well-being. These resources are natural capital, human capital economic capital and social capital, and they are analyzed in terms of stocks, flows, risk factors and resilience. To measure these aspects, 35 indicators are used.

The OECD report seem therefore to follow the recommendations of the Stiglitz-Sen-Fitoussi Commission, by setting reliable indicators of economic, social and individual aspects of well-being. Nonetheless, the OECD makes a step further, by actually giving the measures of those indicators for single countries, and also calculating the aspect related to the sustainability of well-being through time.

In the end, well-being is measured by the OECD using a total of 15 domains and 88 indicators. The results of some of the indicators of the 11 domains measuring current well-being are also combined in composite indexes, that are used to summarize the results of countries in each domain and are once more combined to obtain a “Better Life Index”. The Better Life Index is a composite indicator used to establish a sort of ranking among OECD countries, available in the Better Life Index website<sup>3</sup>. Countries are ranked on the basis of their results in each of the domains, that are all given the same weight. Users, though, can manually change the weight of each domain (giving more importance to aspects like health and social connections rather than housing or income) and get their own Better Life Index and their own rank.

What is also interesting in the OECD approach for measuring well-being is the effort for generating statistically relevant data not only at a national, but also at a regional level. This effort brought in 2014 to the creation of the project “How’s life in your region?”, that resulted in a report and a website, both published during the same year. This project follows a very similar framework with respect to the one used by the OECD to measure well-being at the national level: 11 domains<sup>4</sup> are used to measure well-being in the regions of those nations

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<sup>3</sup> See <http://www.oecdbetterlifeindex.org/it/>

<sup>4</sup> The 2019 Report includes only 9 domains. Two more have been added during the years, as demonstrated by the content of the website “OECD Regional Well-Being” <https://www.oecdregionalwellbeing.org>

that decided to participate to the project, like the US, Japan, Italy and many other European countries.

The report, published in 2014, discusses the methodological framework that was applied in building the website “OECD Regional Well-Being”, that contains data (collected with the help of local authorities and statistical institutions) and visual tools to spot, at a glance, the well-being of specific regions, allowing at the same time to make comparisons with other regions all over the world.

Together with the methodological framework for the website, the report also contains seven annexes, that illustrate some regional initiatives concerning the use of well-being indicators in local planning activities. One of these annexes is dedicated to the Sardinian experience, which is of great importance for several reasons. The annex is dedicated to explain how the OECD well-being indicators have been employed to plan the use of the 2014-2020 European development funds (consisting of almost 4.5 billion euros) obtained by the regional government of Sardinia. More specifically, the annex describes how the Sardinian “Centro Regionale di Programmazione – CRP” (Regional Planning Center) compared the values of the well-being indicators in Sardinia with those of other regions, in order to spot those domains in which Sardinia stood behind and, therefore, needed to make more investments. The importance of this annex must be here underlined, as this is one of the first examples of the use of well-being indicators in planning activities, with the specific goal to improve social progress and development.

#### **1.4 Scales, simple indexes and composite indicators?**

Now, before moving on, we would like to define a few concepts that will be largely used in the rest of this thesis, namely indexes and indicators<sup>5</sup>.

To do this, we need to start with another concept: scales. A scale is a measurement tool which is endogenous to the fact: in other words, a scale is directly related with the structure and nature of the fact that it represents, and not with similar or related facts. As such, a scale

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<sup>5</sup> For the content of this paragraph, see Delvecchio (1995).

doesn't represent anything more than the simple concept to which it is related. In the context of this thesis, an example of a scale could be the GDP, in the sense that it is a direct measure of the monetary value of the goods and services produced in one country.

Now, let's take a scale and make some elaborations with it. For instance, let's take GDP itself and divide it by the population of that country: in this case we will get GDP per capita, which is called a simple index or simple indicator. A simple index is, in fact, the numerical dimension of a measurable phenomenon, built relating a datum with another, used as a reference point.

Finally, a composite index or indicator is a tool to indirectly measure a complex phenomenon, that cannot be observed and measured directly, but can be measured by directly analyzing other phenomena that are conceptually similar. The case of well-being is a perfect example: it is a complex, multi-faceted concept, that cannot be observed and measured directly, and therefore requires other measures to be described. These 'other measures' are, usually, scales and simple indexes that, by themselves or, more often, together with other scales and indexes, give a representation of the concept at stake. It is pretty clear from what we just said that scales and simple index can become indicators, but not the opposite: since indicators are indirect measures, they cannot be used to directly measure anything.

Indicators are, of course, the most difficult tool among the three, as it is not always easy to build a good indicator. To be useful, indicators must be *valid* (their concept must be correct and complete, in order to produce a good representation of the complex phenomenon that we want to measure) and *reliable* (they must produce the same results, given the same initial circumstances). Both these characteristics are far from being easy to obtain when it comes to social indicators, i.e. indicators that are used to measure social phenomena. Validity, in particular, creates problems: given the huge amount of variables involved, and also the different theories, approaches, and points of view in the field of social studies, it is very difficult to build a complete and definitive concept for social variables.

Another important problem is, also, that social phenomena can rarely be interpreted using single variables. Simple indicators, i.e. the ones that are used to measure single facts, are usually inadequate to measure complex phenomena; and composite indicators, i.e. the ones

made by collecting and weighting different indicators together, are often difficult to calculate, less reliable, and also less accessible, since they need more complicated theoretical approaches and statistical tools to be built and interpreted. An overview of the pros and cons of composite indicators is available in Table 1.

PROS	CONS
<ul style="list-style-type: none"> <li>- Can summarize complex, multi-dimensional realities with a view to supporting decisionmakers.</li> <li>- Are easier to interpret than a battery of many separate indicators.</li> <li>- Can assess progress of countries over time.</li> <li>- Reduce the visible size of a set of indicators without dropping the underlying information base.</li> </ul>	<ul style="list-style-type: none"> <li>- May send misleading policy messages if poorly constructed or misinterpreted.</li> <li>- May invite simplistic policy conclusions.</li> <li>- May be misused, e.g. to support a desired policy, if the construction process is not transparent and/or lacks sound statistical or conceptual principles.</li> <li>- The selection of indicators and weights could be the subject of political dispute.</li> </ul>

Table 1: Pros and Cons of the composite indicators (OECD, 2008)

Indicators are the final step of a complicated path, that starts with scales, moves to simple indexes and indicators and ends with composite indicators. How many scales, indexes and simple indicators are needed to make a good composite indicator? There is no right answer for such a question: it depends on the concept that we are trying to explain, on its dimensions and on the degree of detail that we want and need to obtain.

In the next chapter, we will analyze the framework of simple and composite indicators that have been established to measure well-being in Italy.

## CHAPTER 2

### THE ITALIAN INDICATORS OF WELL BEING

#### 2.1 The Italian BES Indicators

Following the debate that arose from the Stiglitz-Sen-Fitoussi Commission and the example of the OECD Better Life Program, the Istituto Nazionale di Statistica (National Institute of Statistics, from now on Istat) decided in 2013 that it was time to measure the welfare of the nation by building its own set of well-being indicators.

As stated in the Istat website, “the project to measure equitable and sustainable well-being aims at evaluating the progress of society not only from an economic, but also from a social and environmental point of view”<sup>6</sup>. The goal is therefore very similar with respect to the OECD Better Life Initiative. The approach is also very similar: Istat identified 12 different domains, selecting for each of them several simple indicators, for a total of 130 indicators. For each indicator, a value is calculated at both a national and a regional level: the availability of data at a regional level is of great importance, as it allows the Istat and academics to find and analyze differences among the different regions, which is very important in a country like Italy, well-known for its Nord-South divide and for a quite unequal distribution of economic resources.

The data concerning the indicators are used to write an annual report, published on a yearly basis in December, that collect the last values available and comment on the annual and long-term variations. The last edition was published in December 2019, and is available, like all previous editions, in the Istat website<sup>7</sup>. The report includes a foreword from the President of Istat, an overview of the most important changes concerning the well-being indicators in the

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<sup>6</sup> See <https://www.istat.it/en/well-being-and-sustainability/the-measurement-of-well-being>

<sup>7</sup> See [https://www.istat.it/it/benessere-e-sostenibilit%C3%A0/la-misurazione-del-benessere-\(bes\)/il-rapporto-istat-sul-bes](https://www.istat.it/it/benessere-e-sostenibilit%C3%A0/la-misurazione-del-benessere-(bes)/il-rapporto-istat-sul-bes)

last year(s) and a chapter for each one of the 12 domains, where data and information are shared and interpreted more thoroughly. A final section is dedicated to give an overview of well-being at a regional level, using some composite indicators that we are going to analyze more in detail at the end of this chapter.

Since 2019, the report is published both in Italian and in English, to guarantee access to both national and international academics and analysts. Finally, the report is published and shared using the Creative Commons-Attribution license, one of the most open copyright licenses available, that allows anyone to use and adapt the contents of the report with the only obligation to mention the source of the information.

It is extremely important to notice from this moment that the Italian BES indicators do not have only an academic scope but are also used for political purposes. Since 2016, in fact, a selection of the BES indicators must be included by law in the so called “Documento di economia e finanza – DEF”, the annual document that contains a synthesis of the national economic planning, as established by the Government. In fact, through the Law 163/2016, which reformed the Italian Budget law, the Government decided that the BES indicators should contribute to define those economic policies which largely affect some fundamental dimensions of the quality of life. To avoid confusion and make possible a more practical use, not all the 130 indicators have been included in the DEF: a commission composed of representatives from the Italian Ministry of Economy and Finance, Istat and the Bank of Italy, plus two renowned experts, was set up in 2016 to select a short list of indicators from the BES set, to be considered annually in the DEF and in an annual Report to the Parliament. This commission selected the first 4 indicators in 2017, and 8 more indicators were added later during the same year. As of today, 12 indicators are used by the Government to both analyze the results of public economic policies and to program the future ones. We will analyze more in detail in the next chapter the use of BES indicators in the DEF and in the Report to the Parliament.

## **2.2 What are the Italian BES indicators?**

To get a more thorough understanding of what the BES indicators really are, in the following paragraphs we will give a brief overview of the 12 domains. In this chapter we are only going

to give some basic information: Annex 1 contains the list of the 130 indicators of the 12 domains together with a description of how each indicator is calculated (as available in the BES Report 2019).

### **2.2.1 Health**

This domain is composed of 13 indicators:

- Life expectancy at birth
- Healthy life expectancy at birth
- Mental health index
- Infant mortality rate
- Road accidents mortality rate (15-34 y.o.)
- Age-standardized cancer mortality rate (20-64 y.o.)
- Age-standardized mortality rate for dementia and nervous system diseases (65 years and over)
- Life expectancy without activity limitations at 65 years of age
- Overweight or obesity
- Smoking
- Alcohol consumption
- Sedentariness
- Adequate nutrition

Some of these indicators are obtained including the entire population, like for instance “Life expectancy at birth”, “Infant mortality rate”, “Cancer mortality rate” etc. Other indicators, instead, are calculated using the results of surveys that include only a sample of the population, like for instance “Healthy life expectancy at birth”, “Smoking”, “Alcohol consumption” etc.

### **2.2.2 Education and training**

This domain is composed of 11 indicators.

- Participation in the school system of children aged 4-5
- People with at least upper secondary education level (25-64 years)
- People having completed tertiary education (30-34 years)

- First-time entry rate to university by cohort of upper secondary graduates
- Early leavers from education and training
- People not in education, employment, or training (Neet)
- Participation in life-long learning
- Inadequate level of literacy
- Inadequate level of numeracy
- People with high level of IT competencies
- Synthetic indicator of the level of cultural participation

The goal of this domain is to give a measure of how many people are studying or have studied, and also the quality of their education in terms of the skills they obtained. As in the case of Health, some of these indicators are obtained by mere mathematical calculations and include the entire population, whereas other indicators are measured using the results of surveys that include only a sample of the population.

### **2.2.3 Work and life balance**

This domain is made of 14 indicators.

- Employment rate (20-64 year-olds)
- Non-participation rate
- Transition rate (12 months time-distance) from non-standard to standard employment
- Share of employed persons with temporary jobs for at least 5 years
- Share of employees with below 2/3 of median hourly earnings
- Share of over-qualified employed persons
- Incidence rate of fatal occupational injuries or injuries leading to permanent disability (per 10,000 employed)
- Share of employed persons not in regular occupation
- Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children
- Share of employed people aged 15-64 years working over 60 hours per week (including paid work and household work)
- Share of household work time carried out by women in a couple on the total of the household work time

- Share of employed persons who feel satisfied with their work
- Share of employed persons who feel their work unsecure
- Involuntary part time

These indicators deal with very different aspects related to jobs: it focuses on merely numerical aspects, like the amount of people employed or NEET, as well as on access to work and on gender-based differences. Attention is also given to non-standard, short-term jobs, and on safety during work hours.

#### **2.2.4 Economic well-being**

This domain is composed of 10 indicators.

- Per capita disposable income
- Disposable income inequality
- People at risk of poverty
- Per capita net wealth
- People living in financially vulnerable households
- People living in absolute poverty
- Severe material deprivation rat
- Severe housing deprivation
- Index of economic distress
- Very low work intensity

In this domain, GDP and GDP per capita are not used. Another indicator, namely the Per capita disposable income, is used: as we have seen in the previous chapter, this is a better measure for the real purchase power of individuals and households. Other indicators focus on income distribution (like the “Disposable income inequality” indicator), and many on the measurement of poverty.

#### **2.2.5 Social relationship**

This domain includes 9 indicators.

- Satisfaction with family relations
- Satisfaction with friends relations

- People to rely on
- Social participation
- Civic and political participation
- Voluntary activity
- Association funding
- Nonprofit organizations (per 10,000 ab.)
- Generalized trust

Most of these indicators are obtained using the results of surveys that include only a sample of the population. This domain includes very subjective indicators, that respond to the need of giving reliable measures of concepts like satisfaction and trust.

### **2.2.6 Politics and institutions**

This domain is made of 12 indicators.

- Voter turnout
- Trust in the parliament
- Trust in judicial system
- Trust in political parties
- Trust in police and fire brigade
- Women and political representation in Parliament
- Women and political representation at regional level
- Women in decision-making bodies
- Women in the boards of companies listed in stock exchange
- Mean age of members of Parliament
- Length of civil proceedings
- Prison density

This domain, like the previous one, focuses also on the measure of hard-to-quantify concepts, like trust in politics. Many of the indicators are concerned not only with participation in politics itself, but also with the equal conditions of access to active politics for women and young people. The last two indicators (“Length of civil proceedings” and “Prison density”) focus on the quality of legal institutions.

### **2.2.7 Safety**

This domain includes 11 indicators.

- Homicide rate
- Burglary rate
- Pick-pocketing rate
- Robbery rate
- Physical violence against women
- Sexual violence against women
- Intimate partnership violence against women
- Worries of being victim of a sexual violence
- Feelings of safety when walking alone at night
- Concrete fear of crime
- Social decay (or incivilities)

The first seven indicators give a quantitative measure of crime itself, whereas the last four measure the perception of safety that people experience in the environment they live in.

### **2.2.8 Subjective well-being**

Only four indicators are included in this domain.

- Life satisfaction
- Leisure time satisfaction
- Positive judgement future perspectives
- Negative judgement future perspectives

All these indicators measure the perception of well-being (they are, in effect, subjective), and they are all built through surveys.

### **2.2.9 Landscape and cultural heritage**

This domain includes 11 indicators.

- Current expenditure of Municipalities for culture
- Density and importance of museums' heritage

- Illegal building rate
- Erosion of farmland from urban sprawl
- Erosion of farmland from abandonment
- Pressures of mining and quarrying activities
- Impact of forest fires
- Spread of rural tourism facilities
- Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest
- People that are not satisfied with the quality of landscape of the place where they live
- Concern about landscape deterioration

Only two indicators deal with culture, giving quantitative measures of how much money is spent in cultural activities and of the number of museums. The remaining seven indicators focus on quantitative aspects that describe the quality of the landscape, whereas the last two try to give measures of subjective concepts, like satisfaction and concern for the landscape.

