

## Introduction

### *Values, Data, and Indicators*

We are living an empirical revolution. Humans have never produced so much data (2.5 quintillion bytes a day), and data have never been so powerful in organizing societies and determining policy. From an economist's point of view, this revolution is a daily business: in the last twenty years, both economic research and economic policy have been deluged with data. A 2013 study showed that up to two-thirds of the articles published in top journals are now empirical compared to fewer than 30 percent ranked as theoretical.<sup>1</sup> The ascent of "datanomics," literally an age when data rule, is thus an undeniable reality, but it is not without peril: the democratic governments of our data-driven societies require the development of data literacy, which is precisely what this book aims to help do.

Let's start with the basic idea that data are not, as their derivation from Latin might suggest, a given, but are, in fact, a social construct, behind which lies a particular vision of the world and a specific methodology. Data, instruments of knowledge, result from hypotheses, models, and techniques, but they are also tainted by norms, values, and even ideology. In the hands of policy makers, they become instruments of power or "indicators." (The etymology here is "index," the finger that points to an object or a direction.)

The starting point of this book is therefore that, contrary to their etymology, data are the product of values, which in turn influence human attitudes and behaviors via policy when they become indicators by the combined action of scholars and policy makers. As Donatella Meadows put it, "Indicators arise from values (we measure what we care about), and they create values (we care about what we measure)."<sup>2</sup> The main

purpose of *Measuring Tomorrow* is to show that we currently govern our economies with the wrong indicators because they divert our attention away from the real challenges of the early twenty-first century. The issue is less the size of our ever-expanding empirical universe as the quality of the data that populate it. In other words, rather than being excited to live in the era of “big data,” we should be concerned that we are living in the era of “bad data.”

Because data are instruments of both knowledge and power,<sup>3</sup> they can be both vectors of change and reform and tools of stability and order. In this regard, economics has been a force of inertia in the last few decades, imposing a certain vision of the social world whereby some indicators (sustained by certain values) dominate others and have a strong influence on collective choices while hardly, if ever, being publicly debated or deconstructed. Indicators such as the growth rate of the gross domestic product or the stock market index profoundly influence government policy and citizens’ daily lives, while many crucial dimensions of human activities are neither measured, monitored, nor managed.

In the last three decades or so, a period when economics has been dominated by increasingly standardized models, methodologies, and metrics (a situation that was only briefly contested during and shortly after the “great recession” of 2008–2009), three critical issues in particular have been widely overlooked: well-being, resilience, and sustainability.

The concern for well-being (or welfare) stems from an eternal question: what are the real drivers of human development and success apart from material conditions? Exploring human well-being means articulating a multidimensional vision of human welfare casually referred to as “quality of life.” Human well-being can be assessed at different geographic scales, or objectively (via measures of health status or educational attainments), or subjectively (through the assessment of happiness or trust), but it is in all cases a static metric that tells us nothing about its evolution over time.

For a dynamic approach that sheds light not only on the current state of well-being but also on its future, one has to turn to the concepts of resilience and sustainability. The questions asked by citizens

and policy makers then become substantially more complex: “Can we project our well-being over time? How?”

Resilience is a first step in this direction, as it tries to determine if well-being can resist and survive shocks. More precisely, it assesses the ability of a community, a locality, a nation, or the whole planet to cope with economic, social, or environmental shocks and their capacity to return afterward to their pre-shock level of well-being without seeing it degraded or destroyed. One typical, pressing resilience issue is how human communities around the world can adapt to climate change.

The measurement—or, more accurately, assessment<sup>4</sup>—of sustainability is even more ambitious, in that it seeks to evaluate well-being in the long run, both after the occurrence of shocks and during normal times. Some economists view human societies as holders and managers of stocks of capital from which they derive benefits and that determine their long-term development: manufactured capital (factories, cities, infrastructures), human capital (population, health, education), social capital (institutions governing social interactions and norms of trust), knowledge capital (scientific discoveries, technology, talents), and natural capital (climate, soil, biodiversity, minerals).

Attempting to assess sustainability is about trying to understand how these stocks can be maintained or even increased over time, such as how services freely provided by ecosystems can continue benefiting future generations. (Consider, for example, pollination, on which 75 percent of the world’s crops at least partially depend.) From this perspective, resilience can be understood as the short-run horizon of sustainability: resilience is concerned with shocks and sustainability with stocks. In our “environmental century” (a phrase coined by E. O. Wilson), the key message of sustainability analysis is that human development is nothing more than a temporary illusion if it cannot be maintained over time and reconciled with current and future ecological constraints.

In my view, the whole of economic activity, which is a subset of social cooperation, should be reoriented toward the well-being of citizens and the resilience and sustainability of societies. For that to happen, we need to put these three collective horizons at the center of our empirical world. Or rather, back at the center. Issues of well-being

and sustainability have been around for quite a long time in economic analysis and were a central part of its philosophy until the end of the nineteenth century. Contemporary economics has largely forgotten that these concerns were once at the core of its reflections.

Well-being was at the heart of Greek philosophy and the explicit starting point of ethical considerations by Aristotle, the founding father of economic reasoning. For him, economics meant the management of the scarce resources within the household (*oikos, nomos*)—what we now call microeconomics—and its ultimate goal, as described in the first chapter of *The Nicomachean Ethics*, was not income accumulation, but happiness:

Suppose, then, that there is some end of the thing we pursue in our actions which we wish for because of itself, and because of which we wish for the other things . . . As far as its name goes, most people virtually agree [about what the good is], since both the many and the cultivated call it happiness, and suppose that living well and doing well are the same as being happy . . .<sup>5</sup>

A successful life was, for Aristotle, a happy life, and he conceived economics as a means to this end. In the modern era, when Jeremy Bentham invented utilitarianism, on which so much of the neoclassical economics that emerged at the turn of the twentieth century is still based, he chose to ground his theory on the same belief, writing that “it is the greatest happiness of the greatest number that is the measure of right and wrong.”<sup>6</sup> In other words, when economics was born and later modernized, well-being, not income or growth, was its main goal.

What is true of well-being is also true of sustainability. The goal of growing economies within the physical limits of nature, or “planetary boundaries,” is, in fact, nothing new. The physiocrats of mid-eighteenth-century France, as represented by Anne-Robert-Jacques Turgot and François Quesnay, thought that power (*cratos*) belonged to those in charge of managing natural resources (*phusis*). Thomas Malthus soon after described with fatalism the precariousness of humans engaged in a great race between the geometrical growth of population and the arithmetical growth of subsistence. This, in turn, influenced David Ricardo, who did not conceive of economic activity outside of

the “avarice of Nature,” which determined his theory of diminishing returns. Finally, John Stuart Mill envisioned, at the peak of the first industrial revolution, the transition to a “stationary state” (the “irresistible necessity that the stream of human industry should finally spread itself out into an apparently stagnant sea”) as a way to reconcile aspirations for social justice and “human improvement.”<sup>7</sup>

What happened to economic analysis to make all these key insights largely forgotten for so long? The shift away from well-being and sustainability happened in two crucial steps. First, at the beginning of the twentieth century, economists decided to divorce their study from philosophy—or, more precisely, from ethics—and make it a science of efficiency, modeled on physics. (This posture was embraced by one of the first presidents of the American Economic Association, Charles F. Dunbar.) Then, after the Second World War, it purported to become the science of growth. Both metamorphoses were symbolized by a single indicator: gross domestic product (GDP). Conceived in the 1930s by Harvard development economist Simon Kuznets to take stock of the Great Depression and improved by a team of British economists around John Maynard Keynes in the midst of the war effort, it was crowned king of all economic data at the Bretton Woods conference in July 1944, when Western nations embraced it as their common currency of power and success.

The power of conventional economics has only grown stronger in social science and the social world. But, at its margins, a well-being and sustainability transition has quietly awakened. In recent years, scholars and policy makers have recognized in increasing numbers that standard economic indicators such as GDP not only create false expectations of perpetual societal growth but are also broken compasses for policy. By attempting to measure well-being, they try to pinpoint the real drivers of human success beyond material conditions. By assembling the building blocks of resilience and sustainability, they engage in an even more daunting task: to understand under what conditions human well-being can be maintained over time, under severe ecological constraints. This endeavor matters for two simple and important reasons. Unmeasurability means invisibility, so that, as the saying goes, “what is not measured is not managed.” Conversely, measuring is governing: indicators determine policies and actions.

The well-being and sustainability transition received international recognition in September 2015, when the United Nations embraced a “sustainable development goals” agenda in which GDP growth plays only a marginal role. But the well-being and sustainability transition had been put in motion nearly fifty years previously. In a famous speech at the University of Kansas on March 18, 1968, shortly before his assassination, Robert F. Kennedy explained in very clear and accessible language to American citizens the necessity of going beyond gross national product (a variant of GDP) to capture the full meaning of human development:

Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities. It counts [Charles] Whitman’s rifle and [Richard] Speck’s knife, and the television programs which glorify violence in order to sell toys to our children. Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile. And it can tell us everything about America except why we are proud that we are Americans.<sup>8</sup>

Academic research devoted to devising new metrics better able to reflect human aspirations and social success paralleled Kennedy’s eloquent and powerful criticism. Economists William Nordhaus and James Tobin suggested in a series of papers published between 1972 and 1973 that “growth” (understood narrowly as the increase of GDP) had become “obsolete” and attempted for the first time to offer not just a theoretical alternative, but an empirical one.<sup>9</sup> Thus was born the “beyond GDP” agenda.

This research and policy making agenda has greatly expanded since then, and gained momentum. To sum up contemporary research, one could say that many scholars and policy makers have come to realize that growth cannot solve either of the major crises that mark the beginning of the early twenty-first century: those of inequality (the growing gap between the haves and the have-nots) and ecology (the alarming degradation of climate, ecosystems, and biodiversity that threatens human well-being). The single minded focus on growth has been a diversion from these two pressing challenges. Kuznets himself, the inventor of GDP, intuited this diversion when he warned policy makers in 1934, “Goals for more growth should specify more growth of what and for what.”<sup>10</sup> More than eight decades later, we can refine his statement as a question: more growth of what and for whom? This is especially pressing given our troubled political times.

Well-being, resilience, and sustainability indicators that aim to go beyond GDP (that is, not only beyond standard economic measures, but also standard economic models and analyses) are sometimes perceived or caricatured as amusing diversions. They are much more than that: they are key vectors of democracy. Accurate, relevant measures of well-being and sustainability are the foundations of a sound and genuine public debate on what really matters and how life actually is for ordinary people. By contrast, the growing distance between everyday challenges and a political discourse based on misconceptions of social reality is a poison for democracy. The recent US concern over entering a “post-truth era” where there is a casual disregard for objective facts often overlooks that, in a time of increasing but underestimated inequality, people do live in separate social universes and the most deprived deeply distrust official statistics because they don’t feel represented by them. Governing societies with metrics that veil this reality instead of highlighting it can be perilous.

Moreover, these indicators, old and new, are genuine markers of civilization: they help us understand what we do in and to the world; they shed light on our means and our ends; they reveal our true quality of life and warn us of its possible grim future. Standard economic indicators such as GDP may indeed be useful for understanding these realities in part, but it is much too narrow a part, whose relevance is

ever shrinking in the face of mounting ecological challenges. If reality can be measured, there is more realism in evaluating ecological crises and their impact on human well-being than in locking ourselves into the excesses of an economic development while blind to its impact on a biosphere on which it ultimately depends.

The much-needed transition toward well-being, resilience, and sustainability is actually already under way. Economic research is devoting far more attention to the question of inequality, while sustainability analysis has made valuable progress in recent years. To take just two examples, to which I will come back to in greater detail later, US scholars and (some) policy makers increasingly realize the importance of paying attention to inequality rather than just growth, while China's leaders acknowledge that sustainability is a much better policy target than explosive economic expansion. But progress toward (or back to) well-being and sustainability needs to be accelerated.

Economics, as I understand it, is the discipline that measures what really matters for human beings and designs incentives that provide tools to policy makers to shape human behaviors and attitudes so that human societies have a chance of reaching the goals they set themselves. At its best, economics measures what counts and provides societies with the means to make it count, among the most powerful of which are good indicators. A *New York Times* columnist was quite right to note in 2015, "It is hard to think of any government investment that would have a greater impact than creating robust ways to measure the quality of our lives."<sup>11</sup> From this perspective, each of this book's three parts seeks to ask and answer a key question. (What defines a good indicator? What good indicators are available beyond GDP to account for well-being and sustainability? How can good indicators of well-being, resilience, and sustainability practically change our world?) In doing so, the book aims to make four contributions to the growing field of well-being and sustainability analysis and policy.

First, while we have several insightful historical accounts of GDP's ascent,<sup>12</sup> we also need to take stock of existing alternatives in a forward-looking way. By the same token, we have plenty of pointed critiques of GDP,<sup>13</sup> but need to address the limitations of the alternative indicators. Dozens of the latter are created or updated each year, but their conceptual and empirical foundations are sometimes obscure or weak.

(What exactly do they measure? How well do they measure it?) This book is not only a (necessarily partial) guide to alternative indicators, but a guide to understanding their meaning, accuracy, and usefulness.

*Measuring Tomorrow* also attempts to grasp indicators' plurality in an as-yet missing consistent framework so we can better understand the continuum among well-being, resilience, and sustainability. Because this framework breaks down well-being and sustainability into a limited number of fundamental dimensions,<sup>14</sup> it does not impose one best indicator on readers, but rather invites them to select and even design those that matter the most for them.

This book also intends to convince readers, within this framework, that advances in human well-being are fully compatible with environmental sustainability and even that the two are, or at least can be, mutually reinforcing. In doing so, it counters the beliefs that there is an unsurmountable trade-off between well-being and sustainability, that sustainability can exist without well-being, and that well-being does not need to be sustainable. Well-being represents the many dimensions of human development (or, in a more poetic view, human flourishing). Resilience represents well-being under shocks. Sustainability represents dynamic well-being. Linking these three dimensions is an operational way to acknowledge the continuity or non-dichotomy between humans and their natural environment, or, in the words of French social psychologist and environmental pioneer Serge Moscovici, the fact that "almost all of the natural world is now human while humans have always been natural."

Finally, I try to show throughout the book how metrics can change policy. Well-being and sustainability indicators now need to become performative and not just descriptive. While we should be concerned about obsessive quantification, blind monetization, and hazardous commodification, building, disseminating, and using alternative indicators is a practical way to reclaim essential values and advance important issues. