1. Going beyond GDP: theoretical approaches

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INTRODUCTION

In the aftermath of the Great Depression, the government of the United States needed a strong tool to assess the effectiveness of the policies undertaken to foster economic recovery. In this context, the initial framework of the System of National Accounts provided a powerful overview of the main dimensions of the economic system (production, consumption, savings, and so on) when most of the public attention was focused on the movements of the Dow-Jones index. The System, and its central indicator, the gross domestic product (GDP), was not only methodologically robust, but also supported by economic theory, the Keynesian one in particular, which guided Western societies after the crisis and the Second World War. GDP growth has thus become the main aim of societies and political action, as well as a synonym of development, well-being and progress. Yet, this has not always been the case. The ultimate purpose of human activities was happiness already for Aristotle in the *Nicomachean Ethics*, as well as, for example, during the enlightenment in Jeremy Bentham's work, and for the American Constitution.

Along with the development of the paradigm of economic growth, the second half of the twentieth century also saw an uninterrupted evolution of the criticisms of this solely economic approach. These were initially concentrated on the social aspects, stressing the fact that social conditions, standard of living and quality of life needed a broader set of indicators to be evaluated. From the 1970s, the environmental aspects emerged strongly: the fact that indefinite growth in production could not be possible, given the limited planetary boundaries; as well as increasing attention to the environmental externalities produced by the economic system. More recently, consciousness about the risks posed by climate change has strengthened the consensus around the irrationality of looking only at GDP growth.

This chapter aims at presenting the recent historical evolution of some of the theoretical concepts which underpinned the debate over the need to go 'beyond GDP'. We primarily focus on the approaches of multidimensionality and basic needs, utilitarianism and subjective well-being, and capabilities. We also present the methodological debate on aggregation, since the need to aggregate measures of the different domains of well-being is a constant issue which has never found a satisfactory answer on either the opportunity to aggregate or the best method to be used.

Two sections are then dedicated specifically to the measurement of inequalities and sustainability, fundamental elements of well-being and development posing measurement problems which are addressed in a number of ways. In particular, the issue of sustainability, which originally only considered the respect of ecological boundaries, raises formidable problems when extended to social aspects. Such problems are still in need of satisfactory solutions and therefore remain among the research issues lying ahead.

Further sections of the chapter are dedicated to more procedural and political issues,

reflecting on the need to include citizens and stakeholders in the identification of the indicators to be used to go ‘beyond GDP’ if we aspire to measure what may have some democratic legitimacy. We then present the developments of the international debate in the last decade and the most relevant initiatives taken in the field of measuring national well-being. We conclude by highlighting the existing international convergence on the need of a broader set of national objectives represented by the debate over the Sustainable Development Goals.

1.1 ABOUT GDP

1.1.1 The GDP-Led Society

The 1929 crisis, which hit the United States and the rest of the world so hard, highlighted the fragility of the American economic system and of the tools policy makers would rely upon to prevent and better react to similar events. In 1931, the Department of Commerce was asked to provide estimates of national income: it was decided to rely on the expertise of the National Bureau of Economic Research (NBER), and especially on that of Simon Kuznets, who was already working on this issue. In 1934 Kuznets was able to present to the Congress a first full formulation of the national income as the ‘part of the economy’s end product that results from the efforts of the individuals who comprise a nation’ (Kuznets, 1934, p. 1). After that, a series of Conferences on Research in Income and Wealth pulled together experts, academics, policy makers, institutions and key interest groups with the aim of continuously fine-tuning the System of National Accounts (SNA).

By the end of the 1930s, GDP and the SNA had taken a robust form, being based on a coherent theoretical framework. Moreover, with the publication of John Maynard Keynes’s *General Theory* (Keynes, 1936), GDP was put at the centre of a broad macro-economic analysis model. Since Keynesian policies worked through monetary flows, a systematic measurement of aggregate economic activity (and employment) was strictly necessary. In the words of Robert Solow, Kuznets provided the ‘anatomy’ for Keynes’s ‘physiology’ (European Parliament, 2007).

The SNA and GDP allowed for an effective management of national resources, playing a very relevant role during the recovery from the crisis and during the war, leading scholars to compare the use of GDP as a ‘weapon’ only the United States (US) could rely upon, to the consequence of the Manhattan Project. It allowed for the conversion of the civil economy into a war machine without hampering internal consumption, thus continuing to generate revenues for the war (Cobb et al., 1995; Fioramonti, 2013).

Yet, Kuznets himself (US Congress, Senate, 1934, pp. 5, 6) warned about the precautions to be taken when using GDP, the results of which are to be ‘interpreted with a full realization of the definition of national income assumed, either explicitly or implicitly, by the measurement’: the distinction between national and domestic measures (‘the boundaries of a nation’); the lack of services provided by family members, housework in particular, and by owned durable goods; earning from odd jobs; relief and charity; changes in the value of assets; earnings from illegal pursuits. Besides what national income did or did not include, he also considered that it could not work as a measure of economic welfare ‘unless the personal distribution of income is known’. Moreover, the use of a synthetic

measure carries some risk, since ‘the definiteness of the result suggests, often misleadingly, a precision and simplicity in the outlines of the object measured’. He was already taking into account the implications of bounded rationality, noticing how:

the valuable capacity of the human mind to simplify a complex situation in a compact characterization becomes dangerous when not controlled in terms of definitely stated criteria. With quantitative measurements especially, the definiteness of the result suggests, often misleadingly, a precision and simplicity in the outlines of the object measured. Measurements of national income are subject to this type of illusion and resulting abuse, especially since they deal with matters that are the centre of conflict of opposing social groups where the effectiveness of an argument is often contingent upon oversimplification.

Despite Kuznets’s own advice not to consider GDP as a measure of well-being, we know that this was exactly what was occurring then, and by the early 1950s GDP had become the undisputed key metric for economic performance and overall progress. After the Second World War, GDP grew along with most social outcome indicators; of course, economic growth has been the driver of a number of social improvements such as health conditions, education and opportunities for consumption, appearing as the perfect indicators for well-being and development, especially since, at that time, the negative impacts of economic growth on the environment, on social relationships and on time for leisure were not taken into account.

In his inaugural speech in 1949 on the international role to come for the United States, President Harry Truman stated, as the fourth and last point: ‘we must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas’ (Truman, 1949, par. 44). According to many, the announcement of this fourth point of the Truman doctrine was the moment at which the idea of underdevelopment was established, as well as the equality between development and economic growth.

In 1960, Walt Rostow proposed an influential model of development stages based on the United States’ industrialization and economic growth models. Rostow (1960) suggested a unique path towards development which passed from a traditional agricultural society to industrialization in a core sector, the so-called ‘take-off’, and to the following diffusion of an advanced market economy based on the US and Western model, to ultimately reach the stage of mass consumption. Three main conditions were required for take-off: the investment rate should rise from around 5 per cent to more than 10 per cent of national income; at least one manufacturing sector should start to grow rapidly; and the institutional framework must guarantee that domestic resources are mobilized for productive activities and not for consumption. After the high growth of a few industrial enterprises in key sectors (which may change from country to country), the increase in investment rates would lead the diffusion of industrial production into the ‘maturity’ stage leading to tertiary activities, urbanization of the population, decrease in fertility rates and a diminished attention to the perspectives of industrialization and material development. In particular, the social costs of further industrialization would appear as excessive, and new perspectives of social satisfaction would become attractive. The final stage of ‘high mass consumption’ would then be characterized by two major economic phenomena: an income which permits a level of consumption over the basic needs, and a tertiarization of the economy.¹

According to Rostow, once the priorities of industrialization are met, societies can move towards three alternative scenarios (Solivetti, 1993): (1) the welfare scenario, a policy sustained by the state of social services, security, reduction of working hours for the whole population; (2) the mass-consumption scenario, based on private instead of public consumption; or (3) the scenario of national empowerment, based on military expenditures and international expansion. The mass-consumption society, together with a Keynesian approach, which looks at consumption as the major driver for GDP growth, would lead policy makers to see citizens only as consumers. This brought Kuznets himself to appeal for further caution in relation to the myth of GDP growth: 'Distinctions must be kept in mind between quantity and quality of growth, between its costs and return, and between the short and the long run. Goals for more growth should specify more growth of what and for what' (Kuznets, 1962, p. 29).

Such an 'economistic vision' of development was central to the political debate throughout the whole century. It was strongly supported by the 'neoliberal' ideas, which considered public intervention in the economy as useless or even harmful, since self-regulated free markets would have led to the optimal resource allocation. In particular, the idea of a 'trickle-down effect' in which, automatically and without the need for direct intervention, the benefits and the wealth produced by the industry would then slowly spread to all other sectors of society, made the existence of imbalances in the distribution of wealth within society in the short and medium term tolerable, if not required (Galenson and Leibenstein, 1955; Kuznets, 1955). During the second half of the century, the idea that economic development, and especially industrial growth, could automatically translate into a widespread prosperity for all citizens and for all the different sectors of society appeared well established.

1.1.2 GDP Limits as an Indicator of both Economic Performance and Well-Being

More recently, during the recent Great Recession, the fall and stagnation of GDP, especially in European countries, brought GDP growth to the centre of political debate once again. Yet, the 2008 crisis itself revealed some of the limits of the above-mentioned point of view, since looking only at GDP growth did not allow the approaching crisis to be seen: the economic system was clearly ill, but looking only at the increases in production (while ignoring poverty and private indebtedness) gave the impression that everything was going in the right direction.

The GDP-led society is based on the assumption that GDP growth is the goal when it comes to improving both economic performance and people's well-being. The criticisms over the use of GDP as a reference indicator address both aspects, and if the latter is easy to guess, the former is less straightforward.

The first part of the final report of the Stiglitz–Sen–Fitoussi Commission (Stiglitz et al., 2009) particularly addressed the limits of GDP in measuring economic performance. These refer, first of all, to the use of market prices in determining the utility of the different components of GDP. Market prices do not exist for certain goods and services which, nevertheless, deliver economic utility. That is the case of free public services, domestic work and voluntary work. And even when market prices exist, they may deviate from the social value: environmental externalities represent a typical example of such a deviation between the market and the social price. Moreover, quality changes in products can be

very complex, and in some cases very rapid, setting a tremendous challenge to statisticians in the estimation of inflation. This has relevant implications in the evaluation of real income and real consumption, which deeply determine people's standard of living: overestimating inflation implies underestimating living conditions.

A second issue refers to depreciation in the fast-degrading current technological economy. Therefore, net measures should be preferred to gross values for a more accurate measure of overall performances. Other elements of weakness of GDP also relate to the differences which may arise between national and domestic measures in globalized economies. Focusing on income, more than on production, the national product may represent a better measure of economic performance.

Another possible distortion, mainly in cross-country comparisons, is due to the different valuation of public and private services; the former been valued for their cost (input), the latter for their market price (output). The same service will present a lower value in terms of GDP when provided by the public. Therefore, different institutional arrangements may lead to important differences when health and education services are prevalently public or private, since, due to the fact that productivity changes for government-provided services are systematically ignored, increases in public sector productivity may lead to underestimated GDP growth. Adjusted measures of income or output-based measures may reduce these discrepancies, guaranteeing the invariance principle.²

Finally, a well-known shortcoming in the use of GDP as an indicator of economic performance is in the valuation of defensive expenditures (those needed to mitigate the negative impacts of economic activities) as final goods or services. They should instead be considered as intermediate costs, and thus not accounted within GDP. Yet, the major difficulty here stands in the definition of which expenditures should be defined as defensive and which should not, the border being quite fuzzy.

The 'Stiglitz Report' identifies the net adjusted disposable income as a more appropriate general indicator for a country's economic performance. This indicator continues to refer to the System of National Accounts, but focuses much more on citizens' actual economic conditions by looking at disposable income, also taking into account taxation and social transfers, as well as the major public services which people can rely upon without having to pay for them.

If GDP is a flawed measure of economic performance, it is much clearer that it cannot fully represent well-being. Even if some of the determinants of well-being are somehow related to income, such as employment, education or health care, many very relevant aspects are totally independent: for example, social relationships, leisure, affects, quality of democracy, personal freedom, and so on. Moreover, as noted by Fleurbaey and Blanchet (2014), using GDP as a measure of well-being lacks analytical clarity in separating inputs, intermediate products, outputs and outcomes: from a well-being perspective, consumption is an outcome while public expenditure and investments are inputs, and their aggregation in a single measure would appear methodologically inexact.

1.2 BEYOND GDP

1.2.1 Social Trends and Standard of Living: The 1930s

The demand for an analytical framework to assess social and economic conditions of citizens and a theoretical approach to measure them has nevertheless been present throughout the whole twentieth century. Concepts such as well-being, welfare, standard of living, quality of life, progress and development have often been used to describe the final aim of political actions, and have been object of several theoretical and empirical studies.

The first efforts to synthetically measure the social conditions within a country were developed in the United States during the same years in which GDP was formalized by Simon Kuznets. Besides the need to better understand the economic system, it appeared necessary to evaluate the social impact of the crisis. In 1929, President Hoover established the Committee on Social Trends, chaired by Professor Wesley C. Mitchell, the founding director of the National Bureau of Economic Research (with whom Kuznets was a close collaborator) with the aim of helping ‘to see where social stresses are occurring and where major efforts should be undertaken to deal with them constructively’ (from President Hoover’s Introduction, in Committee on Social Trends, 1933, p. v).

The Committee proposed to focus on social outcomes in order to provide a picture of American society and to highlight the relationships existing among emerging problems within a unifying framework: ‘a basis for social action, rather than recommendations as to the form which action should take’ (Committee on Social Trends, 1933, p. xciii). The proposal was based on three broader areas – physical heritage, biological heritage and social heritage³ – and the final Report was accompanied by 12 monographs presenting a broad range of data, in some cases brand new data, dealing with: population; communication agencies; education; metropolitan communities; rural communities; races and ethnic groups; political, social and economic activities of women; recreation (Americans at play); the arts; health and environment; public administration; and growth of the federal Government.

At the same time, during the 1930s, a broad academic debate was taking place over the definition and the way of measuring the ‘standard of living’. Scale of living, plane of living and level of living were all proposed as central concepts, though they never gained general acceptance (Bennett, 1937). Bennett defined the standard of living as ‘per capita quantum of goods and services utilized annually by the inhabitants of a country’ (Bennett, 1937, p. 317), a concept which, in his view, cannot be measured through statistics on national expenditure because of the difficulties in reducing data expressed in different currencies to a common monetary basis, and because of the scarcity and non-comparability of statistics on national income or expenditure. He thus built an index, using the scarce information available, to rank countries: the index included elements of economic well-being with important social outcomes such as mortality and fertility rates, deaths from preventable diseases, literacy, educational attainment, leather shoes sold, together with luxury items such as jewels and sugar. In practice, he built one of the first composite indexes on well-being which included data on food, clothing and adornments, shelter and its characteristics, transport and communication, as well as professional services (which included educational, medical, sanitary, religious, protective and recreational services).

In making explicit his difficulties in going beyond objective measures of goods and services availability, Bennett explained that the indicators he selected were:

not designed to show whether or not the average person in the British Isles is happier or enjoys life more than the average person in Portugal, but merely to show whether and to what extent the one exceeded the other with reference to use of a limited though not a narrow aggregation of goods and services. (Bennett, 1937, p. 318)

1.2.2 The Social Indicators Movement

During the 1960s and 1970s the concept of development, which was central in the political debate, moved towards a much more complex dimension beyond GDP growth, leading to the idea that a multidimensional bulk of social indicators was needed to better understand reality and to guide policy decisions. In 1967, the *Populorum Progressio* encyclical written by Pope Paul VI evidenced the need to separate the concept of development from that of economic growth: ‘The development We speak of here cannot be restricted to economic growth alone. To be authentic, it must be well rounded; it must foster the development of each man and of the whole man’ (Paul VI, 1967, p. 3). Development of people means that man is the object of development, and that development can, and should, be evaluated according to the realization and fulfilment of people’s needs and aspirations. This observation, which may appear trivial and obvious, is even revolutionary in the social sciences, since from the outset they have been characterized by what, following Ulrich Beck (1999), we might call ‘methodological nationalism’: the primary unit of analysis of research and study is society, and in particular the nation-state.

In 1969, Dudley Seers could affirm that ‘we have all been aware that development consists in much else besides economic growth’ (Seers, 1969, p. 1) and that among ‘the challenges for the remainder of this century . . . the first is how to find measures of development to replace the national income, or more precisely to enable the national income to be given its true, somewhat limited, significance’ (ibid., pp. 9–10). Development necessarily had to solve three major problems: poverty, unemployment and inequality: ‘A “plan” which conveys no targets for reducing poverty, unemployment and inequality can hardly be considered a “development plan”’ (ibid., p. 5).

This multidimensional approach based on outcomes is intended to overcome the drawbacks deriving from the use of a single monetary measure. In developed countries, particularly Sweden in the 1960s, the multidimensional approach led to the introduction of the concept of quality of life, defined in terms of control over resources such as money, property, knowledge, mental and physical energy, social relations and security. This approach, broadly known as the social indicators movement, focused on objective indicators of living conditions and on the ability of individuals to satisfy their interests and needs (Erikson, 1974, 1993; Beham et al., 2006).

The birth of the social indicators movement in the United States is often traced (Cobb and Rixford, 1998) to the publication in 1966 of *Social Indicators*, a project sponsored by the National Aeronautics and Space Administration (NASA) (Bauer, 1966), advocating for an increased collection of statistics for the publishing of an annual social report and for the development of a system of social accounts. Two years later, Robert Kennedy’s famous speech at the University of Kansas evidenced the shortcomings of GDP as a

measure of progress and as the objective of political action, and demonstrated a broader acceptance of a multidimensional approach towards development.

In 1969, upon the request of President Johnson, the Department of Health prepared a report 'to look at several important aspects of the quality of American life, and digest what is known about progress towards generally accepted social goals' (Department of Health, 1969). The report aimed not only at describing the social situation, but also at providing a tool for improving policy making, by:

1) providing more visibility to social problems and, 2) making possible better evaluation of public programs. The report deals with such areas as: health and illness; social mobility; the condition of the physical environment including pollution and housing; income and poverty; public order and safety; learning, science, and art; and participation and alienation. (Department of Health, 1969, p. 1)

The importance of social indicators was also recognized by the United Nations in the early 1970s. With the report *Contents and Measurement of Socioeconomic Development*, UNRISD (1970) enquired into the interrelations between the social and economic aspects of development through a comparative cross-national analysis and the building of indexes of socioeconomic development (Drewnowski and Scott, 1966; McGranahan et al., 1972). In 1973, the United Nations Statistical Commission started a process for the definition of a System of Social and Demographic Statistics (SSDS) with the purpose:

to show what data are desirable on human beings, both individually and in groups, and on the institution with which they are connected and how these data should be organized in order to provide an information system which will be useful for description, analysis and policy making in the different fields of social life. (Stone, 1975, p. 3)

1.2.3 The Basic Needs Approach

At the same time, an important contribution to the debate around the measures of development came from the analysis of the economies and societies of least-developed countries (LDCs). The fact that development could not be measured by the growth of output had already been made clear during the 1950s by Sir Arthur Lewis (1955) in the very first pages of his influential *Theory of Economic Growth*. A further step forward in the conceptualization of development and well-being was represented by the diffusion of the theory of basic needs.

In the 1970s, the basic needs approach had become a mainstream idea in development, growing out of the work of the International Labour Office (ILO) World Employment Programme (WEP) bringing employment, people and human needs back to the centre of development strategy. Basic needs were said to include two elements:

First, they include certain minimum requirements of a family for private consumption: adequate food, shelter and clothing, as well as certain household furniture and equipment. Second, they include essential services provided by and for the community at large, such as safe drinking water, sanitation, public transport and health, education and cultural facilities . . . The concept of basic needs should be placed within a context of a nation's overall economic and social development. In no circumstances should it be taken to mean merely the minimum necessary for subsistence; it should be placed within a context of national independence, the dignity of individuals and peoples and their freedom to chart their destiny without hindrance. (International Labour Office, 1976, pp. 24–25)

Even if, according to Bremner (1956), in the 1950s the concept of human need was periodically rediscovered, the theory on human needs can be considered to be primarily based on the work carried out by a psychologist, Abraham Maslow. In 1954 he published the book *Motivation and Personality* (Maslow, 1954) in which he proposed the theory that people have a hierarchy of psychological needs, which range from physiological needs to safety needs, love and belonging, esteem and self-actualization. The major criticisms to the so-called 'Maslow's pyramid' refer to its possible cultural bias, reflecting Western values and culture, for which it can hardly be considered a universal approach.

More recently, Sommers and Satel (2006) have referred to Maslow's lack of empirical findings to explain the progressive abandonment of his theories. Notwithstanding some conceptual weaknesses and operational difficulties, this intuitively appealing model has been very influential for decades. Lately, the needs approach has started evolving around the concept of development at human scale proposed by Manfred Max-Neef (Max-Neef et al., 1989), where needs are seen as a complex system: they cannot be seen as a hierarchy, and may be satisfied simultaneously but also may face significant trade-offs. Max-Neef developed a taxonomy of needs (subsistence, protection, affection, understanding, participation, leisure, creation, identity and freedom) defined through the existential categories of being, having, doing and interacting.

Doyal and Gough (1991) have moved further in this approach, differentiating between basic 'health needs' and the more cognitive 'autonomy'. Physical health needs are the fundamental requirements in order to stay alive. As with Maslow's hierarchy, health needs are the most important and will take precedence when they are threatened or impacted; autonomous needs are those necessary to make informed choices and to achieve conscious goals. They refer to mental health, cognitive skills and opportunities to engage in social participation:

Objective basic needs consist, at the least, in those universal preconditions that enable sustained participation in one's form of life. At the most, they consist in those universal preconditions for critical participation in one's form of life – the capacity to situate it, to criticize it, and, if necessary, to act to change it. (Gough, 1994, p.28)

Doyal and Gough identify 11 intermediate needs (or 'universal satisfier characteristics'), essential characteristics that contribute to improved physical health and autonomy. They are:

1. adequate nutritional food and water;
2. adequate protective housing;
3. a non-hazardous work environment;
4. a non-hazardous physical environment;
5. appropriate health care;
6. security in childhood;
7. significant primary relationships;
8. physical security;
9. economic security;
10. safe birth control and child-bearing;
11. appropriate basic and cross-cultural education.

For each of the eleven categories they identify two or more indicators in order to operationalize their theoretical framework. Having a list of indicators is also important from the theoretical point of view, to provide a formal boundary to the proposed concepts (which may otherwise lead to an infinite list of needs: the indicators chosen for empirical measurement deeply reflect the underlying conceptualization) and to strengthen the idea of describing 'objective needs' and gaining degrees of political relevance. Other than Maslow, the universal approach by Doyal and Gough has also been criticized for a cultural bias in the idea of universality.

1.2.4 The Millennium Development Goals

Within a similar approach it is possible to frame the set of indicators composing the Millennium Development Goals (MDGs) (UN, 2000), a set of time-bound targets foreseen in the so-called Millennium Declaration adopted by the UN General Assembly in 2000:

- Goal 1: eradicate poverty and hunger.
- Goal 2: achieve universal primary education.
- Goal 3: promote gender equality and empower women.
- Goal 4: reduce child mortality.
- Goal 5: improve maternal health.
- Goal 6: combat HIV/AIDS, malaria and other diseases.
- Goal 7: ensure environmental sustainability.
- Goal 8: develop a global partnership for development.

Their transparency and simplicity, along with their focus on multidimensional human needs, helped them gain overarching support going well beyond that gained by the economic growth objectives that had dominated previous development agendas. Nevertheless, their conceptual framework has been criticized for being incomplete and failing to take into account important elements of human development. Among these, one may mention demographic dynamics, inequalities, productive employment, decent work, social protection, social exclusion, biodiversity, persistent malnutrition, increase in non-communicable diseases, violence against women, reproductive health, peace and security, governance, the rule of law and human rights.

This simple framework has been also accused of not taking the enablers of development into adequate account, and in its monitoring system of not being able to consider the differences in initial conditions, thus undervaluing the results obtained, in particular, in sub-Saharan Africa (UN, 2012b). Some (e.g., Vandemoortele, 2007) have argued that the process which led to the definition of the goals and targets lacked a sufficiently broad participation, with the result that certain important topics were not considered. Yet, the centralized process allowed focus on a limited number of goals and targets, which is considered one of the strengths of the set.

Finally, the fact that the MDGs foresaw very clear targets for developing countries and much looser constraints for the advanced economies (through Goal 8 on a global partnership for development) may have suggested a sort of 'donor-centric agenda', where the idea of universality was somehow legitimized by the MDGs resulting from the approval of the United Nations General Assembly.

1.2.5 The Quality of Society

Since the 1980s and 1990s, increasing attention has been given to the concept of the quality of societies (Berger-Schmitt and Noll, 2000; Maggino, 2013) to broaden the view with respect to the notion of quality of life, stressing the difference between the individual and the societal dimensions. In this approach, the quality of societies is characterized in different ways (and most of the time is not made explicit, being part of the overall concept of well-being).

Veenhoven (1996) introduced the concept of 'liveability' of a nation to represent 'the degree to which its provisions and requirements fit with the needs and capacities of citizens'. Other concepts which have often characterized the analysis of the quality of societies are those of social cohesion, social exclusion and social capital. They all refer to the relationships existing among citizens. Social cohesion refers particularly to the existence of shared values, national or community identity, trust among members and low inequalities. Social exclusion is a concept which refers to a process and is linked to the analysis of disadvantageous social conditions such as poverty, deprivation, unemployment, familiar instability, migrations, lack of assistance leading to marginalization, and the breaking of relationships between the individual or household and the society. Finally, the concept of social capital refers to the collective or economic benefits derived from the preferential treatment and cooperation between individuals and groups. It thus looks at the strength of civic networks and organizations (clubs, parties, unions, non-governmental organizations, and so on), volunteering or cooperation among relatives, friends and neighbours.

In most multidimensional frameworks, the quality of society is represented by a domain of social relationships, a domain of safety and a domain of governance. The first usually refers to the quality of relationships with family, friends and neighbours, to the help given and received, and to the general trust in people. Safety typically refers to crime and violence, either registered or perceived, with sometimes quite different results. Governance is a broad and complex concept relative to the quality of the institutional system, sometimes referred to as 'quality of democracy', even though an authoritarian regime can be well governed, just as a democracy can be ill-administered, thus implying a separation of the two concepts which are often used to include the same phenomena.

Governance may refer to political stability, the trust in specific institutions and their transparency, the rule of law, the accessibility and effectiveness of public services, the participation in public life and debate (usually simplified as the voter turnout), the regulatory environment for business, the respect of civil rights (such as freedom of the press), the level of corruption, and so on. Fukuyama (2013, p. 3) proposed an operational definition of governance that takes as its starting point 'a government's ability to make and enforce rules, and to deliver services', separating it from the quality of democratic processes as well as the actual outcomes which may depend upon societal behaviours or budget constraints which fall outside the boundaries of institutional activity. According to Morlino, instead, good governance is one of the elements of democratic quality, where the ideal democracy is one that aims at the full implementation of freedom, equality and solidarity through a full-fledged guarantee of rights and adequate institutions. Elements for the analysis of the quality of democracies are the rule of law, electoral accountability, inter-institutional accountability, competition, participation, freedom, equality and responsiveness (Morlino et al., 2013).

The existing measures of governance have a number of limitations, often not being directly observable and thus being built through expert surveys, which are generally weak measures, especially when trying to create time-series data. Moreover, since the concept of 'good governance' is not exactly defined, different experts may intend different things when responding to the same survey question. Several measures dealing with governance or quality of democracy have been developed by public and private institutions (for a comprehensive list see www.democracybarometer.org). The World Bank's Worldwide Governance Indicators measure government effectiveness, regulatory quality, control of corruption, stability and absence of violence.

The Quality of Governance Institute has developed a set of measures of quality of governance for 136 countries worldwide, as well as a more detailed survey of 172 regions within the European Union. Its founder, Bo Rothstein (2011), starting from the idea that the basic characteristic of quality government is impartiality in the exercise of power, centres good governance on the ideas of corruption, social trust and inequality. Relevant examples are the Freedom House (2015) Index, the Polity measures by the Center for Systemic Peace, and the Varieties of Democracy project. The Bertelsmann Foundation elaborates both a set of Sustainable Governance Indicators (SGIs), dealing with policy performance, quality of democracy and governance, and a Transformation Index (BTI), which focuses on how effectively policymakers facilitate and steer development and transformation processes.

1.2.6 Utility and Subjective Well-Being

All the approaches analysed so far are based on objective measures and have to face the criticism of arbitrariness in the choice of the basic indicators and of their normative value. They can be contrasted to the American subjective well-being approach, according to which welfare and quality of life are to be considered as subjectively perceived and experienced by the individual. Accordingly, each individual is the best expert to evaluate their own quality of life (Noll, 2002): 'The quality of life must be in the eye of the beholder' (Campbell, 1972, p. 442).

During the twentieth century, the most influential approach towards the analysis of people's well-being can be framed within the 'welfare economics' approach. This can be initially attributed to the utilitarian theory, rooted in the works of Bentham and John Stuart Mill and first developed by Alfred Marshall and Cecil Pigou. Welfare economics sees welfare as the sum of individual preferences, therefore grounding the measure of well-being on subjective perceptions and expectations. Similarly, the 'American quality of life' (Noll, 2002) bases welfare measurement primarily on subjective indicators, and in the tradition of utilitarian philosophy and mental health research. Strongly influenced by social psychologists such as W.I. Thomas, known by his dictum that 'if men define situations as real, they are real in their consequences' (Thomas and Thomas, 1928, pp. 571–572), this approach ultimately defines welfare as subjective well-being.

Here, what is relevant to people and what produces utility cannot be simply measured in economic terms or willingness-to-pay. Equal amounts of money may have significantly different values among people, and psychological elements play a decisive role in the evaluation of quality of life. Perceptions of and impacts on personal well-being may vary significantly among individuals as a reaction to the same events or circumstances:

this depends on cultural backgrounds, systems of values, standards of living people are already used to, and personal expectations. What really matters is how people feel, whether they feel 'happy' or 'satisfied'. Yet, people adapt differently to the same situations, and raise their expectations very quickly once they have reached new standards, both material and immaterial. This phenomenon, known as the 'hedonic treadmill' (Brickman and Campbell, 1971), is at the basis of the support of measurement of well-being through subjective measures. Personality, personal goals, comparison with others and with the past, and culture all influence the way objective conditions and events affect subjective well-being (Diener, 2000; Beham et al., 2006).

Subjective well-being (often translated into the concepts of 'happiness' or 'life satisfaction') is therefore considered the ultimate goal of societies and the measures of overall life satisfaction are the most practicable indicators. According to Layard (2009, p. 1), 'the right single measure of progress must be the one that is self-evidently good. The only such measure is the Happiness of the population – and the equivalent absence of misery'.

Studies on subjective well-being naturally proposed the analysis of the relationship between happiness and income, leading to the 'Easterlin paradox'. Easterlin (1974) showed that within a developed country, even if richer people declare to be happier than poorer ones, the increase of income over time does not produce any increase in happiness. Moreover, in cross-country comparisons, no significant correlation emerges between income and happiness: richer countries are not happier than poorer ones. These are probably the results which more than any others contributed to the diffusion of the idea that well-being could not be measured through GDP.

There are, of course, many different ways to measure happiness and life satisfaction, and measures evolved over time (measures of happiness in the United States can be traced back to 1946; for a chronology, see Abdallah and Mahony's, 2012 work within the e-Frame project). The fundamental distinction in the different approaches towards subjective well-being is that between cognitive (or evaluative) and affective (or hedonic) measures: what people think of their life versus what people feel in their life.

The most common cognitive methods are based on a single direct question asking how happy or satisfied with life overall people are, on a proposed scale. In order to reduce measurement error, a few questions may be asked on different aspects of life satisfaction (for example, health, work, social and family life) to be combined into a single index using weights that reflect their average impact on answers to the single general question (Layard, 2010). A similar cognitive approach for the measurement of subjective well-being stands in the tradition of the so-called eudeimonia. Starting from the Aristotelian concept of a full realization of human potential, the eudeimonic approach measures well-being by asking people whether they consider what they do in their life as worthwhile. The adopted measurement scale itself adds a further subjective component, since the extremes of the scale (typically 0 and 10 in the so-called 'self-anchored' scale proposed by Cantril, 1965) are self-defined as the worst and the best possible conditions, according, therefore, to the interviewed perceptions, objectives and values.

The other major approach towards a unique measure of individual well-being is the 'hedonic approach', where well-being is defined as the balance between pleasure and pain. This kind of approach based on affects, is firstly found in the 'hedonic (or felicific) calculus' proposed by Jeremy Bentham (1789) for its 'greatest-happiness principle'. According to Bentham, the moral rightness or wrongness of any act depended on the amount of

Table 1.1 Components of subjective well-being

Pleasant affect	Unpleasant affect	Life satisfaction	Domain satisfaction
Joy	Guilt and shame	Desire to change life	Work
Elation	Sadness	Satisfaction with current life	Family
Contentment	Anxiety and worry	Satisfaction with past	Leisure
Pride	Anger	Satisfaction with future	Health
Affection	Stress	Significant other's views of one's life	Finances
Happiness	Depression		One's group
Life	Self		
Ecstasy	Envy		

Source: Diener et al. (1999).

pleasure or pain that it produced. In principle, the felicific calculus could determine the moral status of any considered action by evaluating a number of 'circumstances', or variables to be taken into account: intensity, duration, certainty, propinquity, fecundity, purity, extent.

A more recent and very influential example in this field (Kahneman and Krueger, 2006) aims at distinguishing among different conceptions of utility rather than presuming to measure a single, unifying concept that motivates all human choices. It is the so-called 'U-index', which measures the percentage of time daily spent in unpleasant activities using a day reconstruction method (DRM) to evaluate features of individuals' perceptions of their experiences, beyond their utility as economists typically conceive of it.

These approaches can be considered as the fundamental elements of a multidimensional approach towards subjective well-being. The New Economics Foundation (Abdallah and Shah, 2012) proposes a synthesis of them into an index of 'overall well-being' considering life satisfaction, eudaimonia and affects. Yet, other taxonomies to subjective well-being have been proposed. One of the most influential is the multidimensional approach towards subjective well-being proposed in 1999 by Ed Diener, taking into account both affective and cognitive aspects, grouped into four major domains: pleasant affect, unpleasant affect, life satisfaction and domain satisfaction (see Table 1.1).⁴

Until recently, subjective measures had very little significance in the academic and political debate. Subsequently, happiness studies have contributed to granting increasing dignity to subjective measures by progressively understanding the strengths and weaknesses of those measures both in conceptual and in methodological terms.⁵ More recently, and based on a very large world database with more than two million interviews, the Gallup-Healthways (2014) Global Well-Being Index (Gallup-Healthways, 2014) is built on a set of questions grouped into five areas of subjective well-being: purpose, social, financial, community and physical. In most countries, happiness appears flat over time. This flatness, at the root of the 'Easterlin paradox', can be explained on the one hand by the hedonic treadmill and the adaptation to modified standards of living, and on the other hand by the collective effort to improve relative social positions, which leads to economic growth but does not change relative positions much. As a matter of fact, one may think that 'the Easterlin paradox is not just a post-World War II phenomenon, but a more

profound phenomenon of stability of subjective evaluation and feeling in our species' (Fleurbaey and Blanchet, 2014, p. 163). Fleurbaey and Blanchet also challenge the idea that happiness is self-evidently the ultimate goal: on the one hand, it is possible to look for happiness for external reasons, for example to carry out duties unencumbered by bad feeling or to be more pleasant to one's family and relatives or because of its positive effects on health. On the other hand, it has to be demonstrated that aspects other than happiness are not desirable in themselves, leaving happiness aside: 'the fact that many good things in life enhance happiness does not imply that people want them only for the pursuit of a greater happiness' (Fleurbaey and Blanchet, 2014, p. 170).

In the analysis made by Amartya Sen, the use of subjective well-being, and the utilitarian approach in general, finds its limits in its inability to take into account opportunities, freedoms and other relevant implications in terms of social justice. Utilitarianism ignores the existence of inequalities and violations of individual rights and freedoms, only evaluating total aggregate happiness. Happiness is then considered a restrictive vision of interpersonal comparison because of the adaptability to adversities. The utilitarian metric is unfair towards those suffering persistent privations, oppressed minorities, exploited workers or submissive housewives who no longer want a change but learned to bear their condition. Symmetrically, people with more expensive preferences may claim to be worst off. Happiness therefore becomes a flawed measure of societal well-being (Sen, 1985, 2013; Dworkin, 1981; Fleurbaey and Blanchet, 2014).

Fleurbaey and Blanchet also identify three major methodological problems arising in the submission of subjective questionnaires, which they call problems of scope, ranking and calibration. The 'scope problem' refers to common ambiguity about the exact target of the typical question, 'How are you satisfied with your life overall?', in which a number of elements are often unclear: the time frame (which could refer either to the current period or to the whole life), whether the condition of closest relatives is to be taken into account, or whether the community or country situation is to be considered. The scope problem is therefore very much dependent on the structure of the questionnaire and on the sequence of the questions which may bring the respondent to focus on different aspects of their life. The 'ranking problem' refers to the need for the respondent to quickly analyse all the relevant aspects affecting their satisfaction, and to rank them. Kahneman et al. (2006) observed that people tend to exaggerate the relevance of aspects under consideration at the moment, producing a 'focusing illusion', thus also this problem is strongly affected by the structure of the questionnaire. Finally, the 'calibration problem' refers to the difficulty in assigning a fixed score to open or fuzzy phenomena. To do this, one needs to define a standard or a term of comparison which can be identified in different ways, such as previous life experiences of the respondent, the kind of life they expected, or the lives of other people in the community or in the world. These problems produce a relevant heterogeneity among individuals, affecting the comparability of the results.

Despite these limitations and methodological caveats, subjective measures are broadening and increasingly affirming their usage. A policy application of happiness measures is offered by Richard Layard, who, in his renowned book *Happiness: Lessons from a New Science* (Layard, 2005), suggests that subjective well-being should influence the definition of the model of society we should attend to. In his view, referring to Bentham's principle of the 'greatest happiness', happiness must represent the unifying principle guiding laws and the rule of morality.⁶ In this sense, any public or private decision 'should be judged

by its impact on the happiness of all those affected by it, each person counting equally' (Layard, 2005, p. 112). More recently, Dolan, Layard and Metcalfe (Dolan et al., 2011) argue that different subjective well-being measures are to be used for different specific policy purposes. Evaluation measures should be used for specific life domains such as health, job and social relationships, or for public aspects such as the quality of services, aspects of the area or politics; while experience and eudeimonic measures should assess life in general or specific activities. On the basis of subjective well-being analysis, Layard (2005) identifies a number of policy options that can affect some of the determinants of happiness and life satisfaction, such as leisure and social relationships. Similarly, Abdallah and Shah (2012) call for improvements in ethnic inequalities, permanent employment contracts or reduced working hours in order to increase overall subjective well-being in the United Kingdom (UK).

1.2.7 Hybrid Approaches

In the context of the debate over the opportunity to use subjective indicators, scholars often agreed that welfare assessment should be based on a hybrid approach, taking into account both objective and subjective indicators (e.g., Allardt, 1993; Diener and Suh, 1997; Noll, 2002). In 1993 Erik Allardt proposed a broader and more inclusive approach which takes into account three major basic needs which everyone should fulfil: having, loving and being. 'Having' refers to necessary material conditions such as income, housing, employment, working conditions, health, education; 'loving' refers to affectivity and social relationships; 'being' refers to people's role in society and in the environment, involving political activities, leisure, work, opportunities to enjoy nature, and so on. The three broad issues need to be assessed through both objective and subjective indicators in order to provide a complete assessment of quality of life (Table 1.2).

Hybrid approaches are also the Happy Life-Expectancy, the Happy Income and the Happy Planet Index. Happy Life-Expectancy, proposed by Veenhoven (1996), multiplies life expectancy in years by average happiness on a 0–1 scale. The product 'can be interpreted as the number of years the average citizen in a country lives happily at a certain time' (Veenhoven, 1996, p. 1). The Happy Income Index, developed by Prinz and Büniger (2009) multiplies a measure of happiness for the median equalized household net income. The Happy Planet Index, proposed in 2006 by the New Economic Foundation

Table 1.2 Indicators to assess quality of life as proposed by Allardt (1993)

	Objective indicators	Subjective indicators
Having (material and impersonal needs)	1. Objective measures of the level of living and environmental conditions	4. Subjective feelings of dissatisfaction/satisfaction with living conditions
Loving (social needs)	2. Objective measures of relationships to other people	5. Unhappiness/happiness – subjective feelings about social relations
Being (needs for personal growth)	3. Objective measures of people's relation to society and nature	6. Subjective feelings of alienation/personal growth

Table 1.3 Harrison's hybrid framework of analysis

	Perception (attitude)	Reality (behavioural/outcomes)
Individual level	Happiness, life satisfaction, opinion about domains of life experience	Living conditions, educational attainment, job quality, income, access to resources etc. (micro-data)
Societal level	Perception of the quality of society or societal well-being	Features of society: crime rate, income distribution, quality of education and health, etc.

Source: Harrison (2014).

(NEF, 2006), was much more influential. It divides the happy life years by the ecological footprint, thus providing an indicator of the efficiency of a national system to satisfy the need to live a long and happy life using few natural resources. More recently, through the Midlife in the United States (MIDUS) surveys, Carol Ryff (Ryff et al., 2012) proposes an analysis of personal well-being which combines objective and subjective measures of physical and mental health, also taking into account a number of neurobiological mechanisms involving reactivity and recovery in the brain and physiological systems in the body.

Harrison (2014), instead, proposes a framework which distinguishes between objective and subjective measures as well as between individual and societal well-being (between quality of life and quality of society). This results in a tetracoric table with four different sectors of analysis for well-being: living conditions, happiness, features of society and perceptions of the quality of society (Table 1.3).

An attempt to bring together the objective and the subjective dimensions of well-being in a unique coherent framework was advanced by Giovannini (2015). When subjective and objective measures are considered together, because subjective well-being is influenced by a lot of conditions that could be captured by quantitative variables (employment, income, health, and so on), considering it as an additional dimension of well-being on top of the others could be seen as a duplication. Also, the other way round may imply causality: happier people may enjoy better health, have stronger social relationships and find a good job more easily. Leaving the subjective dimension completely out of the picture would mean missing an important element of well-being.

A possible solution to this dilemma is presented in Figure 1.1 (originally proposed by Giovannini and then slightly modified in the context of the New Development Paradigm, 2013). This approach is based on the idea that human beings have different capacities ('happiness skills' and/or 'resilience skills') of transforming into happiness what the economy and society produce in terms of outputs and outcomes. These happiness skills depend on both genetic characteristics and the way people are educated. The level of happiness has an impact on both the definition of human needs and the way the economy and society work. The scheme also considers that human 'needs' are not the only relevant ones, since ecosystem needs are also accounted for, as well as the existence of planetary boundaries.

While in the approach used for the development of several well-being frameworks the focus is on concrete outputs and outcomes, in this model there is an additional linkage between these results and subjective well-being, which in turn influences the way in which the needs are selected, as well as the functioning of societies and economies. In this way, a

Figure 1.1 Key elements of a new development paradigm

‘virtuous circle’ is established and policy makers have an interest both in achieving better outputs and outcomes, and in maximizing the ‘happiness or resilience skills’ of people through proper education.⁷ In this framework, policies should not be directly aimed at increasing happiness per se, but rather at improving the functioning of societies and economies, making them more sustainable and resilient; important characteristics for the medium- to long-term future of our world.

1.2.8 Capabilities Approach

The most influential approach beyond welfare economics and utilitarianism (Cobb, 2000), and for the funding of a multidimensional approach towards well-being, stands in the ‘capabilities approach’ developed by Nobel laureate Amartya Sen. Sen’s contribution overcomes the most widespread approaches to the analysis and measurement of well-being: utility, opulence and basic needs.

We have already briefly presented some of Sen’s criticisms towards the utilitarian approach (yet the analysis of the concept of utility pervades his works; see, for example, Sen, 1985, 1992). The ‘opulence’ approach is the one which identifies GDP and consumption, or in general the command over a mass of commodities, as measures of standard of living and well-being. Its limits are at the core of the whole theme treated in this chapter. In Sen’s works, standard of living does not define a level of opulence, even if it is influenced by it. In his example, in comparing two poor people, the poorer may enjoy a higher standard of living if their metabolism needs less food, and therefore less money. Standard of living must refer to the life people are leading instead of the resources and means owned to live. The move towards increasing objectivity is considered correct, but opulence is not the target to be reached.

He also recalls the works of Karl Marx (1887 [1967]) and his idea of ‘commodity fetishism’ – the fact that social relations between people are perceived as economic relations among objects; and of Adam Smith (1776), who considered how ‘the ability to appear in public without shame’ would vary according to social customs and cultural conventions. In this way, Smith demonstrated the social nature of the relationship between commodities and living conditions: the ‘capability’ to appear in public without shame implies different requirements of the desired commodities and wealth, which vary according to the nature of the society one lives in (Sen, 1992).

The focus on the kind of life people live, on what people can or cannot do, on what people can or cannot be, becomes the centre of Sen’s ‘capability’ approach (Sen, 1980). ‘Capabilities’ are the real opportunities people have in order to lead a valuable life; the ability to achieve actual results. The results obtained by the individuals are called ‘functionings’: ‘Some functionings are very elementary, such as being adequately nourished, being in good health, etc., others may be more complex, but still widely valued, such as achieving self-respect or being socially integrated’ (Sen, 1993, p. 31). Life is then seen as ‘a combination of various “doings and beings”, with quality of life to be assessed in terms of the capability to achieve valuable functionings’ (ibid.). In this framework, material goods and economic resources are to be intended only as the means for achieving the functionings.

That is how the capability approach moves beyond the basic needs approach. The two are considered very important for their ability to shift attention towards the kind of life people are able to live. But their limit stands in the form in which basic needs must be considered. If they are considered in terms of commodities, the approach would still refer to the concept of opulence. While if one accepts that our interest is fundamentally in the kind of existence people lead, or may lead, then the basic needs should be formulated in line with functionings and capabilities. If what we value are functionings and capabilities, then the basic needs in terms of commodities are instrumentally, and not intrinsically, important (Sen, 1992).

The capabilities are strictly linked with the idea of freedom, another central aspect of Sen’s approach. The value of a standard of living is given by the capability of leading different types of existence and, although it is necessary to give a particular importance to the life actually chosen, the availability of other choices has a certain value. Freedom is determinant in the move from the space of functioning to the space of capabilities (Sen, 1993, 2009; Fleurbaey and Blanchet, 2014). The presence of alternatives is an important element of advantage: people with the same functioning but with different capabilities present different levels of well-being. Here the typical example is the difference between fasting and starving. Freedom allows people to choose between different affiliations and cultures determining their preferred well-being. As explained by Nussbaum (2000, p. 87):

if we were to take functioning itself as the goal of public policies, pushing citizens into functionings in a single determined manner, the liberal pluralist would rightly judge that we were precluding many choices that citizens may make in accordance with their own conceptions of the good, and perhaps violating their rights.

In Sen’s example, well-being (and the goals of policy making) stands in the availability of access to health care services, not in the use of health care facilities by the whole population.

Sen never proposed a set of measures, refusing to subscribe to a definite list of capabilities, since he thought that this should be done through processes of public engagement and democratic discussion. Individuals' participation in the public sphere, besides being a fundamental pillar for individual functionings, is also the tool for the definition of the most appropriate measures according to the different contexts (see section 1.6 below). The main advantage of a definition of development based on the concept of choice is its apparent immunity from ethnocentric prejudices of character: the choice may in fact go in any direction, depending on the culture and values of reference (Riggs, 1984).

The other eminent scholar in the development of the capabilities approach, Martha Nussbaum, is far more specific than Sen. In order to provide the approach with political relevance (Holst, 2010) – that is, to have a greater political impact – she proposed a fundamental list of items that is intended to be both 'open-ended', 'subject to ongoing revision and rethinking, in the way that any society's account of its most fundamental entitlements is always subject to supplementation (or deletion)', and 'abstract and general': the items on the list are presented in a way that leaves 'room for the activities of specifying and deliberating by citizens and their legislatures and courts'. Elements of the list (Nussbaum, 2006, pp. 76–78) are:

1. Life;
2. Bodily health;
3. Bodily integrity;
4. Senses, imagination and thought;
5. Emotions;
6. Practical reason;
7. Affiliation;
8. Other species;
9. Play;
10. Control over one's environment.

Measurement is generally considered to be one of the weaknesses of the capabilities approach. Yet, Sen's approach has been translated into the concept of human development within the United Nations Development Programme (UNDP), as the conceptual basis for the extremely influential Human Development Index:

The basic objective of human development is to enlarge the range of people's choices. These choices are not fixed forever. They change over time as circumstances and aspirations change. But at all levels of development, the three essential capabilities for human development are for people to lead long and healthy lives, to be knowledgeable and to have a decent standard of living. If these basic capabilities are not achieved many choices are simply not available and many opportunities remain inaccessible. (UNDP, Human Development Report 1/1990)

The *Human Development Report* (HDR) and its Human Development Index (HDI) are an important part of the measurement landscape, and the HDI (UNDP, 2010) is arguably the best-known alternative to GDP. (See also Seth and Villar, Chapters 3 and 4 in this *Handbook*.)

1.3 THE NEED TO AGGREGATE

The powerful influence of GDP largely stands in its ability to reduce complex information to a single number. Dashboards of indicators are able to show the multidimensionality, but suffer from a great difficulty in communicating the relevant messages, and the larger the set, the more difficult it is to communicate.

The increasing availability of data to the citizenship and the diffusion of information and communication technology have allowed almost anyone to produce and disseminate their own composite indicator. Therefore, over the years, a large number of synthetic measures of well-being have been developed by individual scholars, civil society organizations, companies and public institutions. In 2008, the OECD published a handbook for the building of composite indicators and the diffusion of some principles and steps which have to be followed to guarantee a minimum level of soundness in the applied methods, helping to improve the quality of the outputs (OECD and JRC, 2008). Of course, composite measures aggregating indicators of different natures are not limited to well-being measurement; examples are common in industrial competitiveness, environmental sciences, globalization and innovation (Bandura, 2008, collected 178 indexes on various economic, political, social and environmental measures), yet in a field characterized by multidimensional analysis such as the measurement of well-being, they have become relatively popular.

Aggregation represents one of the most controversial aspects of the ‘beyond GDP’ international debate because of its clashing strengths and weaknesses, independent of the actual method, which however represents a further complexity within the debate. In general, the choice to aggregate is the need to provide a measure of a complex ‘latent construct’ which is not directly observable. The relationship between the latent structure and the basic indicators is not straightforward and can be defined as either following a ‘formative’ or a ‘reflective’ approach (Maggino, 2009). In formative approaches, the construct is defined by (or composed of) a number of indicators. In this case, causality flows from the indicator to the construct. This is the case when measuring well-being: the definition of what is well-being, and thus its measure, stems from the indicators used. Alternatively, latent constructs are measured by indicators assumed to be reflective in nature: the indicators are seen as functions of the latent variable which is already known and defined, but is not directly observable. This is often the case in subjective measurement.

Having a single measure is preferable from various points of view (OECD and JRC, 2008): it is easy to interpret, it has a clear evolution over time, it allows immediate comparisons among countries or regions and with respect to other phenomena, it is immediately communicable, allows rankings which attract media attention, can summarize complex realities to support decision makers and can foster accountability. On the other hand, aggregation presents some drawbacks. First of all, the choice of the indicators to be used (what to aggregate) is often subjective or strongly limited by data availability. This may distort the meaning of the final output and may also be subject to political dispute. The choice of the basic elements should also foresee analytical clarity around the difference among inputs, intermediate factors, outputs or outcomes relative to the latent construct. Mixing elements of different kinds, which is quite common (especially when a large number of elements is considered), may lead to flawed aggregate measures.

Moreover, every aggregation foresees an implicit or explicit system of weighting. In

the case of monetary indexes, such as the GDP, weighting relies on the use of market prices, providing the feeling that aggregation is not fully arbitrary (Fleurbaey and Blanchet, 2014). We have seen that the social preferences expressed by market prices may be strongly distorted, but still they provide a rationale which appears stronger than the simple arbitrary choice of weights (most of the time leading to an equal weighting, since any divergence from it appears very difficult to motivate). To grant legitimacy to the weighting system focus groups, Delphi methods or similar consultative processes are sometimes adopted.

Moreover, every weighting system implies some kind of ‘substitutability’ among the different factors in terms of well-being, and this is often considered to be critical. This theme is usually addressed in the environmental debate – namely in the difference between weak and strong sustainability (see section 1.5 below) – but is an ever-present obstacle: what increase in education is needed to offset a deterioration of health conditions? What increase in income may offset a 1 per cent lower proportion of workers satisfied in their job? And so on. Some non-linear correction may allow to build composite indicators with no perfect substitutability, favouring more balanced compositions of the basic indicators with respect to disequilibria. This is the case of the geometric mean adopted by the new version of the HDI, or the concave means proposed by Palazzi (2004), or the arithmetic mean adjusted by a ‘penalty’ coefficient related to the variability of each unit (method of the coefficient of variation penalty) developed by De Muro et al. (2011). Yet even these methods fail to completely solve the problem of the substitutability among basic indicators which affects any aggregation method, however sophisticated. Other shortcomings (OECD and JRC, 2008) of the use of composite indicators relate to the risk of them being poorly constructed, or to the fact that the construction process may not be transparent. Also, they are prone to lead to simplistic policy conclusions, or may be misused, for example to support a desired policy. Overall, we can affirm with Rosen (1991) that the justification for a composite indicator lies in its fitness for the intended purpose, and in peer acceptance.

In order to aggregate indicators with different units of measurement, typically through a weighted average, two major strategies may be considered: on the one hand, the reduction of all the values to ‘pure numbers’ through some kind of standardization of the values (ranks, normalization, rescaling, and so on); on the other hand, through a monetary aggregation in which every phenomenon is quantified in terms of its monetary value for society.

Indexes of the first kind are very common, given their effectiveness in communicating the desired message and their relative technical ease. The most relevant example in this field is certainly the Human Development Index (HDI) built by the UNDP in 1990 (UNDP, 1990). Yet, it was not the first one. The seminal experience in this field is the Index of Relative Standard of Living developed by Bennett in 1937, and over the century dozens of indexes of this kind have been built, each one selecting different indicators, thus proposing a different definition of development, well-being or progress. Among the most influential – all of them aggregating a large number of basic indicators – worth mentioning, in chronological order, are those developed by the United Nations Research Institute for Social Development (UNRISD): the Level of Living Index (Drewnowski and Scott, 1966), the Socioeconomic Development Index (SID) (UNRISD, 1970), the General Index of Development (McGranahan et al., 1972); also the Physical Quality

of Life Index (PQLI) (Morris, 1979) and the Indexes of Quality of Life and the Environment by Prescott-Allen (2001). A hybrid procedure that combines composite and monetary frameworks is the Index of Economic Well-Being developed by Osberg and Sharpe (2002). More recently, the Canadian Index of Well-Being (2012), the OECD (2011b) Better Life Index and the Bhutanese Gross National Happiness (Ura et al., 2012) have proposed aggregate measure of well-being. In 2010, the UNDP, beside reviewing the aggregation methodology of the HDI, produced a Multidimensional Poverty Index based on the works by the Oxford Poverty and Human Development Initiative (OPHI) (UNDP, 2010).

On the other hand, some authors have proposed monetary measures of well-being with the aim of correcting GDP, and with the chance to actually compare GDP with the new measure. The seminal work in this field is the Measure of Economic Welfare (MEW) proposed by Nordhaus and Tobin (1972), that, starting from total household consumption (considered the real goal of economic activity), subtracts a number of components which are considered negative for economic welfare. These can be capital expenditures on replacements due to depreciation, or instrumental costs 'that are not directly sources of utility themselves but are regrettably necessary inputs to activities that may yield utility' (Nordhaus and Tobin, 1972, p. 7), for example the costs of commuting to work (within 'urban disamenities'), or some government expenditures such as police services, sanitation services, road maintenance and national defence. Nordhaus and Tobin then sum up imputations for capital services (health and education), leisure and non-market work. They do not adjust for environmental factors or depletion of natural resources, assuming the ability of manufactured capital to substitute any natural resources shortage. They continue to treat expenditures on pollution prevention as intermediate consumption.

Since then, a few other measures of the same kind have been developed, permanently including environmental aspects within the index. The most influential were the Economic Aspect of Welfare Index by Zolotas (1981) and the Index of Sustainable Economic Welfare (ISEW) by Cobb and Daly (1989), and the very similar Genuine Progress Indicator (GPI) proposed since 1995 by the non-profit organization Redefining Progress (Talberth et al., 2007), recently applied by Maryland government (<http://green.maryland.gov/mdgpi/>) and experimented on many countries (see Posner and Costanza, 2011; Kubiszewski et al., 2013). These experiences move forward with respect to the MEW (yet also face relevant criticisms; for example Neumayer, 1999) by fundamentally providing corrections for income inequalities (using either Gini or Atkinson indexes) and estimates of the costs due to natural resource depletion, usually through the actualization of the future costs needed for replacement or to generate renewable alternatives.

Most of the proposed measures show a common trend: the ISEW and GPI rise until the 1970s together with GDP, while they show a stable or even decreasing trend afterwards. Although different methods and countries show slightly different results, an overall message always emerges based on the fact that social and environmental costs outweigh the benefits of increased levels of consumption, leading to what Daly (1977) called 'uneconomic growth' (Daly, 1977, p. 100) and supporting the idea of the existence of a 'threshold hypothesis' proposed by Manfred Max-Neef, according to which 'for every society there seems to be a period in which economic growth (as conventionally measured) brings about an improvement in the quality of life, but only up to a point – the threshold point – beyond which, if there is more economic growth, quality of life may begin to deteriorate'

(Max-Neef, 1995, p. 117). Despite the large bulk of literature around aggregation and the many experiments done, agreement on the choice between aggregating or not has never been reached.

1.4 INEQUALITIES

The importance of inequalities in the analysis of well-being is derived from different elements (Rondinella, 2013). First of all is the need to qualify mean values which can hide very different phenomena and criticalities for selected social groups. Inequalities also have a relevant impact on perceived personal well-being, which can be strongly influenced by the individual's relative position within society or peer groups. Finally, a principle of social justice suggests that excessive inequalities are to the detriment of overall national well-being, even if it is not clear up to what threshold the reduction of inequalities – at least the income ones – is desirable. Therefore, all well-being dimensions need to be fairly distributed, and statistical systems must be able to identify excluded groups and lacking opportunities through measures of distribution among individuals, or the breakdown of indicators for different groups (for example, territories, gender, age, education, income, nationality).

The issue of inequalities traditionally refers to the economic ones, that is, income or wealth distribution. Besides the distributional measures which are usually used to assess inequalities, such as the interquintile or interdecile ratios, the Gini index or the Atkinson index, attention has been particularly directed towards poverty and low incomes, and only more recently, especially with the work by Atkinson et al. (2011), has there been increasing attention towards top incomes.

The analysis of income inequalities has been part of economic analysis since its origin. The Ricardian approach was centred on resource distribution; Marx considered the progressive concentration of wealth in the hands of a few capitalists to be unavoidable. During the twentieth century, Kuznets (1955) proposed a theory according to which, with the increase of income per capita, inequalities would initially rise and then start to decrease (Kuznets curve). With a new rise in economic inequalities since the last decades of the twentieth century, the issue is attracting renewed attention at the academic and political level. Influential publications are Piketty (2014), Stiglitz (2012), Wilkinson and Pickett (2008) and OECD (2008, 2011a, 2015), while it is worth remembering how recent social movements following the precipitation of the financial crisis had 'We are the 99 per cent' as their main slogan. Most of this analysis treats economic inequalities as a matter of social justice, including the implications for the working of the economic system, and the effects on other dimensions of well-being.

Less attention has been devoted to a more overarching, multidimensional approach to inequalities. Looking at equity issues when analysing the well-being of societies implies taking into account all well-being domains beyond traditional economic aspects. Actual applications of overarching analysis of well-being inequalities are reported in the OECD's *How's Life?* report (OECD, 2011b) for each of the 11 domains, as well as in the Italian Benessere Equo e Sostenibile (BES; Equitable and Sustainable Well-being) report (CNEL/Istat, 2013) in which, whenever applicable, indicators are analysed with respect to their distribution across different ages, genders, social groups and territories (Rondinella and Savioli, 2013).

Following the framework proposed by Saraceno and Schizzerotto (2009), the analysis of well-being inequalities can be carried out through three major approaches, that are not mutually exclusive. The most straightforward approach is based on outcomes, which considers the distribution of goods and services or the privileges and disadvantages that different people can rely upon. Secondly, it is possible to look at the relational inequalities, those emerging from different roles within the society. They refer to the broad concept of power, expressed by the ability to take and influence decisions, and the running of power systems and institutions. They also include the ability to determine one's own destiny, so-called 'agency'. In a democratic market society, where laws are supposed to guarantee equal rights to all, relational inequalities are those deriving from individual characteristics which can be acquired, such as knowledge background, educational attainment, working position in organizations and institutions. These characteristics refer to people's social status, and societies allowing for greater equality in this field are those where more social mobility occurs.

Lastly, one can consider the differences people face with regard to opportunities and their freedom to choose the best way to fulfil their expectations. The latter approach is derived from Sen's capabilities. A fair society guarantees equal capabilities to activate equal functioning through participation. This admits the existence of outcome inequalities, and its adoption may generate a conflict between equal opportunities and equal dignity.

1.5 SUSTAINABILITY

During the last decades of the twentieth century, concern over the environmental conditions of our planet and the impact of productive activities was constantly increasing. Since 1972, with the publication of the Club of Rome's report *Limits to Growth* (Meadows et al., 1972), the environmental issue and that of the sustainability of the productive system have played an increasingly relevant role in the debate over measures beyond GDP.

The idea of sustainability was initially linked to the ecological boundaries imposed by our planet on the economic system, and the concept of sustainable development was substantially composed by a 'beyond GDP' multidimensional vision of development, integrated by environmental indicators able to assess the sustainability of the process. The first attempts to build an operational measurement of sustainability were the monetary indexes, analysed above in section 1.3. In their work on the Measure of Economic Welfare (MEW), Nordhaus and Tobin also calculated a 'Sustainable MEW' by estimating total public and private wealth including reproducible capital, educational and health capital, and natural resources. In a comparison between the two measures they actually provided a first synthetic evaluation of welfare sustainability: 'When actual MEW is less than sustainable MEW, the economy is making even better provision for future consumers; when actual MEW exceeds sustainable MEW, current consumption in effect includes some of the fruits of future progress' (Nordhaus and Tobin, 1972, p. 7).

After that, similar monetary measures such as the Index of Sustainable Economic Well-being by Daly and Cobb, or the Genuine Progress Indicator, also focused the sustainability approach on environmental aspects and on the notion of planetary boundaries. They evaluated sustainability by discounting the actualized value of future costs of environmental damages from the monetary value of current well-being.

Planetary boundaries are at the core of another indicator that is still deeply influential in sustainability measurement: the Ecological Footprint proposed by Wackernagel and Rees (1996). The Ecological Footprint measures the demand of human activities on the Earth's ecosystems as compared with the planet's ecological capacity to regenerate. It represents the amount of biologically productive land and sea areas necessary to supply the resources a human population consumes, and to assimilate the associated waste. Footprint values are categorized for carbon, food, housing, and goods and services. It is expressed in global hectares per capita, and Wackernagel and Rees estimated that the available biological capacity for the six billion people on Earth was 1.8 global hectares per person, allowing them to estimate the 'total footprint number of Earths' needed to sustain the world's population the level of consumption at that time. It also allows for the estimation of the Ecological Debt Day (or Earth Overshoot Day): the day upon which humanity's resource consumption for the year exceeds the Earth's capacity to regenerate those resources in that year (Wackernagel et al., 2002). Using the sustainability boundaries of the Ecological Footprint, the Happy Planet Index (NEF, 2006), already presented above, proposes a measure of the efficiency of a national system to provide happy life years.

Yet sustainability has not always referred to ecological boundaries. The most relevant theoretical framework of analysis used to address sustainability is the one that became popular in 1987 as the central message of the so-called Brundtland Report, *Our Common Future*, of the World Commission on Environment and Development, where it was defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987, p.43).

In 1992 in Rio the United Nations Conference on Environment and Development (UNCED) proposed a global path towards sustainability within the Agenda 21 action plan, where special reference was made to the use of statistical indicators:

Commonly used indicators such as the gross national product (GNP) and measurements of individual resource or pollution flows do not provide adequate indications of sustainability. Methods for assessing interactions between different sectoral environmental, demographic, social and developmental parameters are not sufficiently developed or applied. Indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems. (UN, 1992, paragraph 40.4)

The adoption of Agenda 21 during this first Rio conference stimulated the construction of sustainable development indicator (SDI) sets. Moreover, Chapter 8 of Agenda 21 called on countries to adopt national sustainable development strategies (NSDS) (UN, 1992). These national strategies on sustainable development (SD) also led to the building of SD indicator sets in individual countries and by international organizations. The first was the SDI set recommended by the United Nations Commission on Sustainable Development (UNCSD) in the early 1990s. (See Hametner and Steurer, 2007 for a chronological review; while Smits et al., 2014 compared 55 national systems of sustainable indicator sets and composite indexes.)

In line with Agenda 21, in 1994 the OECD presented a set of environmental indicators in the so-called 'pressure-state-response' (PSR) framework. The indicators were classified into (1) indicators of environmental pressures ('pressure'); (2) indicators of

environmental conditions ('state'); and (3) indicators of societal responses ('response') (OECD, 2003). The PSR framework, originating from environmental statistics, shows limitations when tied to sustainable development; nevertheless it was further adopted by various organisations. The UNCSO used a modified 'driving force–state–response' (DSR) framework, and the European Environmental Agency (EEA) adopted a 'driving force–pressure–state–impact–response' (DPSIR) version. In 1996, the UNCSO proposed a set of 134 SDIs in the 'driving force–state–response' framework, linked to the thematic chapters of Agenda 21. In connection to this SDI set, the UNCSO launched an international testing programme aimed at advancing the understanding, development and use of SDIs by governments; 22 countries covering all regions of the world participated in the testing programme. Authors have found two major weaknesses in the PSR framework: the uncertainties about the underlying causal linkages the framework implies; and an oversimplification of complex interlinkages between issues (Pintér et al., 2005; UNDESA, 2006).

Environmental sustainability has entered into most theoretical frameworks for the measurement of well-being, with the monitoring of climate change drivers, ecological footprint, material flows and the building of satellite environmental national accounts. Nevertheless, the same cannot be said for economic and social sustainability. The Brundtland Commission's definition of sustainability does not only refer to the environmental elements, but to the overall concept of development. The same can be said about the Rio Declaration.⁸ Nowadays, the debate is very much concentrated on building an overarching model to evaluate the future sustainability of citizens' economic and social conditions within the ecological boundaries.

More recently, the International Social Science Council (ISSC) and United Nations Educational, Scientific and Cultural Organization (UNESCO) *World Social Science Report 2013* defines sustainability as:

The capacity of a socio-ecological system to be maintained in conditions that allow for its continued functioning in perpetuity. In development and global environmental change contexts, it refers more specifically to the ability to maintain human well-being, social equity and environmental quality indefinitely, meeting current needs and desires while ensuring that future generations will still have coupled human environment systems available to them capable of providing goods and services for their needs and desires, without degrading these systems in the long term. (ISSC and UNESCO, 2013, p. 609)

The most common approach to overall sustainability is certainly the one based on the three traditional economic, social and environmental pillars. Yet, for example, due to the conceptual and methodological difficulties in measuring social sustainability, the Franco-German Report (CAE and GCEE, 2011) proposes a number of sustainability indicators only relative to the environmental and economic or financial terms, keeping them separate from the analysis of the quality of life.

Another approach is based on the concept of 'capital', as a way to evaluate the current and future stocks of capital and therefore sustainability. A different perspective is thus used for measuring economic performance shifting from flows to stocks, from income to wealth. The World Bank (2000, 2006) has carried out researches on this field proposing the so-called 'Genuine Saving' (or adjusted net saving) which includes in the measurement of human-made capital (gross national saving) the depreciation of fixed capital, discounts

the damages caused by pollution, and adds education spending as a measure of human capital for future welfare. Genuine Saving shows how the use of non-renewable resources, without an investment in renewable ones, cannot continue indefinitely given the finite resource stocks (Daly and Posner, 2011).

A sustainability index of this kind is the Inclusive Wealth Index (IWI) presented at the Rio+20 Conference (UNU-IHDP and UNEP, 2012), following the United Nations' call for new ways of measuring progress in a green economy (UN, 2012a). The IWI proposes a stock of measures of productive capital assets, natural capital and human capital that moves forward with respect to previous measures, but recognizes the need for extra research in particular for the measurement of ecosystem services,⁹ which the IWI starts to untangle.

According to the Joint UNECE/Eurostat/OECD Working Group on Statistics for Sustainable Development (UNECE, 2009), sustainable development is defined as 'an increase in well-being across the members of a society between two points in time', where well-being is 'a function of consumption in the broadest sense possible' that is far beyond the limits of marketable goods and services. Similarly, a broad definition of capital is considered in order to assess sustainability, referring to a non-declining per capita wealth over time, where wealth is defined as the sum of five stocks of capital: financial capital, produced capital, natural capital, human capital and social capital.

While the monetization of financial and produced capital is quite straightforward, monetizing natural and human capital is much more controversial, yet it has been done in a number of cases. Also, social capital appears very difficult to express in monetary terms. From an operational point of view, a selection of mixed monetary and non-monetary indicators does not permit the quantification of an overall 'stock of well-being'; leaving aside the very controversial issue of substitutability among different forms of capital, an issue that returns every time researchers produce aggregate measures from heterogeneous phenomena.

Beside stock indicators, the United Nations Economic Commission for Europe (UNECE) approach identifies flow elements needed to assess changes over time and monitor the determinants of such changes. The central problem in the capital approach to sustainable development, therefore, is in the definition of 'shadow prices' (see World Bank, 2006; Arrow et al., 2010; Hamilton, 2012) which, when they can be identified, may lead to important differences in the final results, even when starting from the same set of indicators. Moreover, the use of shadow prices implies a substitutability among components, following an approach of so-called 'weak sustainability' aiming at maintaining total capital without regard to the partitioning among the different components, as opposed to the 'strong sustainability' that does not make allowances for the substitution of human and human-made capital for natural capital.

More recently, the Joint UNECE/OECD/Eurostat Task Force (2012) abandons the capital approach, proposing different sets of available indicators in order to address three dimensions of human well-being following what was proposed by the Brundtland Commission: human well-being of the present generation in one particular country ('here and now'), the well-being of future generations ('later') and the well-being of people living in other countries ('elsewhere'). Sustainable development is therefore measured through sets of indicators which alternatively refer to one of the three dimensions or to one of 20 domains (or themes): subjective well-being, consumption and income, nutrition, health,

housing, education, leisure, physical safety, trust, institutions, energy resources, non-energy resources, land and ecosystems, water, air quality, climate, labour, physical capital, knowledge capital and financial capital.

Sustainability is sometimes addressed through different concepts, in particular those of resilience and/or vulnerability. We can refer to vulnerability as the exposure to material, physical or psychological harm from one or more risks; and resilience as the ability to minimize well-being losses after a crisis (Morrone, 2012). An OECD project explored the usefulness of the 'asset-based' approach to provide a common framework for the statistical measurement of vulnerable populations focusing on the resources (assets) people can draw on to manage diverse risks. In the OECD definition, 'a person (or household) is vulnerable to future loss of well-being below some socially-accepted norms if he or she lacks (or is strongly disadvantaged in the distribution of) assets which are crucial for resilience to risks' (OECD, 2010).

The 2014 *Human Development Report* (UNDP, 2014) is dedicated to this approach, yet it focuses on the concept of 'human vulnerability' to describe 'the prospects of eroding people's capabilities and choices' (UNDP, 2014, p. 1). In this approach, the 'sustained enhancement of individuals' and societies' capabilities is necessary to reduce these persistent vulnerabilities'. Similarly, human resilience ensures that 'people's choices are robust, now and in the future, and enabling people to cope and adjust to adverse events' (UNDP, 2014, p. 1). All these experiences represent important efforts in moving in the right direction towards extending the measurement of sustainability beyond the environmental sphere.

1.5.1 Green Economy and Green Growth

A model for economic activity that is mindful of planetary boundaries has recently been developed around the ideas of the 'green economy' and 'green growth'. The concept of the 'green economy' was implicitly drawn from economic theories of the 1970s that began to consider resources such as the environment and energy as productive factors. Following the Stern Review (Stern, 2006) on the effects of climate change and the subsequent economic policy initiatives, the theme of the green economy began to spread and international bodies started to define it. In 2008, with the burst of the economic crisis, the United Nations Environment Programme (UNEP) asked national governments to sign a Global Green Deal to support a progressive change of unsustainable production and consumption patterns towards a greener economy. UNEP believed that transformation was inevitable to prevent further economic crises that could bring the global economy towards irreversible recession.

The green economy has been defined as a set of activities aimed at 'improving the human well-being and social equity, while significantly reducing environmental risks and ecological shortages' (UNEP, 2011). The green economy is a low-carbon, resource-efficient and socially inclusive model of development. Growth in income and employment are driven by investments and technologies that reduce carbon emissions and pollution, improve energy efficiency and resources, and prevent the loss of biodiversity and ecosystem services. The development path should maintain, enhance and, if necessary, rebuild natural capital as a critical economic resource and as a source of public benefits.

The OECD (2009) emphasizes economic growth, defining as 'green growth' all actions

to promote growth and economic development and, at the same time, to ensure that the natural heritage continues to provide resources and environmental services that underpin our well-being. To do this, investments and innovation need to be accelerated to make sustained growth possible and create new economic opportunities. The pursuit of green growth must involve an increase in productivity; a reduction of waste and energy consumption; new ways of creating value and the management of environmental issues; the development of new markets for technology, green products and services; and the pursuit of economic stability, with less volatile resource prices.

The European Commission, through the European Environment Agency (EEA) has defined the green economy as ‘one in which environmental, economic and social policies and innovations enable society to use resources efficiently, thereby enhancing human well-being in an inclusive manner, while maintaining the natural systems that sustain us’ (EEA, 2012, p. 10). It highlights the inability to continue to support ‘brown growth’ and stresses the natural limits in terms of quantity and quality of resources that the Earth can provide, and the quantity and quality of pressures it can absorb.

The green economy is therefore not only a preferable approach to economic development, but in the long term it is the only way to support economic growth. Still, in measuring green growth, or green employment, the biggest limitation emerges from data availability. A taxonomy of which economic activities need to be included is still missing, leading to different operational approaches with decreasing feasibility. A first approach includes in the green economy those businesses operating in sectors that can be more directly related to the topic of the environment: the treatment of water resources, waste management, energy production, the protection of natural resources, and interventions to protect the land and reclaim soils. A second approach looks at those companies that have introduced in the productive process actions aimed at reducing resource use and the resulting environmental pressures, or that have introduced innovations for the production of sustainable goods and services. All firms producing in an environmentally friendly manner, certified or not, can be traced in this sense, but they are difficult to detect on the basis of the available administrative information. Within the industrial sector special attention therefore needs to be given to eco-industries, because of their high growth expectation, low pollution and ability to provide green technologies. Eco-industries are therefore a wide aggregate of activities that industrial policies should constantly refer to (on green industrial policies, see Rondinella, 2012). According to the OECD and Eurostat (1999, p. 9) definition, eco-industries are: ‘activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes technologies, products and services that reduce environmental risk and minimize pollution and resources’. A measure of this kind is currently not available, yet estimates of the dimension of the green sector, and of the number of green jobs, have been proposed by Ecorys (2009), Schepelman et al. (2009) and Oko-Institute (2011).

An even more enlarged measure can be considered, starting from the relationships between institutional actors – public administration, citizens, businesses – where consumer demand for goods and services geared towards environmental sustainability induces firms to find a market space to operate in the green economy, guaranteed by public administrations’ intervention with awareness-raising tools, regulation, certification and warranty. A further enlargement of the concept, closer to that of strong sustain-

ability, involves rethinking the relationship between economic development and nature, directing production towards the use of natural capital in an amount not exceeding the capacity of nature to reproduce it; an attitude that requires the interaction of economy, society and institutions in the long term, and which also includes the idea of development that a company intends to pursue.

1.5.2 On the Inclusion of Environmental and Energy Variables in Macroeconomic Modelling¹⁰

Since the work of the Club of Rome, the literature on economic modelling considering energy and environment has been extended considerably. Models tackle a large number of different phenomena related to the inclusion of energy and environmental elements into the economic system. Issues taken into account vary broadly according to the different aims of the research. Some are macroeconomic models that consider the whole economic system and aim at including green variables, which is usually done through the use of KLE or KLEM (capital, labour, energy, materials) production functions; others are energy models exclusively focused on the energy and environmental systems, such as energy production, energy use and emissions (NEP, 2010). The composition of these two approaches has generated a large number of models at national, regional and global levels. Yet, most of the current econometric models include only energy aspects, with few considering broader environmental issues.

At one end of the spectrum one finds aggregated computable general equilibrium (CGE) models. They try to include the entire macroeconomy in which the energy system is a part, and each sector is represented by a production function designed to simulate the potential substitutions between the main factors of production. Among the most recent ones, ENV-Linkages has 22 sectors and 12 regions (Burniaux and Chateau, 2008); GEMINI-E3 has 18 sectors of which five are energy sectors (Bernard and Vielle, 2008); IMACLIM-R has 12 sectors and 12 regions (Sassi et al., 2010). ENV-Growth (OECD, 2012b) has just one sector, but proposes a global model that considers 175 countries.

But CGE models present the limit of relying on very restrictive assumptions relative to the functioning of the economy, especially in the short and medium run. CGE models are supply models where the hypothesis of perfect price flexibility often ensures the full and optimal use of production factors and thus rules out permanent or transitory less-than-optimum equilibrium such as the presence of involuntary unemployment. This is overcome by neo-Keynesian macroeconomic models that try to give a more realistic representation of the actual functioning of the economy, explicitly taking into account slow adjustments of prices and quantities. Therefore, CGE models are best suited for long-term analysis where the economy may be approximated as being in general equilibrium, while macroeconomic models may be the preferred choice for short to medium time horizons. The ThreeME (Reynès et al., 2011) model of the Observatoire français des conjonctures économiques (OFCE) is disaggregated in 24 sectors with an explicit distinction between four types of energy and five types of transports, and allows for the neo-Keynesian short-term macroeconomic modeling approach to catch up with the most advanced computable general equilibrium model (CGEM) in terms of sectorial analysis.

A third approach is represented by hybrid models incorporating the features of both macroeconometric models (CGE or macroeconomic models) and technology-rich

engineering economic models. Since CGE and macroeconomic models, at least traditionally, include only a rather rough description of the technological components included in the energy system, and since engineering-economic models, on the other hand, exclude the non-energy parts of the macroeconomy, linking these two approaches has been a way of extending the modelling. The most relevant of these is Cambridge Econometrics (2012) E3ME which combines the features of an annual short- and medium-term sectorial model estimated by formal econometric methods with the detail and some of the methods of the CGE models, providing analysis of the movement of the long-term outcomes for key E3 indicators in response to policy changes.

The other big challenge, still scarcely developed in the macroeconomic modelling literature, is the inclusion of environmental variables other than greenhouse gas emissions, which are usually taken into account, or the material flows included in KLEM function. Some models, such as the OECD's (2012a, 2012b), are endowed with sector-specific production input factors such as land in agriculture or deforestation. The outputs of the whole system may then be transmitted to the environment, producing externalities such as local air pollution, material use and waste. The implications over the possible transformation of the transport network may be considered as further outcomes. The markets typically transmit these effects through the level of activity creating demand for inputs of materials, fuels and labour; through wages and prices affecting incomes; and through incomes leading in turn to further demand for goods and services.

1.6 LEGITIMACY AND PARTICIPATIVE PROCESSES

The selection of a theoretical framework, and of the related indicators, implies the overcoming of a purely political problem of the priorities implicitly or explicitly set when choosing what to measure. This is well summarized by the 'motto' within the Stiglitz–Sen–Fitoussi report – 'what we measure affects what we do' (Stiglitz et al., 2009, p. 7) – linking the technical and the political sides of these exercises. A participative approach in the selection of the actual indicators to be used to measure well-being has also been always recommended by Sen who, as we saw before, never suggested an actual measurement for his capability approach since he considered that a phase of public deliberation was strictly necessary for the operationalization of the theory.

Public deliberation can be defined as the process of exchange of information and opinions by a group which is facing a common decision and is represented by the unavoidable discursive dimension through which collective preferences are formed and expressed. It is thus necessary to take into account every context and communicative channel, whether institutional or not, which publicly expresses interests and problems affecting a democratic community (Bohman and Rehg, 1997; Elster, 1998). Public deliberation may generate legitimate and bounding norms if it derives from a free agreement, in the absence of external constraints, among peers who can freely introduce themes, needs and claims. Essential conditions are the equality of participants, the inclusion of all actors involved, the ability of each to introduce their interest, the pursuit of a discursive agreement and a stance towards the common good (Habermas, 1985; Sunstein, 2008; Rondinella et al., 2011). In the definition of a set of progress indicators, public deliberation therefore becomes an essential step to grant the process the necessary legitimacy.

While public deliberation may be a necessary condition for political legitimacy, it may not be a sufficient one. The latter position can be found in Rawls (1971), for whom a conception of justice is acceptable if it can be justified as reasonable in public deliberations. Hence, for Rawls, what matters is procedure. This approach is criticized by Martha Nussbaum, who considers procedure as secondary: a particular procedure is valid if and only if it generates a valid outcome – ‘Justice is in the outcome, and the procedure is a good one to the extent that it promotes this outcome’ (Nussbaum, 2006, p. 82, quoted in Holst, 2010).

The production and circulation of statistical information is central to the creation of knowledge and in the expansion of the set of information used to decide (Giovannini, 2009), steering political decisions and helping citizens form their own opinions on the measured social phenomena. If end-users are involved in the selection or even the elaboration of indicators, chances increase that the information – based on shared values and knowledge – becomes relevant in the subsequent choices. This is the reason why, in the selection of indicators, attention is often given to the different stakeholders that will be affected by the proposed tool. With regard to this, Scrivens and Iasiello (2010) identify three fundamental characteristics of a set of progress indicators to impact on political decision-making: the set must be legitimized; fit for purpose – which implies choosing the most feasible way to disseminate them: composite index, headline indicators or extended set of indicators; and coupled with incentives motivating stakeholders to act on the basis of the information delivered. In this sense the legitimacy of the set of indicators derives from the shared conviction that the indicators adequately represent all the relevant issues. Within democratic systems, public decision making through civil society actors’ involvement may supply a precious source of political legitimation.

Thus, broad participation (Hardi and Zdan, 1997) becomes essential for the purpose of selecting indicators, allowing citizens to play an active role within the community and to grant legitimacy to their choices. Moreover, according to Hall and Rickard (2013, pp. 43–44), the activation to participatory processes:

strengthens the machinery of democracy . . . helps societies to better understand their own identities and circumstances . . . renders goals and values explicit . . . creates [a] stronger sense of shared ownership for new policies and renders societies more capable of addressing its problems and more resilient to large scale shocks.

Operatively, the academic literature presents three major approaches towards selection strategies: top-down, bottom-up and the so-called ‘bidirectional method’ (Michalos et al., 2011). Top-down methods are those in which the set of indicators is directly selected by the expert proposing the tool. The bottom-up method relies on the participation of a number of stakeholders, members of a specific territorial area, who set the priorities (see Atkisson, 1997; Valentin and Spangerberg, 2000). The ‘bidirectional method’ is a mixed approach in which stakeholder consultation is accompanied by the work of a group of experts. While the top-down approach, in which the expert decides dimensions and indicators, cannot boast any political legitimacy (Innes, 1990), a pure bottom-up approach, however legitimated on a political basis, may be valid only at a local level (therefore not taking into account the global implications of consumption behaviours) and may not consider all the implications arising from the use of specific indicators. The bidirectional method is a pragmatic method that guarantees legitimacy, methodological quality and

coherence with general objectives of sustainable well-being beyond the local community. Rondinella et al. (2017) recently adapted Archon Fung's analytical framework on the varieties of participation processes (Fung, 2006) to a number of experiences of shared definition of sets of well-being indicators. They use Fung's dimensions of who participates, how they communicate and make decisions, and how discussion is linked with public action. This creates an analytical space that is useful to classify participative processes and to provide a general impression of the overall architecture: the broader the participation, the more densely populated is the space. They also distinguish between consultation and deliberation within participative processes: consultation is basically made of surveys of opinions, which may or may not be considered by a central decision maker; deliberation consists in the definition of venues for discussion among stakeholders in order to let them converge through dialogue and argumentative exchange towards a common decision.

The deliberative approach is mainstreaming among national experiences. In Italy (CNEL/Istat, 2013) the selection of indicators has been carried out through the dialogue between a scientific commission of experts, a national steering committee with entrepreneurs, unions, and civil society at large, supported by public meetings, a national survey, a blog and an online questionnaire. Most parts of the Italian society had the chance to influence the decisional process in some way. Similarly, in the United Kingdom, the Office for National Statistics (ONS, 2012) set up a national consultation made of an advisory forum, a technical group and a broad national consultation of 175 events with 2750 people, and 34 000 consulted online or via other channels. The building of the Canadian Index of Well-Being was also based on a very long process of discussion between experts and social actors throughout the whole country (Canadian Index of Well-Being, 2012). The Australian Measures of Australia's Progress (MAP) (ABS, 2002) aims at improving the system of indicators through a Web 2.0 consultation on three main areas of interest:

- Aspirations: broad goals that reflect what Australians care about.
- Outcomes: more specific goals that demonstrate progress towards these aspirations.
- Measures: how we check to see whether Australia is moving towards these outcomes.

These experiences led to similar but still different results (which are shown in the following section) and confirmed Sen's view of the necessity of participatory processes for the definition of the actual measures of national well-being, in order to reflect people's cultural background, overall conditions and future priorities.

1.7 POLITICAL DEVELOPMENTS OF THE 2000s

Throughout the decade of the 2000s, the debate around moving 'beyond GDP' as a measure of well-being and progress has gained momentum (Giovannini and Rondinella, 2012; Giovannini, 2015). Since 2001, when Giovannini became Chief Statistician of the OECD, the OECD has promoted several initiatives to raise awareness of the importance of measuring and fostering the progress of societies, of the need to develop new measures and to improve the use of existing ones. In 2004, with the first World Forum on Statistics, Policy and Knowledge held in Palermo, the 'beyond GDP' debate speeded up. Three years later, the Istanbul Declaration¹¹ (OECD, 2007, p.1) highlighted an international con-

sensus on the need to ‘undertake the measurement of societal progress in every country, going beyond conventional economic measures such as GDP per capita’ and launched the Global Project on Measuring the Progress of Societies as a worldwide benchmark for those who wish to measure and assess the progress of their societies.

In this context, the most relevant and authoritative work in the field was developed. The Commission on the Measurement of Economic Performance and Social Progress (the ‘Stiglitz–Sen–Fitoussi Commission’), set up by French President Nicolas Sarkozy and hosting, among others, five Nobel Prize laureates, produced a final report in September 2009 calling for a ‘shift [of] emphasis from measuring economic production to measuring people’s well-being’ (Stiglitz et al., 2009, p. 12). The Commission’s aims have been to identify the limits of GDP as an indicator of economic performance and societal progress; 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 statistical information in an appropriate way. The structure of the report – composed of economic performance, quality of life and sustainability – has itself become a widespread framework of analysis, which has been adopted by, among others, the Franco-German Ministerial Council (CAE and GCEE, 2011) and Statistics Austria (2014). The recommendations from the Report are presented in Box 1.1.

In 2009, Group of 20 (G20) leaders asked for work on measurement methods that ‘better take into account the social and environmental dimensions of economic development’, as an inherent part of the implementation of the new Framework for a Strong, Sustainable and Balanced Growth (G20, 2009). Another important development occurred with the European Commission’s Communication, *GDP and Beyond: Measuring Progress in a Changing World* (European Commission, 2009), which fulfils the commitment made at the Beyond GDP Conference, where the President of the Commission clearly stated that ‘It’s time to go beyond GDP’ (Barroso, 2007). The Communication defined a roadmap for action committing itself to work in several areas to improve existing measures.¹²

It is against this background that within the European Statistical System (ESS) the Sponsorship Group¹³ on Measuring Progress, Well-Being and Sustainable Development was established with the mandate of coordinating activities on the issue of the recommendations from the Stiglitz Commission Report and the European Commission’s Communication (European Statistical System, 2011).¹⁴ The key challenge within the ESS is to implement the recommendations arising from these converging initiatives, in order to deliver richer statistical information and further enhance harmonisation at the international level, in particular in Europe.

A further step forward is represented by the ‘Sofia Memorandum’ produced in 2010 by the 96th conference of Directors General of the National Statistical Institutes (DGINS). It recognizes the validity of the Stiglitz Commission’s recommendations and lists a number of improvements that national statistical institutes should adopt, such as: to reconcile National Accounts aggregates with household survey data, to give more attention to the household perspective, to capture distributional aspects, to harmonize environmental measures and to improve timeliness of quality-of-life statistics (DGINS ESSC, 2010).

In February 2010, the Franco-German Ministerial Council decided to ask the French Conseil d’Analyse Économique (CAE) and the German Council of Economic Experts (GCEE) to follow up on Stiglitz’s outcomes. The CAE and GCEE published a report on ‘Monitoring economic performance, quality of life and sustainability’ (CAE and GCEE,

BOX 1.1 RECOMMENDATIONS FROM THE STIGLITZ COMMISSION

'Recommendation 1: When evaluating material well-being, look at income and consumption rather than production'

'Recommendation 2: Emphasise the household perspective'

'Recommendation 3: Consider income and consumption jointly with wealth'

'Recommendation 4: Give more prominence to the distribution of income, consumption and wealth'

'Recommendation 5: Broaden income measures to non-market activities'

'Recommendation 6: Quality of life depends on people's objective conditions and capabilities. Steps should be taken to improve measures of people's health, education, personal activities and environmental conditions. In particular, substantial effort should be devoted to developing and implementing robust, reliable measures of social connections, political voice, and insecurity that can be shown to predict life satisfaction'

'Recommendation 7: Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way'

'Recommendation 8: Surveys should be designed to assess the links between various quality-of-life domains for each person, and this information should be used when designing policies in various fields'

'Recommendation 9: Statistical offices should provide the information needed to aggregate across quality-of-life dimensions, allowing the construction of different indexes'

'Recommendation 10: Measures of both objective and subjective well-being provide key information about people's quality of life. Statistical offices should incorporate questions to capture people's life evaluations, hedonic experiences and priorities in their own survey'

'Recommendation 11: Sustainability assessment requires a well-identified dashboard of indicators. The distinctive feature of the components of this dashboard should be that they are interpretable as variations of some underlying "stocks". A monetary index of sustainability has its place in such a dashboard but, under the current state of the art, it should remain essentially focused on economic aspects of sustainability'

'Recommendation 12: The environmental aspects of sustainability deserve a separate follow-up based on a well-chosen set of physical indicators. In particular, there is a need for a clear indicator of our proximity to dangerous levels of environmental damage (such as associated with climate change or the depletion of fishing stocks)'

2011) which, starting from the domains and indicators of the Stiglitz Commission, discusses how comprehensiveness and accuracy of an indicator set might be traded off optimally with parsimony and cost to provide a reliable basis for regular, timely and digestible reporting on economic performance, quality of life and sustainability.

In the same year, with the expiration of the Lisbon Strategy for growth and jobs, the governments of the European Union launched the Europe 2020 strategy, a set of guidelines of action establishing mid-term political economy targets which extend economic growth to a few aspects which should characterize the European model (following a 'GDP and beyond' approach, rather than a 'beyond GDP' one). These guidelines aim at increasing European competitiveness, maintaining a social market economy and improving resource efficiency. Europe 2020 sets European and national targets for eight indicators which countries have to achieve by 2020. Europe 2020 is certainly the most advanced institutionalization of a set of progress indicators. The indicators emerged as the outcome of a political debate within the European Council; targets have been fixed for each country and indicator, and the monitoring system is envisaged within the European Semester of economic policy coordination. This implies

that governments must not only monitor the dynamic of the indicators but also define the measures to achieve the goals (see Rondinella, 2014, on policy use of well-being indicators).

In 2010 the UNDP also moved closer to a multidimensional approach. In particular, the 2010 *Human Development Report* introduces the Inequality-Adjusted Human Development Index (IHDI), which is a measure of the level of human development of people in a society that accounts for inequality; the Gender Inequality Index to better expose differences in the distribution of achievements between women and men; and the Multidimensional Poverty Index (MPI), which complements money-based measures by considering multiple deprivations and their overlapping deprivations in three dimensions: education, health and living conditions.

Within the OECD, another theoretical framework that reduces the emphasis on economic indicators in favour of a multidimensional approach, which considers social and environmental well-being just as important as economic well-being, was developed in 2009 (Hall et al., 2009). The authors define the ‘well-being of a society’ (or societal well-being) as the sum of the human well-being and the ecosystem condition; and ‘progress of a society’ (or societal progress) as the improvement in human well-being and the ecosystem condition. Moreover, in their definition, progress:

- Is a multidimensional concept, encompassing both material and immaterial aspects of well-being;
- Is a dynamic concept, which requires both looking back at the past and considering future paths (and particular emphasis is placed on the future when one considers the sustainability of the current level of well-being);
- Refers to the experiences of people, and what they value as important for their lives and societies. Taking the individual as a point of departure for analysis does not imply neglecting communities, but it requires evaluating them by virtue of what they bring to the people living in them. (Hall et al., 2009, p. 10)

The framework advanced by the OECD for ‘equitable and sustainable well-being’ (Figure 1.2) is built around the concept of ‘human well-being’ which, with its individual and social components, represents the final aim of societal progress. Human well-being is supported by three domains which are considered as means: culture, economy and governance. All this refers to the human system that is strongly linked to the ecosystem through the impact of human activities on nature (resource management) and on the ‘environmental services’ we can enjoy and provide to the ecosystem.

Nowadays it is quite common for policy-oriented reports on current and future challenges to recognize the need to go ‘beyond GDP’. For example, the UN Rio+20 Conference declaration, *The Future We Want* (UNCSD, 2012, par. 38), clearly states that:

We recognise the need for broader measures of progress to complement GDP in order to better inform policy decisions, and in this regard, we request the UN Statistical Commission in consultation with relevant UN System entities and other relevant organisations to launch a programme of work in this area building on existing initiatives.

Similarly, in *Now for the Long Term*, the report of the Oxford Martin Commission for Future Generations (2013, p.26), states that:

Source: Hall et al. (2009).

Figure 1.2 Equitable and sustainable well-being

To enable a deeper understanding of global inequality, it is time to shift the focus away from GDP and increase attention on measures of household income and distribution. Job targets should be reconsidered in light of the changing nature of employment, including by considering the adoption of new metrics, which take into account informal and voluntary working arrangements.

The most recent, and possibly most significant, recognition of this paradigm shift is represented by the Synthesis Report on the Post-2015 Agenda (UN, 2014a, p. 22) of the United Nations Secretary-General Ban Ki-moon:

Economic growth should lead to shared prosperity. As such, the strength of an economy must be measured by the degree to which it meets the needs of people, and on how sustainably and equitably it does so. We need inclusive growth, built on decent jobs, livelihoods and rising real incomes for all and measured in ways that go beyond GDP and account for human well-being, sustainability and equity. Ensuring that all people, including women, persons with disabilities, youth, aged, and migrants have decent employment, social protection, and access to financial services, will be a hallmark of our economic success . . .

Member States have recognized the importance of building on existing initiatives to develop measurements of progress on sustainable development that go beyond gross domestic product. Thus, work on developing alternative measures of progress, beyond GDP, must receive the dedicated attention of the United Nations, international financial institutions, the scientific community, and public institutions. These metrics must be squarely focused on measuring social progress, human well-being, justice, security, equality, and sustainability. Poverty measures should reflect the multi-dimensional nature of poverty. New measures of subjective well-being are potentially important new tools for policy-making.

In September 2015, the UN General Assembly adopted a resolution (UN, 2015) defining a framework for the Post-2015 Agenda comprising 17 Sustainable Development Goals (SDGs) and 169 Targets moving forward with respect to the MDGs. While the latter were substantially aimed at reducing extreme poverty in developing countries, the SDGs also involve commitments for rich countries; they aim at reducing inequalities within

and between countries; call for sustainable consumption and production patterns; and monitor fair governance and justice. The whole list of Goals comprises:

- Goal 1. End poverty in all its forms everywhere;
- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
- Goal 3. Ensure healthy lives and promote well-being for all at all ages;
- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- Goal 5. Achieve gender equality and empower all women and girls;
- Goal 6. Ensure availability and sustainable management of water and sanitation for all;
- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all;
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- Goal 10. Reduce inequality within and among countries;
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable;
- Goal 12. Ensure sustainable consumption and production patterns;
- Goal 13. Take urgent action to combat climate change and its impacts;
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
- Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
- Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

(UN, 2015)

The paradigmatic change is confirmed by the last Target of the last Goal (17.19) which calls for the development of ‘measurements of progress on sustainable development that complement gross domestic product’ (UN, 2015).

In March 2016 the UN Statistical Commission agreed on the global indicator framework for the Post-2015 Agenda, a set of 230 indicators¹⁵ (UN, 2016). The framework is expected to be monitored by the United Nations at global level due to the different relevance that indicators have at country level. The framework and the monitoring process at national level is instead thought to be:

voluntary and country-led, will take into account different national realities, capacities and levels of development and will respect policy space and priorities. As national ownership is key to achieving sustainable development, the outcome from national-level processes will be the foundation for reviews at the regional and global levels, given that the global review will be primarily based on national official data sources. (UN, 2015)

1.7.1 Theoretical Frameworks Developed at National Level

It is not possible to provide a complete review of the many tools for the measurement of well-being which have been developed across the globe. Broad and diversified collections

are carried out by the European Parliament (Goossens, 2007; and the Beyond GDP initiative, <http://www.beyond-gdp.eu>), which examine different indicators through a strengths, weaknesses, opportunities, threats (SWOT) analysis, by Gadrey and Jany-Catrice (2005) and by Afsa et al. (2008). The broadness of the subject is also demonstrated by the entries on the OECD website Wikiprogress.org. Here we can only focus on a few recent initiatives carried out at national and international level that incorporate much of the debate described so far. These recent trends propose a dashboard of indicators sometimes aggregated into a single measure, and at other times built around the centrality of subjective well-being measures.

A framework of the latter kind is proposed by the Office for National Statistics (ONS) in the United Kingdom for the Measures of National Well-being (MNW) initiative. In this case the central element is represented by individual well-being intended as people's overall subjective assessment which, in practice, is represented by the three indicators quoted above: life satisfaction; positive and negative emotions; and feeling that life is worthwhile (eudemonia). Individual well-being is considered to be directly affected by a number of factors grouped into six areas: our relationships; health; what we do; where we live; personal finance; and education and skills. Finally, three more contextual domains are considered: governance, the economy and the natural environment. For all the measures considered in the ten domains, equality, fairness and sustainability are to be taken into account (Figure 1.3).

Another approach explicitly taking into account equity and sustainability is proposed

Source: Beaumont (2011).

Figure 1.3 MNW framework

in Italy by the CNEL/Istat (2013) BES initiative, promoted by Giovannini when he was President of Istat. The BES initiative proposes a set of 134 indicators grouped into 12 domains. Whenever applicable, indicators are analysed with respect to their distribution throughout territories and social groups; that is, providing their disaggregation for regions, sex, age, education, nationality or economic condition. Indicators are also presented in their time evolution in order to show recent trends and suggest future conditions. Since 2015, a set of composite indicators for some of the 12 domains are also computed. In Buthan, the will to measure gross national happiness instead of GDP goes back to the 1970s. The framework used has developed over time and currently includes nine domains and the building a composite index.¹⁶

In 2002 the Australian Bureau of Statistics (ABS) set up a dashboard of indicators (Measures of Australia's Progress, MAP¹⁷) around the traditional domains of society, economy and environment (with 15 subdomains). An evolution of the initiative was proposed by ABS in 2010 and named MAP2.0, asking Australians to share, via e-mail, letter or via a website, what progress means to them and what dimensions are to be considered. A step further is then represented by the Australia National Development Index (www.andi.org.au) for which a further broadening of a national debate is foreseen, bringing together actors from academia and the third sectors.

In 2004 the Atkinson Charitable Foundation initiated a consultation process in Canada which led in 2009 to the launch of the Canadian Index of Well-Being, a composite index based on eight domains of eight indicators each. The Canadian experience is of great relevance for citizens' consultations since, over a number of years, many communities and stakeholders throughout the different states have contributed to the debate over the national priorities.

Following a consolidated experience on the issue, OECD's Better Life Initiative proposed a framework of analysis based on 11 domains which are analysed separately in the *How's Life?* report (OECD, 2011b) so as to offer a comprehensive picture of multidimensional well-being at international level. The report dedicates special attention to inequalities as a central element in well-being assessment, providing a valuable presentation of multidimensional inequalities related to every dimension. Moreover, online software allows users to freely assign weights to the different domains so as to provide rankings of OECD countries according to individual priorities. Tools of this kind help to communicate a fundamental issue which is present in most national initiatives: the relevance of a discussion over the priorities that every set of indicators implicitly or explicitly suggests, a discussion which, as we saw before, can be overcome only through a deliberative process able to grant legitimacy to the chosen approach. (See also Balestra et al., Chapter 2 in this *Handbook*.)

Table 1.4 presents these frameworks all together, showing how they are similar while displaying minor differences. Most of the domains overlap in all frameworks (even if labelled or aggregated differently, which actually implies slightly different meanings), giving way to the emergence of a fundamental picture made of health, education, living standards, work, social relationships, safety, governance and environment. Subjective well-being is not always included, as well as macroeconomic aspects considered in the UK and Australia. The broadest framework is the Italian one, which, unlike the others, includes research and innovation, and landscape and cultural heritage, following the dictate of the national Constitution.

Table 1.4 Well-being domains in selected frameworks

SSF	MNW	BES	Buthan	MAP	CIW	Better Life Index
Material living standards	Personal finance	Economic well-being	Living standards	Economy (household economic well-being) Economy (housing) Economy (national income; national wealth; productivity) Society health	Living standards	Income Housing
Health	Health	Health	Health	Society education and training	Healthy populations Education; leisure and culture	Health Education
Education	Education and skills	Education and culture Research and innovation	Education; culture			
Personal activities	What we do	Work and life balance	Time use	Society work	Time use	Jobs; work–life balance
Political voice and governance	Governance	Policy and institutions; quality of services	Good governance	Society democracy, governance and citizenship	Democratic engagement	Civic engagement
Social connections and relationships	Our relationships	Social relationships	Community vitality	Society family, community and social cohesion	Community vitality	Community
Environment	Natural environment	Environment	Ecological diversity and resilience		Environment	Environment
Insecurity	Where we live Individual well-being	Landscape and cultural heritage Safety Subjective well-being	Psychological well-being	Society crime		Safety Life satisfaction

Note: SSF = Stiglitz–Sen–Fitoussi Report; MNW = Measures of National Well-being; CIW = Canadian Index of Well-being.

1.8 CONCLUSION: GLOBAL CONVERGENCE AND FUTURE CHALLENGES

Nowadays, we witness a progressive convergence at the international level towards multidimensional measures of well-being that are able to take into account both equity and sustainability. Measures of well-being, development and sustainability are increasingly following similar patterns, and the set of Sustainable Development Goals (SDGs) for the 2030 Agenda agreed upon by United Nations in September 2015 represents a significant achievement. In parallel, the measurement of the overall impact of business activities using similar concepts is under development.

Demographic growth, population ageing and financial markets' 'short-termism' may generate worries over social and economic sustainability, starting from the sustainability of welfare systems. Powerful measures of sustainability still represent the most difficult challenge ahead: shadow prices may solve a number of problems, but they still present difficulties, in particular when it comes to assessing elements of human and social capital. On the other hand, approaches based on vulnerability and resilience can contribute to better framing some domains, such as health, even if they cannot fit into approaches based on monetary stocks and thus into a single measure.

The global landscape is now very different from the one we used to know in the twentieth century. We can no longer talk about a world divided between industrialized countries and the Global South. Emerging countries are now economic powers; production, trade and financial systems are deeply globalized. Every country, even if with different objectives, is fighting against poverty, deprivation and social exclusion, and for universal access to basic services. Moreover, natural resource distribution and future availability are affecting all countries: efforts to achieve sustainable development need to be global and coordinated.

The multidimensional approach aimed at achieving equitable and sustainable well-being is becoming universal, although individual countries need to develop it according to their specificities, capabilities and priorities. Such an overarching approach appears to be applicable in both OECD and non-OECD countries (Giovannini, 2013) and is now embedded in the Sustainable Development Goals.

In this chapter we have only marginally dealt with the linkages between well-being measures and policy making. We believe that better measures can lead to better policies. For example, policy impact assessment is currently focused on economic measures, fundamentally referring to the cost–benefit analysis. We still lack integrated models of monitoring and assessment of policies that use well-being indicators in a holistic way. The development of econometric models that can take into account the impact of different policies over societal progress is another challenge lying ahead.

Finally, we should not forget that statistical capacity is very diverse in developed and developing countries. New technologies may help in reducing costs for the production of statistics, and improving the timeliness of data, in the context of the so-called 'data revolution'.¹⁸ From this point of view, the improvement of theoretical foundations and the enhancement of statistical capacities are both equally important to achieve a better knowledge of the state of well-being of people and of the planet.

NOTES

1. 'Real income per head rose to a point where a large number of persons gained a command over consumption which transcended basic food, shelter, and clothing; and the structure of the working force changed in ways which increased not only the proportion of urban to total population, but also the proportion of the population working in offices or in skilled factory jobs – aware of and anxious to acquire the consumption fruits of a mature economy.
In addition to these economic changes, the society ceased to accept the further extension of modern technology as an overriding objective. It is in this post-maturity stage, for example, that, through the political process, Western societies have chosen to allocate increased resources to social welfare and security. The emergence of the welfare state is one manifestation of a society's moving beyond technical maturity; but it is also at this stage that resources tend increasingly to be directed to the production of consumers' durables and to the diffusion of services on a mass basis, if consumers' sovereignty reigns' (Rostow, 1960, p. 6).
2. According to the invariance principle, 'a movement of an activity from the public to the private sector or vice-versa, should not change our measure of performance, except to the extent that there is an effect on quality or access' (Stiglitz et al., 2009, p. 33).
3. <http://socialarchive.iath.virginia.edu/xtf/view?docId=united-states-presidents-research-committee-on-social-trends-cr.xml>.
4. For a comprehensive presentation of subjective well-being measures, see the OECD Guidelines (OECD, 2013), Ryan and Deci (2001), Diener et al. (2010), Dolan and Metcalfe (2011) and Abdallah and Mahony (2012).
5. The debate over the relevance and the robustness of subjective measures is very well presented by Fleurbaey and Blanchet (2014).
6. Bentham (1789) wrote: 'It has been shown that the happiness of the individuals, of whom a community is composed, that is their pleasures and their security, is the end and the sole end which the legislator ought to have in view: the sole standard, in conformity to which each individual ought, as far as depends upon the legislator, to be made to fashion his behavior'.
7. See, for example, <http://www.positivepsychology.org>.
8. 'Principle 1: Human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature' (UNCED, 1992).
9. They are provisioning services (production of foods, fuels, fibres, water and genetic resources); cultural services (recreation, spiritual and aesthetic satisfaction, and scientific information); regulating services (controlling variability in production, pests and pathogens, environmental hazards, and many key environmental processes); and supporting services (the main ecosystem processes) (UN, 2012a).
10. This review is the fruit of a collaboration with Elena Grimaccia at Istat.
11. Adopted by the European Commission, the OECD, the Organization of the Islamic Conference, the United Nations, the United Nation Development Programme and the World Bank.
12. Key actions are: complementing GDP with environmental and social indicators; near real-time information for decision-making; more accurate reporting on distribution and inequalities; developing a European Sustainable Development Scoreboard; extending National Accounts to environmental and social issues.
13. Sponsorship Group co-chaired by the Eurostat and the National Statistical Institute of France (FR-INSEE) Directors General, with the participation of 16 member states (Presidents and Directors General of National Statistical Institutes: Austria, Bulgaria, Czech Republic, Germany, Denmark, Estonia, France, Italy, Luxembourg, Netherlands, Norway, Poland, Sweden, Slovenia, Slovakia, United Kingdom) as well as the OECD and UNECE.
14. The activities on the 'GDP and beyond' Communication and the Stiglitz report in the European Commission and in the European Statistical System (ESS) are also coordinated by the Inter-departmental Co-ordination Group co-chaired by Eurostat and DG Environment Directors General, with the participation of 11 Commission DGs and three agencies.
15. Indicators are classified into three tiers: a first tier for which an established methodology exists and data are already widely available; a second tier for which a methodology has been established but for which data are not regularly available; and a third tier for which an internationally agreed methodology has not yet been developed (UN, 2016).
16. <http://www.grossnationalhappiness.com/>.
17. <http://www.abs.gov.au/>.
18. See the report of the Independent Experts Advisory Group, established by the UN Secretary General (UN, 2014b).

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