#### **2.2.10 Environment**

18 indicators are included in this domain.

- Emissions of CO<sub>2</sub> and other greenhouse gases
- Domestic material consumption
- Water losses in urban supply system
- Landfill of waste
- Quality of urban air - PM<sub>10</sub>
- Quality of urban air - Nitrogen dioxide
- Coastal bathing waters
- Urban green
- Satisfaction for the environment
- Contaminated sites
- Population at risk of landslides
- Population at risk of flood
- Sewage treatment
- Protected natural areas

- Concern for biodiversity loss
- Electricity from renewable sources
- Separate collection of municipal waste
- Soil sealing from artificial land cover

This is the domain with the highest number of indicators, measuring both objective and subjective aspects related to the environment. The main focuses are air pollution, waste production and treatment, energy, and protection of the environment.

### **2.2.11 Innovation, research and creativity**

This domain is made of 7 indicators.

- R&D intensity
- Patent propensity
- Impact of knowledge workers on employment
- Innovation rate of the national productive system
- Intellectual property products
- Cultural employment
- Brain circulation

These indicators measure both how much research is made, and the impact of this research in terms of how many people work in research and of the number of patent applications. One indicator is dedicated to measure the percentage of people working in the field of culture.

### **2.2.12 Quality of services**

To conclude, this domain includes 10 indicators.

- Beds in residential health care facilities
- Children who benefited of early childhood services
- Integrated home assistance service
- Composite index of service accessibility
- Broadband coverage
- Irregularities in water supply
- Irregularities in electric power distribution

- Seat-Km of public transport networks
- Time devoted to mobility
- Satisfaction with means of transport

These indicators are built in order to give some quantitative and qualitative information of some basic services, like health care, children care, access to the Internet, and mobility.

### **2.3 The Composite Indicators of well-being**

The 130 indicators of well-being are a powerful tool to give a complete and differentiated interpretation of the welfare of Italian regions and of Italy as a whole. But the need for differentiation of the data must be also accompanied and counterbalanced by a need for unification. In fact, even if well-being is a multidimensional concept that cannot be reduced to a single measure, it is also important aggregating the information of several well-being indicators into a reduced number of composite indicators, that could be much more helpful when it comes to policymaking and benchmarking (Ciommi et. al., 2017).

A composite indicator is made putting together simple indicators by using an underlying model (OECD, 2008): in other words, the values of the single indicators within a domain are “collected” in order to build composite indicators, that offer a more general, more accessible and overall measure of each domain.

In building the composite indicators, two aspects must be considered:

- how many of the simple indicators in a domain can or should be used in the calculation of the composite indicator. What guides the process here is the concept that the composite indicator needs to reflect: some single indicators, even those included in the same domain, do not represent or refer to the same concept and, if put together, could bring to misleading or too complicated results.
- the polarity of indicators: not all indicators affect a domain in the same way. Some of them affect the domain positively, in the sense that the increase in their value indicates an improvement, whereas other indicators affect the domain negatively, as an increase in their values is a sign of deterioration.

In the case of the Italian BES, the effort for building composite indicators started with the publication of the 2015 edition of the report, when the first 9 composite indicators were calculated and published. The 9 indicators have been integrated and slightly changed during the years. In the 2019 edition of the report they are 15, covering all the BES domains. They are:

- Health
- Education and Training
- Employment
- Work quality
- Income and inequality
- Minimum living conditions
- Social relationships
- Politics and Institutions
- Homicide
- Property crimes
- Subjective well-being
- Landscape and cultural heritage
- Environment
- Innovation, research and creativity
- Quality of services

The composite indicators are 15, so they exceed the number of the domains. This is a response to what we said earlier: some single indicators, even those included in the same domain, do not represent or refer to the same concept, so in some cases more than one composite indicator is needed for the same domain (see, for instance, the “Employment” and “Work quality” composite indicators, that refer both to the domain “Work and life balance”).

On the other side, not all simple indicators are included in the composite indicators. Let’s take, for instance, the domain Health, which is made of 12 indicators, whereas the composite indicator only uses three of those indicators. The complete set of the simple indicators used

in the 2019 BES report to build the composite indicators, together with their polarity, is available in Table 2.

<b>INDICATORS</b>	<b>POLARITY</b>
<b>HEALTH</b>	
Life expectancy at birth	+
Healthy life expectancy at birth	+
Life expectancy without activity limitations at 65 years of age	+
<b>EDUCATION AND TRAINING</b>	
Participation in the school system of children aged 4-5	+
People with at least upper secondary education level (25-64 years old)	+
People having completed tertiary education (30-34 years old)	+
Early leavers from education and training	-
Participation in life-long learning	+
<b>EMPLOYMENT</b>	
Employment rate (20-64 years old)	+
<b>WORK QUALITY</b>	
Share of employed persons with temporary jobs for at least 5 years	-
Share of employees with below 2/3 of median hourly earnings	-
Share of employed persons not in regular occupation	-
Share of employed persons who feel satisfied with their work	+
Involuntary part time	-
<b>INCOME AND INEQUALITY</b>	
Per capita disposable income	+
Disposable income inequality	-
<b>MINIMUM LIVING CONDITIONS</b>	
Severe material deprivation rate	-
Severe housing deprivation	-
Index of economic distress	-
Very low work intensity	-

<b>SOCIAL RELATIONSHIPS</b>	
Satisfaction with family relations	+
Satisfaction with friends' relations	+
People to rely on	+
Social participation	+
Civic and political participation	+
Voluntary activity	+
Association funding	+
Generalized trust	+
<b>POLITICS AND INSTITUTIONS</b>	
Trust in the parliament	+
Trust in judicial system	+
Trust in political parties	+
Trust in police and fire brigade	+
Women and political representation at regional level	+
Length of civil proceedings	-
Prison density	-
<b>HOMICIDE</b>	
Homicide rate	-
<b>PROPERTY CRIMES</b>	
Burglary rate	-
Pick-pocketing rate	-
Robbery rate	-
<b>SUBJECTIVE WELL-BEING</b>	
Life satisfaction	+
<b>LANDSCAPE AND CULTURAL HERITAGE</b>	
Current expenditure of Municipalities for culture	+
Illegal building rate	-
Spread of rural tourism facilities	+
People that are not satisfied with the quality of landscape of the place where they live	-

<b>ENVIRONMENT</b>	
Water losses in urban supply system	-
Landfill of waste	-
Quality of urban air	-
Urban green	+
Satisfaction for the environment	+
Protected natural areas	+
Electricity from renewable sources	+
Separate collection of municipal waste	+
<b>INNOVATION, RESEARCH AND CREATIVITY</b>	
R&D intensity	+
Impact of knowledge workers on employment	+
Cultural employment	+
<b>QUALITY OF SERVICES</b>	
Beds in residential health care facilities	+
Children who benefited of early childhood services	+
Composite index of service accessibility	-
Irregularities in water supply	-
Seat-Km of public transport networks	+
Satisfaction with means of transport	+

*Table 2: Composite indicators and their single indicators, together with their polarity*

Another important issue in building composite indicators is the underlying statistical and mathematical approach. Istat opted for the AMPI (Adjusted Mazziotta-Pareto Index), which consists of aggregating, through the arithmetic mean, the elementary indicators transformed by the method of the min-max. Here we are less interested in the statistical specificities of this method rather than on the path that brought to this choice, which can be found in the 2015 BES report.

Since June 2012, six synthesis methods have been explored and experimented to build the composite indicators from the 130 simple BES indicators. Those methods needed to enjoy a number of requirements, both theoretical and practical, namely:

- spatial comparability, i.e. the possibility to compare synthesis values between territorial units;
- temporal comparability, i.e. the possibility of comparing synthetic values over time;
- the non-replaceability of elementary indicators, i.e. the impossibility of compensating the value of one elementary indicator with that of another;
- the simplicity and transparency of calculation;
- the immediate use and interpretation of the output results;
- the robustness of the results obtained.

It is important here to underline one of these characteristics: together with all the other desirable properties, the chosen method must generate composite indicators with a high level of simplicity, in order to facilitate their communication and dissemination among insiders and other stakeholders. The diffusion of a composite index, in fact, owes its success to the combination of statistical rigor and a high level of communicability. It is no coincidence that among the best-known composite indicators there is also the Human Development Index (HDI), which is based on a small number of simple indicators (four in total) aggregated together.

The experimentation on the six different methods was carried out using the software COMIC (COMposite Indices Creator). The COMIC software was created to respond to the need of calculating and comparing the composite indices using each one of the six chosen methods, without having to resort to computer programs written ad hoc. COMIC allows users, through a series of user-friendly menus, to apply one or more synthesis methods to the elementary indicators specified, and provides effective reporting in output. In particular, it performs an exploratory analysis of input data, produces the summaries according to the chosen method, the relative rankings per specified geographical unit, the geographical maps and historical series of the composite indices, graphs, etc., allowing an effective comparison among the methods. Finally, COMIC made also possible to evaluate whether, and with what intensity, the

rankings of the geographical units changed following the removal or the addition of an elementary indicator from the starting set.

The analysis through the COMIC software showed that the AMPI method was the only method capable of respecting all the theoretical and practical requirements that we have seen above. Probably the most important technical aspect of the AMPI method is the fact that it puts in place a normalization process. Most of the simple indicators do not have a default variation range and, therefore, setting a 'closed' field could be misleading. For this reason, it is preferable to normalize the indicators to an 'open' scale, where the reference level is a central value of 100. This form of normalization makes it possible to carry out time comparisons: the central value becomes, in fact, the reference point to calculate performances in previous or past years.

Let's take, for example, the domain "Education": the value for the entire country in 2010 represents the base value and is fixed at 100. The trend of the index is then measured with respect to this base value, that in the specific case of education shows a steady improvement over time, from 97.7 in 2008 to 106.6 in 2017. This form of normalization also allows territorial comparisons, by comparing different regions in a given year (for example, in 2017 the regions of South Italy had much lower values for the composite index "Education" than the regions of Central and North Italy) or the same region through the years (for example, Bolzano in 2008 was very behind the average of the North regions, but thanks to an investment important in vocational education and training has improved a lot, reaching and then overcoming the average of the North regions.)

Now we know what the BES indicators are, how they are calculated and how they can help us understanding the improvements or deterioration in the various domains of well-being. Still, many important questions remain unanswered, like: how the BES indicators affect political and economic choices at a national and local level? Are they used effectively? And how could their use be improved in order to help politicians and administrators in programming future activities. The next chapter is dedicated to answer these questions.

## CHAPTER 3

### WELL-BEING INDICATORS AND POLITICAL PLANNING

#### 3.1 The BES indicators in the national planning cycle

As we have just seen in chapter 2, the Italian government chose in 2016 to include the indicators of well-being in its political and economic planning documents. This choice made Italy the first country in the European Union and in the G7 to adopt the well-being indicators within its planning framework. In fact, the Law no. 163/2016, which reformed the Italian Budget law, forces the Italian Government to take into account in some of its yearly economic documents the evolution of the most relevant dimensions of well-being in the last three years, and to systematically assess the impact of the planned policies in the following three years.

The same law also states, in the articles number 1 and 14, the steps for the BES indicators to be practically implemented in the political planning of the government. The first step was the creation of a Committee, whose role was to select the well-being indicators to be included in the documents and reports of the government. As stated in the article 14 of the law 163/2016, the Committee had to be chaired by the Ministry of Economy, or by one of its delegates, and composed by the President of ISTAT, the Governor of the Bank of Italy (or their representatives), as well as two experts in the field, coming from universities and research institutions and with renowned scientific experience. The task of the Committee was to “select and define, on the basis of national and international experiences, the indicators of equitable and sustainable well-being” to be used by the government in its planning activities.

The Committee used four main criteria to select the appropriate BES indicators.

1. **Sensitivity**, to public policies: since the goal is to evaluate the public policies, the indicators to be selected have to be “sensitive” to these policies. In other words, they need to be measures of things and concepts that are actually affected by the public policies, and they also need to be responsive to these policies. This responsiveness

should also be measured within a three-year period, i.e. within the time frame of public financial documents. The choice of indicators on the basis of a higher or lower sensitivity to regulatory interventions should also be balanced by the opportunity to include variables that are actually crucial for well-being in the long run.

2. **Economy**, A large set of indicators better captures the complexity of the different domains and would also allow the impact of specific policies to be refined, but at the cost of an increasing effort in focusing on measures that, while relevant, describe the well-being of a group rather than the whole society, or whose meaning in terms of well-being is also caught by other measures. In other words, a broader set of variables would produce more information, but a limited number of indicators has to be preferred in this context. Narrowing the selection also makes it easier to shift the public debate from an almost exclusive focus on GDP to a more complex and complete articulation. The point of introducing the BES indicators in the economic and political discussion is in fact crucial, if we want that the inclusion of well-being indicators in the budgetary process does not turn into a mere bureaucratic or formal exercise.
3. **Feasibility**, From this point of view, two things must be taken into account: on the one side, the availability of data that are up-to-date or likely to be aligned, from a temporal point of view, with the estimation of the impact of economic policies; on the other, the tractability of the chosen variables with the analytical tools used in the MEF or by the Government in order to perform the required forecasting activities. The law asks, in fact, to select and define indicators that the Government can use to evaluate the impact of the programmed actions. Moreover, the focus should not only be on the models that are available today, but also on those that are realistically achievable in the future.
4. **Timing**, extension and frequency of time series. Updated and relatively frequent time series improve the possibility to use the relevant indicators both to describe the evolution of the context and to assess public policies. The selection must therefore take into account, among the indicators with all the requirements, only those that are currently available and that the ISTAT can keep measuring with increasing timing and accuracy.

The selection of the final indicators reflects the different criteria described above in different ways. The criterion of "feasibility", for example, led to the exclusion of indicators that deal with the perception of a phenomenon (the so-called "subjective indicators") although their importance is crucial when measuring the level of the citizens' well-being. The "timely, extension and frequency of series" criterion, in turn, has forced to exclude many indicators detected through surveys that are carried out at wide time intervals. And the sensitivity criterion led to the choice of indicators that are easy to interpret and whose measure cannot be artificially influenced by the political decision-makers (e.g. by determining a level of the indicator via administrative tricks, that do not have real effects on the well-being of citizens).

The criterion of "economy" was also crucial: all other things being equal, the Committee has given priority to indicators that better represent the dimension of well-being because they cover, for instance, a wider audience of citizens, or because they capture more aspects of a specific phenomenon. Therefore, with the help of the technical structures of ISTAT, complex analysis have been carried out in order to measure the statistical correlation, over time and between regions, of individuals indicators among each other and with GDP, in order to isolate those indicators that have the highest representativeness of well-being and are, at the same time, less directly related to GDP itself.

The selection of the indicators following the previous criteria took longer than expected, also because of the need to constantly confront the work of the Committee with the other international experiences on this topic. In early 2017 only 4 indicators were selected and used in the economic planning documentation of the government. Later during the same year, namely in October 2017, the Committee finally identified the 12 indicators among the 130 included in the BES Reports, that have been used until today. This is the complete list of the indicators:

1. Per capita adjusted disposable income
2. Disposable income inequality
3. People living in absolute poverty
4. Healthy life expectancy at birth
5. Overweight or obesity
6. Early leavers from education and training

7. Non-participation rate in work
8. Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children
9. Predatory crime index
10. Length of civil proceedings
11. Emissions of CO2 and other greenhouse gases
12. Illegal building rate

10 indicators are exactly the same as the ones in the BES report. The Per capita adjusted disposable income is a modification of the Per capita disposable income of the BES report, which is adjusted by including the value of the services that are supplied by public administration and non-profit organizations. The Predatory crime indicator, then, is obtained by aggregating three indicators, namely burglary, pickpocketing and robbery rate per 1,000 inhabitants.

The selected indicators not only meet the four abovementioned criteria but also appear consistent with the logical architecture of the Report of the "Stiglitz-Sen-Fitoussi Commission": the final set of indicators, on the one hand, offers a measure of current well-being, of its distribution and of its degree of sustainability over time; on the other, generates a much more reliable representation of both the monetary and non-monetary living conditions of the households than GDP could ever do.

By admission of the Committee itself, the set of 12 indicators gives a partial representation of the many dimensions of well-being. For example, the requirement imposed by the law to include the indicators in some economic documentation (the economic documentation that we will analyze in the next paragraph) led to the exclusion of the whole range of subjective indicators, which refer to the perception of well-being and are therefore of great importance in capturing the level of well-being of citizens. The feasibility criterion brought to the exclusion of other important dimensions, such as social mobility or the diffusion of mafia, due to the lack of those statistical information that the political use of these indicators requires.

In the last part of the report, the Committee also provided three recommendations to politicians and administrators. In fact, since the assessment of well-being in budget laws is a complex task, the Committee advised to:

- periodically review the set of indicators, in order to keep them relevant. The relevance should be evaluated in terms of the capacity of the indicators to both give an adequate representation of the economic and social development and incorporate any important statistical and methodological development or innovation.
- enrich the description of evolution of well-being in the three years preceding the DEF document with the use of more indicators, together with those that the law requires.
- invest in the strengthening and the development of new statistical models to better forecast the impact of public policies on well-being and, therefore, to make the implementation of the well-being indicators faster and easier.

### **3.2 Government documentation**

Once selected, the indicators had to be approved by the prime minister and by a parliamentary commission, and then had to be included within two documents: an annex to the “Documento di Economia e Finanza”, and a “Relazione sugli indicatori di benessere equo e sostenibile”, due to the Parliament by February 15<sup>th</sup> of each year.

The “Documento di Economia e Finanza” or “DEF” is the annual document that contains a synthesis of the national economic planning, as established by the Government. It is published on a yearly basis and, since 2017, also has an annex dedicated to the well-being indicators, that contains a description of the evolution of the BES indicators over the last three years, and the forecasts of their development over the period covered by the DEF itself (normally, the following three years). Since the work of the Committee was still not completed in early 2017, the 2017 annex to the DEF is very small (only 18 pages) and contains an experimental analysis of the four indicators that were firstly chosen. The BES annex to the DEF became longer and more complex in the following years. The last one available is the 2019 Annex, as the 2020 edition as not yet been published.

The “Relazione sugli indicatori di benessere equo e sostenibile” is a report that, as stated above, is due to the Parliament by February 15<sup>th</sup> of each year and must contain a description

of the expected evolution of the BES indicators in the light of the Economic Law approved by the Parliament at the end of the previous year, that normally has a time frame of three years. In other words, the Report focuses on the Annex to the DEF of the previous year, therefore the first edition was published in 2018 and took into account only four indicators. The 2019 and the 2020 editions are much more complex, as they analyze more in detail the complete set of 12 indicators. The 2020 edition, in particular, is a very long and complete one.

In the following paragraphs we will make a brief analysis of the last available documents, i.e. the 2019 Annex to the DEF and the 2020 Report to the Parliament.

### **3.2.1 The 2019 Annex to the DEF**

This document is the third edition of the Annex since the BES indicators were introduced into the economic and financial planning cycle, namely in 2017. The Annex monitors and forecasts the evolution of the 12 indicators selected by the BES Committee, belonging to 8 of the 12 domains of well-being of the ISTAT BES Report. The forecast covers a period of time that goes from 2020 until 2022, in particular for the four indicators already included in the previous Annexes and in the BES Reports to the Parliament. In addition, following the supplementary analysis on absolute poverty made in the 2019 BES Report, the Annex also includes an assessment of the impact of the “Reddito di cittadinanza” (Basic Income), approved by the government in 2019, on the “Absolute poverty” indicator.

A summary of the overall and main results of all the 12 indicators is presented in paragraph I.2, while Section II analyzes more in depth the results in terms of single indicators, dedicating one paragraph to each of them. Each paragraph of Section II includes a descriptive analysis of the indicators, including also disaggregation (e.g. for geographical distribution, gender and age). For those indicators that do not have yet a forecasting methodology, the methodological aspects for the future development of forecasting models are analyzed, as this could be useful for the preparation of the Reports to the Parliament and the Annexes of following years.

The lack of such forecasting models is in fact a big problem, as the existence of statistical and methodological barriers makes it much more difficult to include the 12 BES indicators in the economic programming cycle. The Annex states very clearly that overcoming these statistical

and methodological challenges will require a considerable investment in research, together with a reasonable amount of time: in fact, carrying out reliable forecasts of the performance of the indicators, as required by law, needs both an adequate information base and an economic and statistical modelling system, that do not come easy.

### **3.2.2 The 2020 Report to the Parliament**

The 2020 Report is the third edition of the report and is made of four sections:

- Section I briefly illustrates the twelve BES indicators and summarizes the main findings of the Report.
- Section II describes the measures introduced with the 2020 Budget Law that are considered to be actually relevant for the BES domains, with three more specific focuses on the Green New Deal, the Sugar Tax and the Measures for families and disabled people (affecting respectively the “Environment”, “Health” and “Work and life-balance” domains).
- In Section III, a paragraph is dedicated to each of the 12 BES indicator, which includes a descriptive statistical analysis and, for those indicators for which it is currently possible, a forecast and impact assessments for the 2020-2022 period.
- Finally, Section IV contains an in-depth analysis of the efficiency index of civil justice.

Differently with respect to previous editions, the 2020 edition also has a section to analyze and forecast (when possible) the effects of public policies not only on the single indicators, but more broadly on the 8 domains that the 12 indicators are part of (namely Economic well-being, Health, Education and training, Work and life balance, Safety, Politics and institutions, Environment, and Landscape and cultural heritage).

Another difference with respect to the previous editions is also the introduction of a very complete and accessible table that summarizes all the interventions in the 2020 Budget Law and the well-being domains that the single articles of the Law could affect. An example of this is available in figure 1.

TABELLA II.3: MISURE DELLA LEGGE DI BILANCIO 2020, DL CLIMA, DL FISCO E DL MILLEPROROGHE E DOMINI DEGLI INDICATORI BES <sup>1</sup>									
Misure	Legge di Bilancio 2020 <sup>2</sup>	Benessere economico	Salute	Istruzione e formazione	Lavoro e conciliazione dei tempi di vita	Sicurezza	Politica e istituzioni	Ambiente	Paesaggio e patrimonio culturale
Sterilizzazione clausole salvaguardia IVA e accise	Articolo 1, commi 2 e 3	x							
Fondo per la riduzione del carico fiscale sui lavoratori dipendenti	Articolo 1, comma 7	x							
Fondo investimenti Amministrazioni centrali	Articolo 1, commi 14-15, 24-25 e 27	x	x					x	
Fondo Green New Deal	Articolo 1, comma 85-100	x	x		x			x	
Efficientamento energetico e sviluppo territoriale sostenibile	Articolo 1, commi 29-37	x	x					x	x
Contributi ai comuni per investimenti per la messa in sicurezza degli edifici e del territorio	Articolo 1, commi 38 e 39	x						x	x
Contributi ai comuni per investimenti in progetti di rigenerazione urbana	Articolo 1, commi 42 e 43	x						x	x
Fondo per lo sviluppo sostenibile e infrastrutturale dei comuni	Articolo 1, commi 44-46	x	x					x	x
Contributi ai comuni per la progettazione definitiva ed esecutiva per la messa in sicurezza del territorio	Articolo 1, commi 51-58	x						x	x
Fondo per edifici destinati ad asili nido.	Articolo 1, commi 59-61	x		x	x				
Fondo per lo sviluppo delle reti ciclabili urbane	Articolo 1, commi 47-50	x	x					x	
Contributi per investimenti a province e città metropolitane	Articolo 1, commi 62-64	x	x					x	

<sup>1</sup> Le X poste all'interno dei domini indicano i possibili effetti attesi delle misure analizzate sugli indicatori che appartengono ai vari domini (si veda sezione II).

<sup>2</sup> Le misure si riferiscono alla Legge di bilancio 2020. Qualora fossero interventi previsti dal DL Clima, DL Fisco o DL Milleproroghe verrà diversamente specificato.

Figure 1: The articles of the 2020 Budget Law and the well-being domains they affect (Source: *Relazione sugli indicatori di benessere equo e sostenibile, 2020*)

The table, as we see in the excerpt above, shows for each action in the Economic Law what BES domains are expected to be affected. In this case, all actions are expected to affect the economic well-being, many others the domain “Environment” and “Landscape and cultural heritage”, two the domain “Work and life-balance” and only one the domain “Education”. Reading the table by rows, we can also note that two actions are expected to affect only one domain, whereas all the other actions are expected to affect at least two domains at the same time.

### 3.2.3 Some remarks on the Annex and the Report

The Annex to the DEF and the Report to the Parliament are certainly two extremely important and innovative documents. They are the first example in an EU or G7 country of how well-being could be measured by statistical bodies and experts and then used by politicians and administrators to guide their political and economic choices. Also, the use of a limited number of indicators positively responds to the need, stated in OECD 2009 and Stiglitz et al. 2011, to make statistical precision and political usability converge.

Nonetheless, this seems to be only a first step in the good direction, with more and more relevant steps still to come. In fact, it is pretty clear that the approach used in these documents is descriptive rather than prescriptive. The Annex and the Report literally follow the law, when it prescribes that:

In a special annex to the DEF, prepared by the Ministry of Economy on the basis of the data provided by the ISTAT, are reported **the trends in the last three years** of the equitable and sustainable well-being indicators [...] as well as **the forecasts of the evolution** of the same indicators during the same period. (My translation of the law 163/2016, art. 1, clause 6-g. The bold is mine.)

And also:

With a specific report [...] **the evolution of the trends** of equitable and sustainable well-being indicators [...] is highlighted, on the basis of the effects determined by the Budget Law for a three-year period". (My translation of the law 163/2016, art. 1, clause 6-g. The bold is mine.)

In other words, law 163/2016 only prescribes the Ministry of Economy to use the well-being indicators to describe the measures of the 12 well-being indicators selected by the Committee for the last three years, and to predict how the economic and budget laws are going to affect the same indicators in the following three years. This is of course a good way to understand how public policies affect the well-being of the individuals and of society as a whole, beyond pure economic measures like GDP. Still, what lacks is an in-depth analysis of the single indicators in absolute and comparative terms, together with the prescription of what should be done in order to improve the poor results in specific indicators or domain.

Let's clear this very important point with an example: both the 2019 Annex to the DEF and the 2020 Report to the Parliament give a *description* of how the law for the institution of a basic income, approved in 2019, is expected to affect two indicators, namely "Per capita adjusted disposable income" and "Disposable income inequality". But what is nowhere to be found is

an analysis of why it was actually important to improve those indicators, rather than others. Such an analysis would be not only possible, but also necessary. The data from the annual ISTAT Report on BES indicators should and could be compared with similar data from other countries, or from previous years, or compared also on a regional basis, in order to build reliable benchmarks and spot internal and external differences, that could then help planning the political choices in the future.

A process like the one we have just outlined is completely absent from the Annex and the Report, that, as we have just seen, only *describe* and never *prescribe*. The right place for prescription would be, in fact, the DEF itself, where the actual indications for the future economic choices are made. Nonetheless, the DEF almost never mention well-being: the word “benessere” (Italian for well-being) cannot be found in the 146 pages of the document, that only once mention the “equitable and sustainable development”. The word “sostenibilità” (Italian for sustainability) is actually more used in the DEF, but most of the times it is related with the topic of the sustainability of the Italian debt. The entire DEF deals a lot with pure economic aspects, focusing more on budgetary policies rather than on well-being policies: the environmental and social sustainability are mentioned, but seem always to play a secondary role. Once again, the monetary measures prevail over the more complex, but also more complete, measures of well-being.

The well-being indicators could (and should) be of much more use than just describe and predict: they could be also a useful tool to help programming.

### **3.3 The programming cycle in the Italian Administrations**

Before moving to the description of a potential methodology to apply the BES indicators in the programming cycle of public administrations, we need to give an overall description of how this programming cycle actually works. We are not interested here in giving a specific and complete description for each step, but simply in underlining the main phases. We need here to distinguish between the national level and the local level.

As we have just seen, the most important element of the programming cycle at the national level starts with the DEF, that is published on a yearly basis in April and contains a description

of what the Government is going to do in the following three years and that will affect the economic conditions of the country. Therefore, the DEF explains what are the programs and the projects that the Government is going to fund in the following three years, and how this funding is expected to influence the public finances. The DEF is not a budget law, and not even a law: it is a document that is approved by the Parliament and that binds the Government to follow its own guidelines in the DEF when it comes to write the actual budget law, that must be approved each year by the Parliament by December 31<sup>st</sup>.

Now, an important question arises: how the decisions and projects in the DEF affect the national budget, i.e. its financial statements? And what system is used to report the national public expenditure? The answer can be found in the Law 196/2009, that established the classification system of the State budget which, with regard to the purpose of expenditure, is now divided into three levels of aggregation:

- The Missions, that represent, according to art. 21, paragraph 2, "the main functions and strategic objectives pursued through spending", to which several administrations may contribute. The Missions, in other words, represent the main objectives pursued through public expenditure
- The Programs, that are homogenous clusters of expenditure, whose goal is to achieve the goals established within the missions.
- The Actions, that respond to the need of clarifying the activities, the implemented policies and the provided services, and of simplifying the monitoring and the evaluation of the results.

The goal of this partition is to simplify the editing (and also the reading) of the expenditures of the public administrations. An example of how this partition works is given in Figure 2:

MISSIONE	PROGRAMMA	AMMINISTRAZIONE	ATTIVITA'
001 Organi costituzionali, a rilevanza costituzionale e Presidenza del Consiglio dei ministri	001 Organi costituzionali	MINISTERO DELL'ECONOMIA E DELLE FINANZE	Trasferimenti alla Presidenza della Repubblica, a Camera, Senato e Corte costituzionale. Supporto al parlamento nelle materie di politica economica del lavoro e delle politiche sociali tramite il Consiglio Nazionale dell'economia e del lavoro.
	003 Presidenza del Consiglio dei Ministri	MINISTERO DELL'ECONOMIA E DELLE FINANZE	Trasferimenti per il funzionamento della Presidenza del Consigli dei Ministri, anche per le celebrazioni ed eventi a carattere nazionale. Interventi in materia di salvaguardia dei territori montani. Trasferimento dell'8 per mille del gettito dell'imposta sul reddito delle persone fisiche (IRPEF), per la quota dello Stato, al fine di finanziare interventi di carattere straordinario
002 Amministrazione generale e supporto alla rappresentanza generale di Governo e dello Stato sul territorio	002 <a href="#">Attuazione delle funzioni del Ministero dell'Interno sul territorio tramite le strutture centrali e le Prefetture - Uffici Territoriali del Governo</a>	MINISTERO DELL'INTERNO	Tutela della legalità, salvaguardia dei diritti civili e gestione delle emergenze sociali tramite le Prefetture/UU.TT.G.. Esercizio coordinato dell'attività amministrativa degli uffici periferici dello Stato. Azione propulsiva di indirizzo, di mediazione sociale, di intervento e di consulenza, anche rispetto agli enti locali. Attività svolte sul territorio inerenti alle missioni di ordine e sicurezza pubblica, soccorso civile, immigrazione, accoglienza e garanzia dei diritti, servizi istituzionali e generali delle AA.PP. e relazioni con le autonomie territoriali. Contributo all'Agenzia Nazionale dei beni sequestrati e confiscati alla criminalità organizzata. Custodia dei veicoli sequestrati ed attività d'indirizzo e attuazione dell'esercizio delle funzioni sanzionatorie amministrative delle Prefetture nelle materie dematerializzate. Iniziative per vittime di racket, usura, reati di tipo mafioso e intenzionali violenti.
003 Relazioni finanziarie con le autonomie territoriali	001 Erogazioni a Enti territoriali per interventi di settore	MINISTERO DELL'ECONOMIA E DELLE FINANZE	Mutui a favore delle Regioni per politiche di settore. Finanziamento dei piani di rientro del debito dei Comuni in gestione commissariale straordinaria. Rimborso quota capitale e oneri finanziari su mutui contratti a carico dello Stato di prevalente interesse nazionale. Anticipazione di liquidità per far fronte ai debiti pregressi e agli ulteriori pagamenti delle Regioni degli enti locali e degli enti del servizio sanitario nazionale.
	005 Compartecipazione e regolazioni contabili ed altri trasferimenti alle autonomie speciali	MINISTERO DELL'ECONOMIA E DELLE FINANZE	Compartecipazione delle autonomie speciali ai gettiti dei tributi erariali per lo svolgimento delle funzioni assegnate. Regolazioni contabili relative alla compartecipazione delle autonomie speciali ai gettiti dei tributi erariali riscossi direttamente dalle autonomie speciali. Trasferimenti specifici alle Regioni a statuto speciale
	006 Concorso dello Stato al finanziamento della spesa sanitaria	MINISTERO DELL'ECONOMIA E DELLE FINANZE	Tutela dei livelli essenziali di assistenza, Ripiano disavanzi sanitari pregressi delle Regioni e contributi a sostegno delle strutture sanitarie private

Figure 2: an example of the partition between Missions, Programs and Actions. (Source: Ministero dell'Economia e delle Finanze, Dipartimento della Ragioneria generale dello Stato 2020)

Figure 2 shows how the partition works: each mission might have just one or more than one program, and each program is associated with a specific activity, which is the description of how the program is actually going to be implemented. For each program and activity is also available the administration that is going to deal with it – and since here we are in the field of the national programming system, these administrations are the different ministries. Each program is associated with only one administration, whereas within the same mission different programs might be associated with different ministries.

The number of missions is fixed: there are in fact 34 missions, and they are stable through time, as they represent the general and most important goals of public expenditure. Programs, on the other side, vary from year to year, to respond and adapt to the everchanging needs of the country. For 2020, there are 175 programs, with a corresponding number of activities.

A very similar framework is at work when it comes to budgeting activities at a local level, namely the level of regions (NUTS 2 in the European classification), provinces (NUTS 3) and

municipalities. The budgets of the local administrations respond, too, to a logic of partition in missions (23) and programs (98) that describe all the goals and activities that local public administrations might have to fulfill. In this case, each administration will deal with different missions and programs, depending on its responsibilities: to make an example, the mission “Public order and safety” involves local administrations at all levels, whereas the mission “Health” is administered mostly at a regional level.

Also, when it comes to programming, the framework at the local level is very similar to the one working at the national level. Regions, in fact, have to make every year a DEFR – Documento di Economia e Finanza Regionale, which is a regional version of the DEF. Like the DEF, the DEFR has a timeframe of three year and gives the general directions of the activities of the regional government, in particular in terms of those activities that will affect the regional budget. Therefore, the DEFR, once again like the DEF, must be published much earlier than the budget law, that in turn must follow the indications previously set up in the DEFR.

Almost the same thing happens in provinces and municipalities, that on a yearly basis have to approve and publish the Documento unico di programmazione – DUP, with the same functions and goals of the national and regional document (with the only but very important difference that the provinces and municipalities do not make budget laws, but only budgets).

The most interesting thing about the DEFR and the DUP, and probably also the biggest difference with respect to the DEF, is that they must be prepared referring to the missions and programs established in the budget. These documents contain in fact a section dedicated to explain what missions and programs the administrations are going to focus on, with also an indication of the objective and goals that the administration wants to reach during the following three years.

The DUP is, in this context, of great interest. It must be divided into two sections:

- a strategic section, valid for the same duration of the administrative mandate, i.e. five years, that describes the values and choices that guide the activity of the administration and the underlying goals that are supposed to be achieved within the term of office. Within this logic, the strategic objectives of the DUP should be identified

for the first time right after the election of the new administration, and should remain unchanged for the entire five years, with updates and changes due only in case of economic or social relevant changes.

- the operational section, which lasts three years just like the budget, has the role to transform the strategic goals set out in the strategic section in annual operational objectives to be achieved over a three-year period. To do this, it is necessary to focus on the operating conditions of the administration (human, instrumental and financial resources, constraints and needs), then analyze the individual programs within each mission and, for each program, identify the operational goals to be achieved in a three-year period. The operational goals must be linked to the strategic goals, of which they are an implementation tool.

Given this framework, we might now ask: do BES Indicators have any role in the programming activities of the administrations? At a national level, we already know that the answer is yes, since the BES Indicators must be included within the DEF. Nonetheless, the DEF does not need to respond to the mission and programs, that are only taken into account when it comes to budgeting. On the other side, the DEFR and DUP need to respond to the missions and programs of the budget, but there is no obligation for the administrations to refer to the BES indicators in programming future activities.

Nonetheless, it is here, in this point of the programming framework, that a link with the BES indicators is possible: if it was possible to link the Bes indicators with the missions and programs in the budget, it would also be possible, on the one side, to measure the effects of public expenditure on the BES indicators and, on the other, to know what BES indicators will be affected by a specific goal or project of the administration - and also what BES indicators could be improved through the political actions and through what types of expenditure, if a comparison with the data on BES from previous years or from other territorial units was available.

Now, two questions are at stake:

1. Are the data about BES indicators available also at a local level?

2. Is it actually possible to link missions and programs in the budget with the BES indicators?

### **3.4 BES indicators at a local level**

The answer to the first question is a yes, even if a partial one. When it comes to the regional level, data are certainly available, as they are included in the Istat BES report. For lower territorial level, though, things are more complicated. Since the publication of the first national BES report, several initiatives have been created to measure well-being at the level of provinces and municipalities. The first and the second of these initiatives were created almost at the same time, right after the publication of the first BES report in 2013: the project UrBES and the “BES delle Province” (Provinces BES).

The project UrBES was created by the Istat “to allow citizens and administrators to access a wide set of statistical information on a territorial scale, useful for the local government” (Istat 2013). Through this work, Istat collected and confronted data at the level of the biggest Italian municipalities. The first edition of the UrBES report was published in 2013, collecting data from 15 municipalities and for 25 indicators. The second edition was published two years later, in 2015, and contains a wider range of indicators (64), measured also for a higher number of cities (29). The 2015 edition of the report was the last one, probably because this initiative was somehow absorbed by the “BES delle Province” initiative.

This second initiative was developed thanks to a network rather than just one statistical body. It was created in 2013 by the first impulse of the Province of Pesaro and Urbino, and developed thanks to the close collaboration between Cuspi (Coordinamento degli Uffici di Statistica delle Province Italiane) and Istat, with the aim of creating a statistical information system for the measurement of equitable and sustainable well-being of provinces, in order to support the strategic and operational planning of the local administrations. The project led to the publication of four reports (or better, of a set of reports, one for each city) in 2014, 2015, 2017 and 2019. The 2019 edition includes 27 between provinces and the so-called “città metropolitane”, i.e. aggregation of cities and towns that form a metropolitan area. The measurement framework is, in this case, much more similar to the national BES report with respect to UrBES: in this case we have 11 domains, all corresponding to the ones in the

national report, with the only exception of the “Subjective well-being” domain, that was excluded for the lack of data at this territorial level. The indicators used for each domain have changed through the years, and were 73 in the 2019 edition.

Another initiative that aims to simplify the measurement of well-being at the level of provinces and municipalities have been put in place once again by Istat, that in 2018 published the list of the equitable and sustainable well-being indicators for the provinces and the metropolitan cities. In this case, too, we have 11 domains, but only 61 indicators were chosen.

It is pretty easy to notice that a stable and shared framework for the measurement of well-being at a smaller territorial level still lacks. At the same time, it is also very clear that the debate on the measurement of the well-being of individuals and society has received growing attention. In fact, as we have just seen, local institutions, in collaboration with the Istat and other bodies, have launched projects based on the BES paradigm, also exploring the still unexpressed potential of municipal and provincial administrative information datasets: and this also if the law does not force local administrations to use the well-being indicators within their planning cycle.

The challenges that still remain to be faced are two: firstly, building a unique, systematic conceptual framework, in order to make the measurement of well-being more consistent and comparable; secondly, use the studies and reports on well-being as pivotal tools for the programming activities of local administrations and institutions.

### **3.5 Mission, programs and BES indicators**

Now we can move to the second question stated above, namely: Is it actually possible to link missions and programs in the budget with the BES indicators? The answer to this question is, fortunately, yes. Different attempts can be found in literature, the most important being, in our opinion, the one in the article “Misure di benessere dei territori e programmazione strategica: il livello comunale (Fiorillo et al. 2016).

The goal of this article, that focuses on municipalities but whose results could be extended also to the provinces and regions, is to highlight the possible connections between the

economic, social and environmental components of well-being and the missions and programs in the DUP, in order to build a framework that relates missions and indicators. Such a framework is essential: in fact, statistical indicators can hardly be applied to the decision-making process without a further level of implementation, as they can assume different meanings and even opposite connotations (positive or negative) depending on the context in which they are used. This is the reason why frameworks, as theoretical and statistical constructs, are crucial: they allow the use of different statistical variables to clarify what has to be measured, why, what are its components and how they relate to each other.

The task, in the case we are examining here, is certainly not easy: the DUP is divided into 23 missions and 98 programs, whereas the BES consists of 12 domains and is currently measured by 130 indicators at a national and regional level. More indicators must also be added, namely those coming from for the measurement of well-being in the abovementioned projects “UrBES” and “BES delle province”, for a total of 207 indicators.

Before exposing the results of the attempt in Fiorillo et al., some methodological remarks must be made:

- a mutually exclusive classification criterion was applied: each individual measure of the BES has been associated with one, and only one, mission of the DUP. The association between BES indicators and DUP missions followed a relevance criterion, where the relevance was measured with respect to the content and implicit goals of the mission under consideration.
- BES indicators are treated (at least at this point of the analysis) as a measure of output (a product of a specific action) or outcome (the overall result of the action) of the missions and programs in the DUP.
- five DUP missions were excluded, as they are exclusively related to accounting operations.

The results are available in Figure 3.

Tabella 1 – Indicatori del Bes per Missione del DUP e Dominio

Missioni/Domini	Ambiente	Benessere economico	Benessere soggettivo	Istruzione e formazione	Lavoro e conciliazione tempi di vita	Paesaggio e patrimonio culturale	Politica e istituzioni	Qualità dei servizi	Relazioni sociali	Ricerca e innovazione	Salute	Sicurezza	TOT
1- Servizi Istituzionali, Generali E Di Gestione							22		1		3		26
2- Giustizia							2						2
3- Ordine Pubblico E Sicurezza							1	3			1	13	18
4- Istruzione E Diritto Allo Studio				14				1	1	1			17
5- Tutela E Valorizzazione Dei Beni E Delle Attivita' Culturali				1		8							9
6- Politiche Giovanili, Sport E Tempo Libero			1						4		1		6
7- Turismo													0
8- Assetto Del Territorio Ed Edilizia Abitativa						8							8
9- Sviluppo Sostenibile E Tutela Del Territorio E Dell'Ambiente	19					1		2					22
10- Trasporti E Diritto Alla Mobilita'								7					7
11- Soccorso Civile													0
12- Diritti Sociali, Politiche Sociali E Famiglia		21	3		1			4	9		7	3	48
13- Tutela Della Salute								1			4		5
14- Sviluppo Economico E Competitivita'										9			9
15- Politiche Per Il Lavoro E La Formazione Professionale				1	21								22
16- Agricoltura, Politiche Agroalimentari E Pesca	1					1							2
17- Energia E Diversificazione Delle Fonti Energetiche	4							2					6
TOT	24	21	4	16	22	18	25	20	15	10	16	16	207

Fonte: nostra elaborazione su dati dei progetti BES, UrBes e Bes delle province

Figure 3: The BES indicators and the DUP missions (Source: Fiorillo et al. 2017)

The table shows, for each row, how many BES indicators can be attributed to each mission of the DUP. The table also shows, if read by column, the distribution of the indicators of a specific domain within the different domains.

Generally speaking, the indicators in a domain tend to be concentrated in one mission, rather than dispersed – with the important exceptions of the domains “Health” and “Quality of services”. Another important aspect of this table is that it includes also missions that are not affected by the activities of municipalities, but that actually are responsibility of other local administrations, like regions and provinces. Therefore, this framework could work also for the DEFR, and not only for the DUP.<sup>8</sup>

The analysis can also go further, in order to evaluate, within the individual missions of the DUP, what indicators could be linked to each program. An example of this approach is made for the mission “Social rights, social actions and family” in Figure 4.

<sup>8</sup> An interesting point is that, in the framework of Fiorillo et al., no indicator is related with the mission “Tourism”. Apparently, the BES indicators do not seem to measure any aspect related to tourism.

Tabella 3 – Missione 12 - DIRITTI SOCIALI, POLITICHE SOCIALI E FAMIGLIA: indicatori del Bes per Programma e Dominio

Programmi/Domini	Benessere economico	Benessere soggettivo	Lavoro e conciliazione nei tempi di vita	Qualità dei servizi	Relazioni sociali	Salute	Sicurezza	TOT
12.01- Interventi Per L'Infanzia E I Minori E Per Asili Nido				1		2		3
12.03- Interventi Per Gli Anziani	2			1		1		4
12.04- Interventi Per I Soggetti A Rischio Di Esclusione Sociale	12	3		1		4		20
12.05- Interventi Per Le Famiglie	3		1		1		3	8
12.06- Interventi Per Il Diritto Alla Casa	4							4
12.07- Programmazione E Governo Della Rete Dei Servizi Sociosanitari E Sociali				1				1
12.08- Cooperazione E Associazionismo					8			8
<b>TOT</b>	<b>21</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>7</b>	<b>3</b>	<b>48</b>

Fonte: nostra elaborazione su dati dei progetti BES, UrBes e Bes delle province

Figure 4: The BES indicators for each program in the DUP mission “Social rights, social actions and family” (Source: Fiorillo et al. 2017)

For this framework to be actually useful, we need to understand if the indicators can help us approaching questions like:

- is the strategic programming hypothesis (i.e. the hypothesis about the cause-effect relationships between actions and results) correct?
- how can we operationally link the strategy with coherent actions?
- how is the general performance of the institution measured?
- what are the main reasons of the (potential) gap between expected and real performances?
- Do we get the right information in order to evaluate the performance and, if necessary, to take the proper steps for improvements?

Fiorillo et al. think that the BES indicators can help facing all these questions, coming into play at various stages of the policy-making process: first of all, to give an understanding of the *as-is*, in terms of how and how much specific problems or needs are diffused and felt within a community (also from a comparative point of view, especially with respect to other territories); then, to set goals and targets in order to measure the effectiveness of an action; also, to verify *in itinere* any need for adjustment or revision due to changes in the internal or external scenario; and, finally, for evaluation.

However, the transition from the theoretical plan to the operational application requires an additional element of complexity: in fact, we still need to establish what kind of relationship exists between the specific action put in place by the administration and the well-being indicator(s) that should be taken into account as a reference point for the assessment. This association cannot always be rigidly and unambiguously established, because sometimes actions responding to some problems or needs could affect problems and needs related to other missions and well-being indicators.

As we previously said, each BES indicator can be used as an output or outcome measure of a given program, i.e. as a target to be reached and verified in the end of the programming cycle, but it can also be used at the beginning of the programming activities, as a descriptive measure of the context. Most importantly, BES indicators can also be used as inputs, that impact on other indicators.

An example will explain this crucial point. Let's take the indicator "Participation in the school system of children aged 4-5", that measure the percentage of children between 4 and 5 years of age that go to kindergartens. If this percentage is low, administrators might consider to act by increasing the number of nursery places: in this case, the abovementioned indicator would be an outcome of this action, as in this case the participation in the school system of children of 4 and 5 years of age would considered as an educational need by itself. However, at the same time, the indicator could also measure an input, if the goal of the administration is not (or not only) the participation of children in the school system, but (also) to ensure equal gender opportunities by increasing female participation in the job market. The latter could be the case in a municipality where, for instance, the problem of gender discrimination is strongly affecting the life of women, as demonstrated by the bad results in terms of the BES indicator "Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children".

A municipality like this should work to obtain two different results: on the one side, directly provide women with more employment opportunities and, on the other, take care of children so that mothers are in the right conditions to actually find and accept a job. This should push

administrators to set up two different strategic goals, in order to improve the performance of the abovementioned indicator both directly and indirectly (i.e. creating the right conditions): if the main strategic goal is “increasing work opportunities for women between 25 and 45 years old”, also another instrumental strategic goal is needed, i.e. “increase the number of places available in kindergartens”. Finally, also more operational goals must be set up, like “allocate resources to build new kindergartens” and “making new contracts with educators”.

From a practical point of view, the BES indicator “Participation in the school system of children aged 4-5” is treated as an output indicator within the mission 12 “Social rights, social actions and family”, Program 04 “Interventions for individuals at risk of social exclusion”. The example above, though, shows also how the same BES indicator can also become an input: the number of places available in kindergartens is, at the same time, also an input for the only apparently separated strategic goal of reaching gender equality, which is measured in this case by the BES indicator “Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children”. The latter BES indicator, in other words, measures at the same time both the effects of the direct operational actions put in place to improve this indicator (like, for instance, creating new job opportunities for women) and the impact of other indicators and actions (like those that are set to increase the number of places in kindergartens).

In other words, when we map the BES indicators into missions and programs, as we have seen in Figure 4, we only consider the direct effects and not also the impacts: but when it comes to programming, we also need to evaluate the impacts. These impacts are, usually, “hidden” in the programming documents. Saying, for instance, that the administrators in a municipality think that increasing female participation in the job market depends on the existence of contexts in which women actually have the possibility to work, means that the administration has in mind that there is a relationship between the number of women with a job and the number of places available in kindergartens, and that this relationship has a “direction” that goes from the number of places in kindergartens to the number of women with a job: so, to conclude, in order to increase the women occupation rate the municipality should invest in building new kindergartens.

What happens if the increase in the number of places in kindergartens does not generate an increase in women occupancy? It could be that the increase in the number of places available was not followed by the actual entrance of more children in kindergartens, for instance because of organizational issues that the administration did not take into account at the beginning; or it could also be that the initial belief of a correlation between the two aspect was not consistent. In any case, through this framework the administration gets a huge amount of information, in terms of how and how effectively the resources were used, that can be useful in the following programming cycles.

In order to build an easy and accessible representation of the relationship among the different missions and BES indicators, Fiorillo et al. propose a matrix like the one in Table 3. In each column, the table shows the strategic goals of the administration, in terms of the relationship between the mission and the related BES indicator. Of course, the same mission can be related to more than one indicator. Now, if our goal is to improve the results with respect to Mission 1, measured by BES 1, the administrators must define a strategic goal for the BES 1 itself (i.e. an output to be obtained within mission 1) and a second strategic goal for BES 4, which is associated to Mission 3 as its output. Reading per line, each cell is associated with a set of operational objectives, so that the impact that BES 1 and BES 4 (and, through the BES indicators, the operational objectives of missions 1 and 3) have on BES 1, can be evaluated *in itinere* and *ex post* by the administrators.

Strategic goals		Mission 1	Mission 1	Mission 2	Mission 3	...	Mission M
Operational goals		Bes 1	BES2	BES 3	BES 4	...	BES N
Mission 1	BES 1	X	X		X		X
Mission 1	BES 2						
Mission 2	BES 3		X	X			
Mission 3	BES 4	X					
...	...						
Mission M	BES N						

Table 3: Matrix of the relationship among strategic and operational goals (Source: Fiorillo et al. 2017)

Unfortunately, we could not find a practical application of this theoretical framework, neither at the level of regions, nor at the level of provinces or municipalities. Focusing only at the regional level, the simple use of the BES indicators is extremely differentiated: some regions dedicate pages and pages to the analysis of their performances in terms of well-being, whereas others do not even mention them. And the North-South divide here does not seem at work. The region of Lombardia, the most populated and rich North-Italian region, does not mention the BES even once, focusing instead on another framework, namely the “Strategia Nazionale per lo Sviluppo Sostenibile – SNSVN”, that is not based on data and only lists the domains of activity of a sustainable development. Sicily, on the other side, which, following the Eurostat data from 2019, is the second poorest region in the South, dedicates a final section of its 2020 DEFR to an exploratory analysis of well-being, that is expected to be integrated in the following editions of the DEFR. Other regions, like Campania and Lazio, make only a sporadic use of the well-being indicators, focusing only on few domains (like “Health” or “Security”) instead of all of them.

The Region that seems to do best in terms of well-being measurement is Emilia-Romagna, that dedicates half of its DEFR to a very specific analysis of the well-being indicators, focusing both on those already in the BES report and on other indicators, whose data and information are locally collected. The analysis is extremely interesting, as it constantly compares the regional data with the national and European data, also using some original and very effective figures. Nonetheless, the downside of the Emilia-Romagna DEFR is that, a little bit surprisingly, it does not use the partition in missions and programs, that should actually be mandatory and that would have made the comparison between the programming document and the budget much easier.

Some of the examples that we have just seen are a proof that first steps towards the use of well-being indicators in local programming has already been taken. Nonetheless, we can also state that until a clear legal enforcement is made, the use of BES indicators at the local level will always be fortuitous, almost accidental, as the choice to include well-being in planning activities will always be, in the best cases, the random effect of the presence (or not) of enlightened administrators, or, in the worst cases, the effect of the political choice to hide the bad performances of an administration. A legal system that enforces and allows

administrations to constantly relate BES indicators, planning documents, budgets and financial statements would be of great importance to strengthen the positive effects of the programming cycles.

## CHAPTER 4

### A NEW FRAMEWORK FOR THE PLANNING CYCLES

#### **4.1 DEFRs: the legal framework**

In this final chapter, we will try to understand how the BES indicators could be used efficiently in the programming activities of local administrations, focusing in particular on the regional level. By “efficiency” we mean here that the BES indicators should not be used only as a descriptive tool, as they already are in many occasions, but should also enter in the planning cycles of administrations as input and output indicators. We have already seen that such a use is possible, but we have also noticed that, until now, no administration took all the steps needed and no legal enforcement has been made to guide public bodies through this difficult path.

The legal framework seems, in this context, to have a preponderant role. In fact, we concluded the previous chapter with some remarks concerning the contents of the DEFRs of different regions, showing how these contents vary significantly from one region to the other. Such differences would not be possible, in the first place, if the law was clear and unique in its enforcements. We need then to investigate this element for a moment, to better understand how different regional planning activities actually are.

The regulatory framework of regional economic and financial planning is essentially focused on three national laws, namely the law 42/2009 on fiscal federalism, the law 196/2009 on accounting and public finance and, finally, the abovementioned decree 118/2011, that deals with the harmonization of accounting systems and budgetary schemes of the regions and local authorities. This last decree is particularly important, as in its Annex 4.1 it does not only give a definition of planning activities<sup>9</sup>, but also gives the list of the planning documents that must be written, approved and published each year. The main ones are:

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<sup>9</sup> Planning is defined here as “a process of analysis and evaluation that, by coherently comparing and ordering the policies and plans for the government of territories, makes it possible to organize, in a predefined

- the Regional Economic and Financial Document (DEFER);
- an update note to the DEFER;
- the “disegno di legge di stabilità regionale”, that gives the framework for the budget law;
- the budget law;
- the annexes and modifications to the budget law;
- the “piano degli indicatori di bilancio”, the set of indicators that are used to measure and evaluate the budget performances;
- other regional programming tools, as established in regional regulations.

The most important among these documents is the DEFER, so the Annex 4.1 focuses also on defining its main objectives and its minimum contents. The goals of the DEFER are:

- establish what programs are going to be funded, and how, in order to fulfill the missions of the administration;
- guide the decisions of the regional parliaments and governments;
- be the reference point for the controlling activities concerning the level of realization of programs and missions.

The minimum contents of the DEFER, on the other side, must be:

- the political actions to be adopted;
- the goals of the budget law, and of public finances more in general;
- the financial framework of the resources available for each program and mission and the tools for their implementation;
- the guidelines for the public and private controlled organizations.

The Annex 4.1 does not only give general indications like the ones we have just seen, but also more specific rules on the structure of the DEFER. The Annex states, in fact, that the DEFER must be composed of two sections:

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timeframe, the activities and resources that are necessary for the realization of social goals and for the promotion of the economic and civil development of the communities”.

- a first section, that must include an overall description of the economic and financial background of the region, and a more specific description of the economic and social goals that the region wants to achieve
- a second section, with:
  - a description of the public financial situation of the previous year(s);
  - the goals for the following year(s);
  - an indication of the budget that is expected to be used in order to achieve these goals;
  - the multiannual program to reduce the public debt.

These very specific set of rules and indications seem to give a pretty clear representation of what the DEFR should be: a planning document focusing not only on programming future activities, but also on the financial tools and strategies to implement those activities. Nonetheless, the Annex 4.1 concludes its analysis on the main characteristics of the regional DEFRs with the following statement:

“The financial contents of the DEFR and of the Update Note to the Strategic Planning Document are conditioned by the progress of the implementation of fiscal federalism and are defined following the opinion that the Standing Conference for the Coordination of Public Finance, pursuant to art. 5 of Law no. 42 of 5 May 2009, elaborates on the guidelines for the distribution of the public finance goals included in the DEF (and in the Update Note to the DEF) and on the rules provided for the individual administration according to its category, as transmitted to the government. In the event of failure to implement Article 5, paragraph 1, letter a) of Law No. 42 of 5 May 2009, the regional planning documents limit their scope to a merely programmatic content, not oriented to financial objectives.” (Our translation from the Annex 4.1 of the decree 118/2011, p. 7)

In other words, before the advice of the “Conferenza permanente per il coordinamento della finanza pubblica” (a national committee that deals with the coordination of public finances) is given, the regions cannot use the DEFR to establish their financial planning, and should limit themselves to pinpoint in the DEFR only the general goals of the administration. Since such an

advice has never been given until today, there is still no specific rule concerning the financial content of the DEFRs.

Moreover, the confusion around the programming activities is complicated by the fact that in writing their DEFRs regions need to follow not only national, but also regional legislations with specific requirements. For instance, not all regions are required to produce and approve the same documents: many regions establish only the publication of general strategic planning documents, whereas others also add more specific planning documents concerning territories and their organization, economic and social aspects and, also, the measurement of performances. Table 4 shows the documents requested by the different regional regulations.

The absence of formal indications on how to organize the financial content of the DEFR sums up with the diverse requests in terms of planning documents, thus making the mere programming content in the DEFRs differ from region to region. This led to a variety of interpretations on how to fulfill the obligation, following the Annex 4.1, of writing yearly programming documents, and pushed regions to approve diverse regional laws to regulate DEFRs and planning documents. As table 5 shows, 13 regions have local regulations that establish what contents are supposed to be included in specific areas of the DEFR, whereas only 7 stick with the abovementioned national framework.

	<b>Strategic planning tools</b>	<b>Territorial planning tools</b>	<b>Economic and social planning tools</b>	<b>Measurement of performances</b>
LOMBARDIA	x			
TOSCANA	x	x	x	
VENETO	x			x
LIGURIA				
PIEMONTE	x	x	x	
EMILIA-ROMAGNA		x		
LAZIO		x	x	
UMBRIA	x	x		
MARCHE				
ABRUZZO	x			x

MOLISE				
PUGLIA	x	x		
CAMPANIA				
CALABRIA				
BASILICATA	x	x		x
P.A. TRENTO	x			
P.A. BOLZANO	x			
SARDEGNA	x			
SICILIA				
FRIULI VENEZIA GIULIA	x			x
VALLE D'AOSTA				

TABLE 4: Regional programming tools, additional with respect to the ones established in the Annex 4/1 of the decree 118/2011 (Source: IPRES and Prometeia, 2020)

	Context analysis	Political actions to be adopted	Goals	Indications for lawmakers and planners	Comparison with previous DEFRs
LOMBARDIA				x	
TOSCANA		x			
VENETO					
LIGURIA					
PIEMONTE	x	x	x		x
EMILIA-ROMAGNA		x			
LAZIO	x	x	x		
UMBRIA	x		x	x	
MARCHE			x		
ABRUZZO					
MOLISE	x		x	x	
PUGLIA	x		x	x	
CAMPANIA		x			
CALABRIA	x	x	x		x
BASILICATA		x	x	x	
P.A. TRENTO					
P.A. BOLZANO					
SARDEGNA		x			
SICILIA		x			
FRIULI VENEZIA GIULIA					
VALLE D'AOSTA					

Table 5: Contents of the DEFR that must respect additional regional regulations (Source: IPRES e Prometeia, 2020)

Table 5 just gives a general overview of the different regional requirements, but does not represent the level of detail that is requested: that, of course, varies from region to region, too. When it comes, for instance, to the context analysis, the region of Piemonte only asks for a description of the general demographical, social and cultural situation, whereas the Region of Calabria requires also an analysis in the fields “Health” and “Environment” and, finally, the DEFRRs of the regions of Lazio, Umbria, Molise and Puglia also need to specify the macroeconomic trends and goals concerning work and income.

Since the requirements for the regional DEFRRs are so different, it cannot come as a surprise that different sources of data are used for writing these documents. The OECD, the International Monetary Fund and the Eurostat are the most important sources for the description of the international context, whereas data from Istat and Banca d’Italia are mostly used to describe the national situation. When it comes to well-being, too, more than one source is used, as we already mentioned before: the BES indicators are at least mentioned in the DEFRR (or NADEFRR) of almost all regions, even if the level of detail, as we have previously seen, differ greatly. Some of the regional planning documents focus also on other well-being indicators, like the ones from the OECD or from the UN project called “Sustainable Development Goals (SDGs)”.

If we relate the use of different sources of information with the diverse structures used in different regions, we realize that it is very difficult for both researchers and public officers to compare and, consequently, measure and evaluate the planning activities of different regions and territories. Such a comparison is nonetheless of great importance, as it would provide decision makers with more objective elements for measuring performances and plan future political actions.

#### **4.2 Improving comparability**

In the final paragraphs of this thesis, we will try to build a new framework to relate public expenditure and well-being indicators, with two goals in mind:

- firstly, a theoretical goal: this framework is supposed to help researchers and public officers in the difficult work of analyzing and comparing, on the one side, the results

of economic and social political actions with respects to the ones planned through the programming documents; and, on the other side, the results of those same actions with respect to those put in place in other regions or territories;

- secondly, a practical goal: this framework should also be used during the planning cycle itself, as it could simplify and, at the same time, make more homogeneous the programming activities for local authorities.

The planning cycle we have in mind is made of different steps, namely:

- analyze well-being indicators to understand in what domains local authorities need to focus their activities
- pinpoint the well-being indicators that need to become outcome indicators
- define the goals, i.e. the expected results for these indicators
- define the actions that must be put in place to obtain the expected results
- define the budget for those actions
- implement the actions
- measure if and how much those actions (and the budget used for their implementation) affected the well-being indicators.

The last step means that we are once again measuring and analyzing the well-being indicators, so the cycle is completed and re-started.

For this cycle to work, nonetheless, we need to define the existing relationship between the well-being indicators, on the one side, and the actions and budget, on the other. To do this, we are going to need three elements. We have already seen two of them, namely the BES indicators, on the one side, that give us a measure of well-being, and the missions of the DEFRs and the budget laws, on the other side, that tell us what goals have been set and how administrators intend to achieve them.

What we still miss is a third element that should help us link the actions of the public administrations with the performances of the BES indicators. This link, implicitly introduced in the abovementioned steps of planning activities, is a clear measure of public expenditure, i.e. the amount of money used to implement the planned actions. Without a measure of public

expenditure, we are in a sense “blind”: we miss in fact a measure of the implementation of the planned actions, which is also crucial to build a measure of how and how much those actions influence well-being.

There are different measures of public expenditure, both at a national and a local level. In this case, we are going to use the “Conti Pubblici Territoriali”: firstly, we are going to explain what they are and why they are the right tool in this case; then, we will be ready to build our new framework.

#### **4.2.1 The “Conti Pubblici Territoriali”**

The “Conti pubblici territoriali” (Italian for “Regional Public Accounts”: from now on “CPTs”) measure, at a regional level, the financial inflows and outflows of public administrations and of all those entities, both public and private, that belong to the public sector, i.e. controlled by the public sector. The goal of the CPTs is building a database of the current and capital expenditure and inflows of the entire public sector, including all the public administrations and the private companies controlled by public administrations. The database of CPTs documents the real trends in the allocation and expenditure of public resources at a territorial level, highlighting not only how much money is spent, but also for what, and where. The strength of the CPTs as a statistical tool is also due to his time series, as data are available since 2000.

To better understand what the CPTs are, let’s see briefly how they are made. As we have already mentioned, the CPTs deal with two different (but strictly related) sectors:

- **the public administrations**, that, broadly speaking, create and offer services that cannot be sold;
- **the enlarged public sector**, which includes those entities, run both at a central and a local level, that offer and sell services of public utility and are controlled directly or indirectly by public bodies. This includes companies that are controlled by national and local public administrations.

The CPTs include financial data that are collected using the financial statements of the entities included in the abovementioned sectors. This data needs of course to be analyzed and

modified, in order to make them actually usable for comparison and research. First of all, they are divided into categories, following two different classifications:

- an economic classification, that consists of merging the balance sheet data into predefined economic categories, according to the economic nature of operations. The model counts 45 economic categories for cash inflows (like taxes, loans, sale of goods and services, and so on) and 71 economic categories for outflows (like expenditures for the staff, borrowings, purchase of goods and services, and so on). This model generates an adequate harmonization between the different balance sheet models used by different public and private entities;
- a sectoral classification, that deals only with outflows and responds to the need of correctly representing the multiple sectors of activities of public entities. These sectors are 29 and, as stated in the CPTs official website, they are coherent with the system of classification of the functions of public administrations (COFOG), and also (and more importantly for us) with the Missions previewed by the Law 196/2009 that are used in the budget and planning documents of the local administrations – like, for instance, Defense, Education, Public Safety, Research and Development, and so on.

After being divided through these classifications, data are further processed and – in order to correctly refer the inflows and outflows to the right territories and administrations and avoid duplications – they undergo two more processes. We will focus here on outflows, as they are the one aspect that we are more interested in, in this context.

First of all, the outflows of those administrations that operates at a supra-regional level are “regionalized”, as the expenditures are attributed to the region where the products and services are supplied or purchased, following the previous economic categorization. Data are then “consolidated”. In fact, in the CPT database the flows of each institution are fully available, as recorded in the financial statements: however, when data concern aggregations of entities, they must be attributed to the right entity to avoid duplications. Only the administration or controlled entity that finally spend a specific amount of money is attributed with that expenditure, whereas the other administrations, namely those that only transfer the money, are excluded. This consolidation process makes it possible to obtain the total value of the public expenditure that really affects a specific territory, without the risk of duplications.

From what we have just seen, we can conclude that CPTs are a powerful measurement tool and they could be of great use in the planning process. Their importance for our framework should be, at this point, very clear. We have seen that CPTs are coherent with the Missions previewed by the Law 196/2009: this means that they can be easily associated with the missions and programs in the planning document, giving an economic measure of the implementation of the related political and social actions. Moreover, they undergo a process of economic classification and, therefore, they give a precise measure of how much money is spent in each sector. Finally, they are regionalized and consolidated, so each outflow is attributed only once and to the right territory, i.e. the one that benefitted from it. For all these reasons, CPTs are the best available measure, at a local level, of the implementation of the political and social actions, and are therefore the best link between those actions and the well-being indicators.

### **4.3 A new framework**

In the previous chapter we have seen that a relationship between Missions and BES indicators is possible and has already been established by Fiorillo et al. (2017). In that case, though, only the number of BES indicators for each Mission was reported, and not the entire list of simple indicators. Moreover, as shown in Figure 3, a link with public expenditure totally lacks in that framework.

What we want to do now is therefore to build a new table to relate each mission with the CPTs sectors and the BES domains. This way, we will cover all the steps of the programming cycles mentioned above: from measuring well-being to establishing the political actions and budgets, to conclude with the budgetary implementation of goals and actions and with the effects of public expenditure on well-being. We are also going to list, for each mission and CPT sector, not only the BES domains but also the simple BES indicators that, within a domain, are actually relevant for that mission and CPT sector. The table has been built in strict collaboration with Valentina Tagliagambe and Silvano Castangia, two public officials that, besides their work duties, also collaborate with researchers and other public administrators in other regions to improve the use of well-being and public expenditure indicators in planning activities. In Table

6 we show only a portion of the table, concerning just one mission. The complete list is available in the Annex 2.

The table is made of 5 columns: the first one lists the Missions, the second one the CPTs Sectors, the third one the BES domains, the fourth one the BES indicators that are relevant for a specific Mission and CPT sector, and the fifth one with those BES indicators that are not relevant.

As in Fiorillo et al. (2017), only the first 17 missions have been taken into account, as the remaining ones are only related with accounting operations. Also, no match was found between the mission “Tourism” and the BES indicators: in this case, only the “Economic Well-being” domain could be related, but it would be very difficult to measure the impact of this mission on the entire domain, that is affected by all economic activities. The difficulty in measuring the impact of single missions on the Economic well-being is also the reason why we decided to excluded this domain from all missions, with the important exception of the Mission 12 – Social rights, social politics and family, whose goal is to fight poverty and increase the well being of citizens.

Differently with respect with what happened in Fiorillo et al. (2017), here we do not apply a mutual exclusion principle, meaning that every single BES indicator is associated with one and only one mission. This principle is in fact quite strict and rigid if compared with a context where the same BES indicator can be affected by different actions related to different missions. We prefer, in this case, to safeguard the complexity of well-being (and of planning activities) rather than the simplicity in the analysis.

<b>Missions</b>	<b>CPT Sectors</b>	<b>BES domains</b>	<b>BES indicators included</b>	<b>BES indicators excluded</b>
Mission 2 - Justice	Justice	Politics and institutions	Length of civil proceedings	Voter turnout
			Prison density	Trust in the parliament
				Trust in judicial system
				Trust in political parties
				Women and political representation in Parliament
				Women and political representation at regional level
				Women in decision-making bodies
				Trust in police and fire brigade
				Women in the boards of companies listed in stock exchange
		Safety	Homicide rate	
			Burglary rate	
			Pick-pocketing rate	
			Robbery rate	
			Physical violence rate on women	
			Sexual violence rate on women	
			Intimate partnership violence rate	
			Worries of being victim of a sexual violence	
			Feelings of safety when walking alone at night	
			Concrete fear rate	
Social decay (or incivilities) rate				

Table 6: An example of the framework that relates Missions, CPTs sectors, BES domains and BES indicators

#### 4.4 Limitations and future research

Of course, we are aware that this table does not include all the aspects related to political planning cycles and does not solve all the problems related with this activity.

For instance, the framework we have just seen establishes a correlation between BES indicators and public expenditure, through the use of CPTs, without saying how this correlation happens and, especially, when. In fact, one thing is saying that public expenditure affects well-being, and one very different thing is explaining how long it takes for public expenditure to affect well-being. Therefore, some statistical analysis still needs to be made to prove that the correlation we are hypothesizing here actually exists, and what timeframe better explains it. We might expect that, for instance, at least one year is needed for public expenditure to affect well-being, but maybe, especially in specific domains, a two- or three-year timeframe might better explain the correlation.

The problem here is actually mitigated by the timeframe in which CPTs data are produced: they are published, in fact, at least 18 months after their collection, so they always refer to two years in the past. BES indicators, on the other side, are usually referred to the previous year. Let's make an example: when public decision makers are planning the activities for the year  $t$ , they need first of all to determine the effects of public expenditure on well-being indicators at the time  $t-1$ , so if they assume that one year is needed for public expenditure to affect well-being, then they need to confront CPTs in  $t-2$  with the BES in  $t-1$ , i.e. the last available data. In other words, at least a one-year delay for BES indicators and a two-year delay for CPTs is implied in this model.

A statistical analysis would also be needed to understand if simple indicators are, in this context, of better use with respect to composite indicators. It is probably true that simple indicators can give a better representation of a complex phenomenon like well-being and its relationship with political and programming activities, but this is still to be confirmed by a robust statistical analysis.

Such an analysis would also need to take into account that regional political actions are not the only ones affecting well-being: political activities at the national level certainly affect almost all domains of well-being, and even actions at more local levels, like the level of municipalities, can strongly modify some aspect, especially those that are more related with the perception of our everyday life. The use of CPTs in the analysis, once again, mitigates this problem: as we have seen in the previous paragraph, CPTs data are regionalized, in the sense that the expenditures are attributed to the region where the services are actually supplied. But, this way, the problem has been simply moved, and not solved, as it still remains to be established and evaluated how much of the expenditure is due to national, regional or municipal plans and actions.

But, probably, the biggest problem is a one that cannot be solved by any framework or methodology: a legal enforcement is needed to push public administrators and decision makers to use homogenous frameworks in their planning activities. Understanding how public expenditures affects well-being is a difficult task, which is made much more difficult by the plethora of local laws that regulate very differently the planning activities. A unique methodology, capable of representing, at the same time, the political goals of the administration, the money that is spent to achieve those goals and the actual effects of that expenditure on well-being would help analysts, researchers, administrators and even citizens in the difficult task of better understanding how political activities affect our well-being.

## CONCLUSIONS

In this thesis we have seen how well-being and its measurement can improve the planning activities of administration and help public decision makers make more informed and data-based decisions. On the one side, we have described how well-being is measured in Italy, how it is used today in public planning activities and what are the actual limitations of this use; then, on the other side, we have built a new framework to effectively include well-being indicators in planning activities and to relate them, at the same time, with the planning and the budgetary documents.

In the first chapter, we have examined the debate on GDP as an inadequate measure of progress and on the need to find new tools to measure well-being, focusing on the most important international experiences on this topic. We have analyzed more in detail the results of the Stiglitz-Sen-Fitoussi commission and the “Better Life Initiative” from OECD, and we have seen how these experiences set the standards for the international debate over well-being measurement.

The second chapter has been dedicated to the Italian experience of well-being measurement. We have gone through the “Indicatori del Benessere Equo e Sostenibile”, the 130 Italian well-being indicators created and measured by ISTAT, focusing on both the simple and the composite indicators and analyzing the methodology put in place to calculate the composite indicators.

The practical use of the BES indicator in the planning cycles of Italian public administrations has been the main topic of the third chapter. We have seen how the BES indicators are supposed to be used today in the national, regional and local planning activities, analyzing the most important national laws that enforce the use of these indicators. We have also focused

on an example of framework, made by Fiorillo et al. (2017) to integrate the BES indicators in the public planning activities, especially at the regional and local level.

In the final chapter, we have established our own framework to improve public planning activities. We have started with an empiric analysis of how the regional planning activities are actually performed, seeing how both national and local legal systems are simultaneously enforced. This generates several differences among the regional programming documents and, therefore, complicates the work of researchers and decision makers in terms of building meaningful analysis and comparisons. We have also seen how different sources on information are used in different regions, thus complicating again the work of researchers and policy makers. Then, we have built our own framework for planning cycles, that relates, at the same time, planning documents, budgetary documents and well-being measurement.

Finally, we have seen the limitations of our work and set the direction for future analysis. We have underlined that our framework builds a relationship between public expenditure, on the one side, and BES indicators, on the other, without saying, though, how long does it take for the spending activities to actually affect well-being. Therefore, a robust statistical analysis is needed to solve this problem. Another problem that should be addressed is the one that concerns the use of composite indicators: we still don't know if they could be equally or even more useful than simple indicators for our goal of building a better framework for public planning, so further analysis is needed on this topic, too. Once again, statistical analysis would be needed in this case. A third problem is related with the multiple planning activities affecting well-being: in fact, planning is performed at a national, regional and local level, so a more specific analysis is needed to establish what portions in the modifications of BES indicators can be attributed to each planning level.

In the end, we also called for a stricter legal enforcement of planning regulations: in order to allow analysts, researchers, administrators and even citizens to better understand how political activities affect our well-being, a unique and shared framework is needed to relate, at the same time, the political goals of the administration, the money that is spent to achieve those goals and the actual effects of that expenditure on well-being.

## ANNEX 1

### THE LIST OF THE 130 BES INDICATORS

The following list is divided by domain and includes, for each indicator, the name and the description of how it is calculated (as available in the 2019 BES report).

#### 1. Health

Life expectancy at birth	The average number of years that a child born in a given calendar year can expect to live.
Healthy life expectancy at birth	The average number of years that a child born in a given calendar year can expect to live in good health on the assumption that the risks of death and perceived health conditions remain constant. It is built using the prevalence of individuals who respond positively (“good” or “very good”) to questions on perceived health.
Mental health index	Measure of psychological distress obtained from the synthesis of the scores obtained by each individual of 14 years and over to 5 questions from the SF36 questionnaire (36-Item Short Form Survey). It includes one or more items from each of the four major mental health dimensions (anxiety, depression, loss of behavioral or emotional control, and psychological well-being). The final score varies from 0 to 100, with better psychological well-being corresponding to higher scores.
Infant mortality rate	Deaths during the first year of life per 10.000 born alive.
Road accidents mortality rate (15-34 y.o.)	Age-standardized mortality rate in road accidents by five-year age groups for people aged 15-34 years.
Age-standardized cancer mortality rate (20-64 y.o.)	Mortality rate for cancer (initial cause) by five-year age groups for people aged 20-64 years

Age-standardized mortality rate for dementia and nervous system diseases (65 years and over)	Mortality rate for nervous system diseases and psychical and behavioral disorders (initial cause) by five-year age groups for people aged 65 years and over.
Life expectancy without activity limitations at 65 years of age	The average number of years that a person aged 65 can expect to live without suffering limitations in activities due to health problems. It is based on the prevalence of individuals who answer to be limited, for at least the past 6 months, because of a health problem in activities people usually do.
Overweight or obesity (%)	Standardized rate of people aged 18 and over who are overweight or obese. The indicator refers to the Body Mass Index (BMI), which classifies people as overweight (25 <= BMI 30) as classified by the World Health Organization (WHO).
Smoking (%)	Standardized rate of people aged 14 and over who report current smoking.
Alcohol consumption (%)	Standardized rate of people aged 14 and over who are at-risk consumers of alcohol. Are identified as "at-risk consumers" all those individuals who have at least one risk behavior, exceeding the daily consumption of alcohol (according to specific thresholds for sex and age) or concentrating on a single occasion of consumption the intake of 6 or more units of any alcoholic drink.
Sedentariness (%)	Standardized rate of people aged 14 and over referring not to play sports neither continuously nor intermittently during their spare time, and people aged 14 and over referring not to perform any physical activity, such as walking at least 2 km, cycling, swimming, etc.
Adequate nutrition (%)	Standardized rate of people aged 3 years and over who say they take every day at least 4 portions of fruit and vegetables.

## 2. Education and training

Participation in the school system of children aged 4-5 (%)	Percentage of children aged 4-5 years participating in pre-primary education or in primary education on total children aged 4-5 years.
People with at least upper secondary education level (25-64 years, %)	Percentage of people aged 25-64 having completed at least upper secondary education (ISCED level not below 3) on total people aged 25-64 years.
People having completed tertiary education (30-34 years, %)	Percentage of people aged 30-34 years having completed tertiary education (ISCED 5, 6, 7 or 8) on total people aged 30-34.
First-time entry rate to university by cohort of upper secondary graduates (%)	Proportion of new graduates from upper secondary education enrolled for the first time at university in the same year of upper secondary graduation (cohort-specific rate).
Early leavers from education and training (%)	Percentage of people aged 18-24 years who have achieved only lower secondary (ISCED 2) and are not included in a training program on total people aged 18-24 years.
People not in education, employment, or training (NEET) (%)	Percentage of people aged 15-29 years that are not in education, employment, or training on total people aged 15-29 years.
Participation in life-long learning (%)	Percentage of people aged 25-64 years participating in formal or non-formal education on total people aged 25-64 years.
Inadequate level of literacy (%)	Share of students in grade 10 (second year of upper secondary education) performing below the baseline level of proficiency in literacy competence.
Inadequate level of numeracy (%)	Share of students in grade 10 (second year of upper secondary education) performing below the baseline level of proficiency in numeric competence (level 2 out of 5 levels).
People with high level of IT competencies (%)	Percentage of people aged 16-74 with advanced competences in all 4 groups identified in the “Digital competence framework”.

Synthetic indicator of the level of cultural participation (%)	Percentage of people aged 6 years and over who have carried out 3 or more activities in the 12 months before the interview on total people aged 6 years and over. The activities considered are: go to the cinema at least four times, at least once to the theatre, exhibitions and museums, archaeological sites, monuments, concerts of classical music, opera, concerts of other kind of music; read the newspaper at least three times per week, read at least four books
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### 3. Work and life balance

Employment rate (20-64 year-olds, %)	Percentage of employed people aged 20-64 on total people aged 20-64.
Non-participation rate (%)	Percentage of unemployed people and the potential labor force (those who have not looked for a job in the past 4 weeks but willing to work), on the total labor force (employed and unemployed) plus the potential labor force, referred to population aged 15-74.
Transition rate (12 months time-distance) from non-standard to standard employment (%)	Percentage of people employed in non-standard jobs at the time t0 (employees with temporary jobs + term-contract workers + project worker + occasional hired workers + single customer self-employed without employees) which have a standard job (permanent employees + self-employed with employees + no single customer self-employed without employees) a year later on total people employed in non-standard jobs at the time t0.
Share of employed persons with temporary jobs for at least 5 years (%)	Percentage of temporary employees and term-contract workers who began their current job at least 5 years prior to interview on total temporary employees and term-contract workers.

Share of employees with below 2/3 of median hourly earnings (%)	Percentage of employees with an hourly wage of less than 2/3 of the median on total number of employees.
Share of over-qualified employed persons (%)	Percentage of people employed with a qualification higher than the qualification held by the majority of people who exercise the same profession on total employed people.
Incidence rate of fatal occupational injuries or injuries leading to permanent disability (per 10,000 employed)	Proportion of fatal occupational injuries or injuries leading to permanent disability on total people employed (excluding the armed forces) per 10,000.
Share of employed persons not in regular occupation (%)	People employed who do not comply with work, fiscal and pension laws on total people employed.
Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children (%)	Employment rate of women aged 25- 49 with at least one child aged 0-5 / Employment rate of women aged 25-49 without children.
Share of employed people aged 15-64 years working over 60 hours per week (including paid work and household work) (%)	Percentage of employed people aged 15-64 years that work over 60 hours per week of paid work and household work.
Share of household work time carried out by women in a couple on the total of the household work time (%)	Household work time carried out by women, divided by household work time carried out by both partners, multiplied by 100.

Share of employed persons who feel satisfied with their work (mean value)	The indicator is built as the average level of satisfaction (using a scale from 0 to 10) in more than one dimension: the type of work, earnings, prospects of career, relations with others, working conditions and environment, reconciliation with lifetimes.
Share of employed persons who feel their work unsecure (%)	Employed persons who, in the following 6 months, consider it is likely they lose their job and it is not at all or a little likely that they find another similar job, divided by Total employed persons, multiplied by 100.
Involuntary part time (%)	People employed in a part time job because they did not find a full-time job on total employed.

#### 4. Economic well-being

Per capita disposable income (euro)	Ratio between disposable income of consumer households and the total number of residents (in euros).
Disposable income inequality (ratio of income shares)	Ratio of total equivalized income received by the 20% of the population with the highest income to that received by the 20% of the population with the lowest income.
People at risk of poverty (%)	Percentage of persons at risk of poverty, with an equivalized income less than or equal to 60% of the median equivalized income.
Per capita net wealth (euro)	Ratio of total net wealth of households to the total number of residents.
People living in financially vulnerable households (% households)	Percentage of households with debt service greater than 30% of disposable income on total resident households.
People living in absolute poverty (%)	Proportion of individuals belonging to households with an overall consumption expenditure equal or below the threshold of absolute poverty.
Severe material deprivation rat (%)	Share of population living in households lacking at least 4 items out of the following 9 items: 1) to pay rent or utility bills,

	2) keep home adequately warm, 3) face unexpected expenses (of 800 euros) 4) eat meat, fish or a protein equivalent every second day, 5) a week holiday away from home; or could not afford 6) a car, 7) a washing machine, 8) a color TV 9) a telephone.
Severe housing deprivation (%)	Share of population living in a dwelling which is considered as overcrowded, while also exhibiting at least one of the housing deprivation measures. Housing deprivation is calculated by reference to households with a leaking roof, neither a bath, nor a shower, nor an indoor flushing toilet, or a dwelling considered too dark.
Index of economic distress (%)	Share of individuals in households that, considering all the available income, declare to get to the end of the month with great difficulty.
Very low work intensity (%)	Proportion of people 0-59 living in households in which, in the previous year, household members of working age (person aged 18–59 years, excluding students aged 18–24) worked less than 20% of the number of months that could theoretically have been worked by the same household members

## 5. Social relationship

Satisfaction with family relations (%)	Percentage of people aged 14 and over that are very satisfied with family relations on total population aged 14 and over.
Satisfaction with friends relations (%)	Percentage of people aged 14 and over that are very satisfied with relations with friends on total population aged 14 and over.
People to rely on (%)	Percentage of people aged 14 and over that have relatives, friends or neighbors (besides parents, sons, siblings, grandparents, nephews) they can rely on, on total population aged 14 and over.

Social participation (%)	People aged 14 and over that have performed at least one social participation activity in the last 12 months on total population aged 14 and over. The activities in question are: participation in meetings of associations (cultural/recreational, ecological, civil rights, peace); participation in meetings of trade union organizations, professional or trade associations; meetings of political parties and/ or performance of free activities for a party; payment of a monthly or quarterly fee for a sports club.
Civic and political participation (%)	People aged 14 and over who perform at least one of the activities of civic and political participation on total population aged 14 and over. The activities in question are: to speak about politics at least once a week; to inform of the facts of Italian politics at least once a week; to attend online consultation or voting on social issues (civic) or political (e.g. urban planning, sign a petition) at least once in the 3 months prior to the interview, to read and to post opinions on social or political issues on the web at least once in the 3 months preceding the interview.
Voluntary activity (%)	Percentage of people aged 14 and over that have performed free activities for voluntary associations or groups in the last 12 months on total population aged 14 and over.
Association funding (%)	Percentage of people aged 14 and over that have funded associations in the last 12 months on total population aged 14 and over.
Nonprofit organizations (per 10,000 ab.)	Number of nonprofit organizations per 10,000 inhabitants.
Generalized trust (%)	Percentage of people aged 14 and over that feel that most people are worthy of trust on the total population aged 14 and over.

## 6. Politics and institutions

Voter turnout (%)	Percentage of eligible voter who cast a ballot in the last election for the European Parliament
Trust in the parliament (average rating)	Average score of trust in the Italian Parliament (on a scale from 0 to 10) expressed by people aged 14 and over.
Trust in judicial system (average rating)	Average score of trust in the judicial system (on a scale from 0 to 10) expressed by people aged 14 and over.
Trust in political parties (average rating)	Average score of trust in political parties (on a scale from 0 to 10) expressed by people aged 14 and over.
Trust in police and fire brigade (average rating)	Average score of trust in the police and the fire brigade (on a scale from 0 to 10) expressed by people aged 14 and over
Women and political representation in Parliament (%)	Percentage of women elected in Parliament on total number of MPs.
Women and political representation at regional level (%)	Percentage of women elected in regional councils on total number of elected people.
Women in decision-making bodies (%)	Percentage of women in position of high responsibility within the following bodies: Constitutional court, Magistrates' Governing Council, Italian Regulatory authorities (for Communications, Antitrust, Data protection), Embassies.
Women in the boards of companies listed in stock exchange (%)	Percentage of women in the board of companies listed in stock exchange.
Mean age of members of Parliament (years)	Average age of MPs.
Length of civil proceedings (days)	Effective average duration in days of proceedings set up in ordinary courts.
Prison density (prisoners per 100 places)	Percentage of prisoners in penal institutions on the total capacity of penal institutions.

## 7. Safety

Homicide rate (per 100,000)	Number of homicides on total population per 100,000.
Burglary rate (per 1,000 household)	Victims of burglaries per 1,000 households, adjusted for non-reporting by means of geographical area specific correction factors.
Pick-pocketing rate (per 1,000)	Number of pickpocketing on total population per 1,000, adjusted for non-reporting by means of geographical area and age specific correction factors.
Robbery rate (per 1,000)	Number of robberies on total population per 1,000, adjusted for non-reporting by means of geographical area and age specific correction factors.
Physical violence against women (%)	Percentage of women aged 16-70 victim of physical violence in the last 5 years before the interview on total women aged 16-70.
Sexual violence against women (%)	Percentage of women aged 16-70 victim of sexual violence, including physical sexual harassment, in the last 5 years before the interview on total women aged 16-70.
Intimate partnership violence against women (%)	Percentage of women aged 16-70 victim of physical or sexual violence by the partner or ex-partner in the last 5 years before the interview on total women aged 16-70 who have or had a partner.
Worries of being victim of a sexual violence (%)	Percentage of people aged 14 years and over who are very or quite worried of being victim of a sexual violence.
Feelings of safety when walking alone at night (%)	Percentage of people aged 14 and over feeling unsafe walking alone when it is dark in the area where they live.
Concrete fear of crime (%)	Percentage of people aged 14 and over who are afraid of becoming concretely a victim of crime in the last 3 months.
Social decay (or incivilities) (%)	Percentage of people aged 14 and over who often see elements of social and environmental decay in the area where they live.

## 8. Subjective well-being

Life satisfaction (%)	Percentage of people aged 14 and over with a level of life satisfaction from 8 to 10 on total population aged 14 and over.
Leisure time satisfaction (%)	Percentage of people aged 14 and over very or quite satisfied with their leisure time on total population aged 14 and over.
Positive judgement future perspectives (%)	Percentage of people aged 14 and over which believe their personal situation will improve in the next 5 years on total population aged 14 and over.
Negative judgement future perspectives (%)	Percentage of people aged 14 and over which believe their personal situation will worsen in the next 5 years on total population aged 14 and over.

## 9. Landscape and cultural heritage

Current expenditure of Municipalities for culture (euro per capita)	Current expenditure for protection and valorization of cultural properties and activities in euro per capita.
Density and importance of museums' heritage (per 100 sq.km)	Number of permanent exhibition facilities per 100 sq.km (museums, archaeological sites and monuments open to public), weighted by the number of visitors. The weight for each facility is set at $(V_i / V \times M)$ , where $V_i$ is the number of visitors, $M$ the total number of facilities and $V$ the total of visitors.
Illegal building rate (per 100 building permits issued)	Ratio of the number of unauthorized buildings to the number of building permits issued by the Municipalities.
Erosion of farmland from urban sprawl (percentage values)	Percentage ratio of rural areas affected by urban sprawl to the total of rural areas ("rural areas affected by urban sprawl": rural areas with increasing population and decreasing agricultural land).

Erosion of farmland from abandonment (percentage values)	Percentage ratio of abandoned rural areas to the total of rural areas (“abandoned rural areas”: rural areas with decreasing population and decreasing agricultural land).
Pressures of mining and quarrying activities (cubic meters per sq.km)	Volume of mineral resources extracted (cubic meters) per sq.km.
Impact of forest fires (per 1,000 sq.km)	Burnt forest area (wooded and non-wooded) per 1,000 sq.km.
Spread of rural tourism facilities (per 100 sq.km)	Number of farmhouses per 100 sq.km.
Presence of Historic Parks/Gardens and other Urban Parks recognized of significant public interest (per 100 sq. m.)	Percentage ratio of the area of parks and gardens classified as “historic” and/or “of a significant public interest” by the Legislative Decree no. 42/2004 to the total area of the provincial capital Municipalities.
People that are not satisfied with the quality of landscape of the place where they live (%)	Proportion of regional population reporting that the landscape of the place where they live is affected by evident deterioration.
Concern about landscape deterioration (%)	Proportion of population reporting, among the environmental problems for which they express more concern, the decay of landscape due to overbuilding.

## 10. Environment

Emissions of CO2 and other greenhouse gases (tons per capita)	Tons of CO2 equivalent per capita.
Domestic material consumption (million tons)	Quantity of materials transformed in emissions, waste, or new stocks of the anthropic system.

Water losses in urban supply system (%)	Percentage of the total volume of water losses in municipal drinking water supply networks (difference between volumes fed into the network and supplied authorized volumes).
Landfill of waste (%)	Percentage of municipal waste sent to landfill (including municipal waste streams into and out of other regions) on total municipal waste collected.
Quality of urban air - PM10 (%)	Percentage of control units of provincial capitals with valid measurements that have exceeded the daily limit value for PM10 (50 micro g/m <sup>3</sup> ) for over 35 days in the year.
Quality of urban air - Nitrogen dioxide (%)	Percentage of control units of provincial capitals with valid measurements that exceeded the annual limit value for NO <sub>2</sub> (40 micro g/m <sup>3</sup> ).
Coastal bathing waters (%)	Percentage of authorized coastal bathing waters on the total of the coastal line in accordance with the regulations in force. The indicator is calculated by subtracting from the bathing waters the stretches of coast forbidden for bathing during the entire bathing season due to levels of contaminants beyond the thresholds of health risk.
Urban green (sq. m. per capita)	Square meters of urban parks and gardens per inhabitants.
Satisfaction for the environment (%)	Percentage of people aged 14 and over very or quite satisfied of the environmental situation (air, water, noise) of the area where they live.
Contaminated sites (per 1.000 sq.km)	Size of contaminated sites.
Population at risk of landslides (%)	Percentage of population living in areas subject to landslide on total population.
Population at risk of flood (%)	Population at flood risk resident in medium flood hazard zones

Sewage treatment (%)	Percentage of polluting loads collected in secondary or advanced plants, in equivalent inhabitants, compared to the total urban loads (Aetu) generated.
Protected natural areas (%)	Percentage share of terrestrial protected natural areas included in Italian Official List of Protected Areas (Euap) and Natura 2000 Network.
Concern for biodiversity loss (%)	Percentage of people aged 14 and over who believe that biodiversity loss is among the five most important environmental problems.
Electricity from renewable sources (%)	Percentage of energy consumptions provided by renewable sources on total internal consumptions.
Separate collection of municipal waste (%)	Percentage of municipal waste object of separate collection on total municipal waste.
Soil sealing from artificial land cover (%)	Percentage of soil sealed following a change from non-artificial to artificial coverage.

## 11. Innovation, research and creativity

R&D intensity (%)	Percentage of R&D expenditure on GDP.
Patent propensity (per Mil)	Number of patent applications filed to the European Patent Office (EPO) per million of inhabitants.
Impact of knowledge workers on employment (%)	Percentage of employees with tertiary education (ISCED 5-6-7-8) in scientific-technological occupations (ISCO 2-3) on total employees.
Innovation rate of the national productive system (%)	Percentage of firms that have introduced technological (product or process), organizational or marketing innovation in a three-year period on total number of firms with at least 10 persons employed.
Intellectual property products (as part of gross fixed capital formation, 2007=100)	The value of expenditure on research and development, mineral exploration and evaluation, computer software and database, entertainment literary or artistic originals and other

	intellectual property products intended to be used for more than one year.
Cultural employment (% of total employment)	Percentage of employees in cultural and creative enterprises out of the total number of employees
Brain circulation (Italians, 25-39 years old, ‰)	Net migration rate of holders of a tertiary degree: (immigrants-emigrants) / total resident population * 1,000. Both numerator and denominator refer to Italian holders of a tertiary degree, 25-39 year-olds.

## 12. Quality of services

Beds in residential health care facilities (‰)	Beds in residential health care facilities per 1,000 inhabitants.
Children who benefited of early childhood services (%)	Users of nurseries and other educational services for the first childhood managed or financed by municipalities, as a percentage of children aged 0-2 years
Integrated home assistance service (%)	Percentage of people aged 65 and over who benefited from integrated home assistance service.
Composite index of service accessibility (mean 3 years)	Percentage of households who find very difficult to reach some basic services (pharmacy, emergency room, post office, police, carabinieri, municipal offices, crèches, nursery, primary and secondary school, market and supermarket). The indicator is a three-year average
Broadband coverage (%)	Population covered with ultra-broadband (at least 30 Mbps) as a percentage of resident population.
Irregularities in water supply (%)	Percentage of households who report irregularities in water supply on total number of households.
Irregularities in electric power distribution (mean number)	Frequency of accidental long-lasting electric power cuts (cuts without notice longer than 3 minutes) (average number per consumer).

Seat-Km of public transport networks (per inhabitants)	Seat-Km of public transport networks per capita.
Time devoted to mobility (minutes)	Minutes devoted to mobility on an average weekday by people aged 15 and over.
Satisfaction with means of transport (%)	Percentage of users aged 14 and over who rated 8 or more (over 10) for all means of transport used regularly (more than once a week), over the total number of regular users aged 14 and over

## ANNEX 2

### MISSIONS FROM THE PLANNING DOCUMENTS, CPT SECTORS AND BES DOMAINS

<b>Missions</b>	<b>CPT Sectors</b>	<b>BES domains</b>	<b>BES indicators included</b>	<b>BES indicators excluded</b>
MISSIONE 1 - Servizi istituzionali, generali e di gestione (Institutional, general and managerial services)	Amministrazione generale (General administration)	Politics and institutions	Voter turnout	Trust in police and fire brigade
			Trust in the parliament	Women in the boards of companies listed in stock exchange
			Trust in judicial system	Mean age of members of Parliament
			Trust in political parties	Length of civil proceedings
			Women and political representation in Parliament	Prison density
			Women and political representation at regional level	
			Women in decision-making bodies	

MISSIONE 2 – Giustizia (Justice)	Giustizia (Justice)	Politics and institutions	Trust in police and fire brigade	Voter turnout
			Length of civil proceedings	Trust in the parliament
			Prison density	Trust in judicial system
				Trust in political parties
				Women and political representation in Parliament
				Women and political representation at regional level
				Women in decision-making bodies
				Women in the boards of companies listed in stock exchange
		Safety	Homicide rate	
			Burglary rate	
			Pick-pocketing rate	
			Robbery rate	
			Physical violence against women	
			Sexual violence against women	
			Intimate partnership violence against women	
			Worries of being victim of a sexual violence	
Feelings of safety when walking alone at night				
Concrete fear of crime				
Social decay (or incivilities)				

MISSIONE 3 - Ordine pubblico e sicurezza (Public order and safety)	Difesa (Defense)	Safety	Homicide rate			
			Burglary rate			
			Pick-pocketing rate			
			Robbery rate			
			Physical violence against women			
			Sexual violence against women			
			Intimate partnership violence against women			
			Worries of being victim of a sexual violence			
			Feelings of safety when walking alone at night			
			Concrete fear of crime			
			Social decay (or incivilities)			
			Politics and institutions		Trust in police and fire brigade	Voter turnout
						Trust in the parliament
		Trust in judicial system				
		Trust in political parties				
		Women and political representation in Parliament				
		Women and political representation at regional level				
		Women in decision-making bodies				
		Women in the boards of companies listed in stock exchange				
		Mean age of members of Parliament				
	Length of civil proceedings					
	Prison density					

MISSIONE 4 - Istruzione e diritto allo studio (Education and Right to education)	Istruzione (Education)	Education and Training	Participation in the school system of children aged 4-5	Syntetic indicator of the level of cultural participation
			People with at least upper secondary education level (25-64 years)	
			People having completed tertiary education (30-34 years)	
			First-time entry rate to university by cohort of upper secondary graduates	
			Early leavers from education and training	
			People not in education, employment, or training (Neet)	
			Participation in life-long learning	
			Inadequate level of literacy	
			Inadequate level of numeracy	
			People with high level of IT competencies	

MISSIONE 5 - Tutela e valorizzazione dei beni e attività culturali (Protection and valorization of cultural heritage and activities)	Cultura e servizi ricreativi (Culture and recreational services)	Landscape and cultural heritage	Current expenditure of Municipalities for culture	Illegal building rate
			Density and importance of museums' heritage	Erosion of farmland from urban sprawl
			Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest	Erosion of farmland from abandonment
				Pressures of mining and quarrying activities
				Impact of forest fires
				Spread of rural tourism facilities
				People that are not satisfied with the quality of landscape of the place where they live
			Concern about landscape deterioration	

MISSIONE 6 - Politiche giovanili, sport e tempo libero (Political actions for young people, sports and leisure)	Cultura e servizi ricreativi (Culture and recreational services)	Subjective well-being	Life satisfaction	Positive judgement future perspectives
			Leisure time satisfaction	Negative judgement future perspectives
		Social relationships	Satisfaction with family relations	Generalized trust
			Satisfaction with friends relations	
			People to rely on	
			Social participation	
			Civic and political participation	
			Voluntary activity	
			Association funding	
			Nonprofit organizations	
		Health	Life expectancy at birth	Mental health index
			Healthy life expectancy at birth	Infant mortality rate
			Life expectancy without activity limitations at 65 years of age	Road accidents mortality rate (15-34 y.o.)
			Overweight or obesity	Age-standardized cancer mortality rate (20-64 y.o.)
			Smoking	Age-standardized mortality rate for dementia and nervous system diseases (65 years and over)
			Alcohol consumption	Adequate nutrition
			Sedentariness	

MISSIONE 8 - Assetto del territorio ed edilizia abitativa (Landscape and housing)	Edilizia abitativa e urbanistica (Housing and city planning)	Landscape and cultural heritage	Illegal building rate	Current expenditure of Municipalities for culture	
			Erosion of farmland from urban sprawl	Density and importance of museums' heritage	
			Erosion of farmland from abandonment	Impact of forest fires	
			Pressures of mining and quarrying activities		
			Spread of rural tourism		
			Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest		
			People that are not satisfied with the quality of landscape of the place where they live		
			Concern about landscape deterioration		
			Urban green		Emissions of CO2 and other greenhouse gases
			Satisfaction for the environment		Domestic material consumption
	Population at risk of landslides	Water losses in urban supply system			
	Population at risk of flood	Landfill of waste			
	Sewage treatment	Quality of urban air - PM10			
	Concern for biodiversity loss	Quality of urban air - Nitrogen dioxide			
	Separate collection of municipal waste	Coastal bathing waters			
	Soil sealing from artificial land cover	Contaminated sites			
		Protected natural areas			

			Electricity from renewable sources
	Safety	Homicide rate	
		Burglary rate	
		Pick-pocketing rate	
		Robbery rate	
		Physical violence against women	
		Sexual violence against women	
		Intimate partnership violence against women	
		Worries of being victim of a sexual violence	
		Feelings of safety when walking alone at night	
		Concrete fear of crime	
		Social decay (or incivilities)	

MISSIONE 9 - Sviluppo sostenibile e tutela del territorio e dell'ambiente (Sustainable development and protection of the landscape and the environment)	Servizio Idrico Integrato, Smaltimento dei rifiuti, Ambiente (Water services, Waste disposal, Environment)	Quality of services	Irregularities in water supply	Beds in residential health care facilities
			Irregularities in electric power distribution	Children who benefited of early childhood services
			Seat-Km of public transport networks	Integrated home assistance service
			Time devoted to mobility	Composite index of service accessibility
			Satisfaction with means of transport	Broadband coverage
		Environment	Emissions of CO2 and other greenhouse gases	
			Domestic material consumption	
			Water losses in urban supply system	
			Landfill of waste	
			Quality of urban air - PM10	
			Quality of urban air - Nitrogen dioxide	
			Coastal bathing waters	
			Urban green	
			Satisfaction for the environment	
			Contaminated sites	
			Population at risk of landslides	
			Population at risk of flood	
			Sewage treatment	
			Protected natural areas	
Concern for biodiversity loss				
Electricity from renewable sources				

		Separate collection of municipal waste	
		Soil sealing from artificial land cover	
	Landscape and cultural heritage	Illegal building rate	Current expenditure of Municipalities for culture
		Erosion of farmland from urban sprawl	Density and importance of museums' heritage
		Erosion of farmland from abandonment	Spread of rural tourism
		Pressures of mining and quarrying activities	Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest
		Impact of forest fires	
		People that are not satisfied with the quality of landscape of the place where they live	
		Concern about landscape deterioration	

MISSIONE 10 - Trasporti e diritto alla mobilità (Public transportation and right to mobility)	Altri trasporti, Viabilità (Other means of transportation, Roads and traffic)	Quality of services	Composite index of service accessibility	Beds in residential health care facilities
			Seat-Km of public transport networks	Children who benefited of early childhood services
			Time devoted to mobility	Integrated home assistance service
			Satisfaction with means of transport	Broadband coverage
				Irregularities in water supply
			Irregularities in electric power distribution	
		Health	Life expectancy at birth	Mental health index
			Healthy life expectancy at birth	Age-standardized mortality rate for dementia and nervous system diseases (65 years and over)
			Infant mortality rate	Overweight or obesity
			Road accidents mortality rate (15-34 y.o.)	Smoking
			Age-standardized cancer mortality rate	Alcohol consumption
			Life expectancy without activity limitations at 65 years of age	Adequate nutrition
			Sedentariness	

MISSIONE 11 - Soccorso civile (Civil assistance)	Sicurezza pubblica (Public safety)	Politics and Insitutions	Trust in police and fire brigade	Voter turnout
			Prison density	Trust in the parliament
				Trust in judicial system
				Trust in political parties
				Women and political representation in Parliament
				Women and political representation at regional level
				Women in decision-making bodies
				Women in the boards of companies listed in stock exchange
				Length of civil proceedings
		Mean age of members of Parliament		
		Landscape and cultural heritage	Illegal building rate	Current expenditure of Municipalities for culture
			Erosion of farmland from urban sprawl	Density and importance of museums' heritage
			Erosion of farmland from abandonment	Spread of rural tourism
			Pressures of mining and quarrying activities	Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest
			Impact of forest fires	
			People that are not satisfied with the quality of landscape of the place where they live	
			Concern about landscape deterioration	

MISSIONE 12 - Diritti sociali, politiche sociali e famiglia (Social Rights, Social Politics and Families)	Interventi in campo sociale (assist. e benef.), Previdenza e Integrazioni Salariali, Altri interventi igienico sanitari (Social services, Salaries, Other Sanitary Interventions)	Quality of services	Beds in residential health care facilities	Broadband coverage
			Children who benefited of early childhood services	Irregularities in water supply
			Integrated home assistance service	Irregularities in electric power distribution
			Seat-Km of public transport networks	
			Time devoted to mobility	
			Satisfaction with means of transport	
			Composite index of service accessibility	
		Economic Well-Being	Per capita disposable income	
			Disposable income inequality	
			People at risk of poverty	
			Per capita net wealth	
			People living in financially vulnerable households	
			People living in absolute poverty	
			Severe material deprivation rate	
			Severe housing deprivation	
			Index of economic distress	
			Very low work intensity	
		Health	Life expectancy at birth	Road accidents mortality rate (15-34 y.o.)
			Healthy life expectancy at birth	
			Infant mortality rate	
Age-standardized cancer mortality rate				

		Life expectancy without activity limitations at 65 years of age
		Sedentariness
		Mental health index
		Age-standardized mortality rate for dementia and nervous system diseases (65 years and over)
		Overweight or obesity
		Smoking
		Alcohol consumption
		Adequate nutrition

MISSIONE 13 - Tutela della salute (Health protection)	Sanità (Healthcare)	Health	Life expectancy at birth	Road accidents mortality rate (15-34 y.o.)
			Healthy life expectancy at birth	
			Infant mortality rate	
			Age-standardized cancer mortality rate	
			Life expectancy without activity limitations at 65 years of age	
			Sedentariness	
			Mental health index	
			Age-standardized mortality rate for dementia and nervous system diseases (65 years and over)	
			Overweight or obesity	
			Smoking	
			Alcohol consumption	
			Adequate nutrition	

MISSIONE 14 - Sviluppo economico e competitività (Economic development and competitiveness)	Ricerca e Sviluppo, Telecomunicazioni, Industria e Artigianato, Commercio, Altre in campo economico (Research, Development, Telecommunication, Manufacturing, Craftsmanship, Trade, Other industries)	Innovation, Research and Creativity	R&D intensity	
			Patent propensity	
			Impact of knowledge workers on employment	
			Innovation rate of the national productive system	
			Intellectual property products	
			Cultural employment	
			Brain circulation	
	Quality of services		Broadband coverage	Beds in residential health care facilities
				Children who benefited of early childhood services
				Integrated home assistance service
				Seat-Km of public transport networks
				Time devoted to mobility
				Satisfaction with means of transport
				Composite index of service accessibility
				Irregularities in water supply
	Landscape and cultural heritage		Spread of rural tourism	Current expenditure of Municipalities for culture
			Density and importance of museums' heritage	

			Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest
			Illegal building rate
			Erosion of farmland from urban sprawl
			Erosion of farmland from abandonment
			Pressures of mining and quarrying activities
			Impact of forest fires
			People that are not satisfied with the quality of landscape of the place where they live
			Concern about landscape deterioration

MISSIONE 15 - Politiche per il lavoro e la formazione professionale (Political actions on work and vocational education)	Formazione, Lavoro (Education, work)	Education	People with at least upper secondary education level (25-64 years)	Participation in the school system of children aged 4-5
			People having completed tertiary education (30-34 years)	Syntetic indicator of the level of cultural participation
			First-time entry rate to university by cohort of upper secondary graduates	
			Early leavers from education and training	
			People not in education, employment, or training (Neet)	
			Participation in life-long learning	
			Inadequate level of literacy	
			Inadequate level of numeracy	
			People with high level of IT competencies	
		Innovation, Research and Creativity	R&D intensity	Innovation rate of the national productive system
			Patent propensity	Intellectual property products
			Impact of knowledge workers on employment	
			Cultural employment	
			Brain circulation	
		Work and Life balance	Employment rate	
			Non-participation rate	
			Transition rate from non-standard to standard employment	
			Share of employed persons with temporary jobs for at least 5 years	

		Share of employees with below 2/3 of median hourly earnings
		Share of over-qualified employed persons
		Incidence rate of fatal occupational injuries or injuries leading to permanent disability
		Share of employed persons not in regular occupation
		Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children
		Share of employed people aged 15-64 years working over 60 hours per week
		Share of household work time carried out by women in a couple on the total of the household work time
		Share of employed persons who feel satisfied with their work
		Share of employed persons who feel their work unsecure
		Involuntary part-time

MISSIONE 16 - Agricoltura, politiche agroalimentari e pesca (Agriculture, Agrifood and Fishing)	Agricoltura, Pesca marittima e acquicoltura (Agriculture, Fishing and Aquaculture)	Landscape and culturale heritage	Illegal building rate	Current expenditure of Municipalities for culture
			Erosion of farmland from urban sprawl	Density and importance of museums' heritage
			Erosion of farmland from abandonment	Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest
			Pressures of mining and quarrying activities	People that are not satisfied with the quality of landscape of the place where they live
			Impact of forest fires	Concern about landscape deterioration
			Spread of rural tourism	

MISSIONE 17 - Energia e diversificazione delle fonti energetiche (Energy and diversification of energetical resource)	Energia (Energy)	Environment	Emissions of CO2 and other greenhouse gases	Water losses in urban supply system
			Domestic material consumption	Landfill of waste
			Quality of urban air - PM10	Coastal bathing waters
			Quality of urban air - Nitrogen dioxide	Urban green
			Satisfaction for the environment	Contaminated sites
			Concern for biodiversity loss	Population at risk of landslides
			Electricity from renewable sources	Population at risk of flood
			Separate collection of municipal waste	Sewage treatment
			Soil sealing from artificial land cover	Protected natural areas
			Quality of services	
		Beds in residential health care facilities		
		Children who benefited of early childhood services		
		Integrated home assistance service		
		Seat-Km of public transport networks		
		Time devoted to mobility		
		Satisfaction with means of transport		
	Composite index of service accessibility			
	Irregularities in water supply			

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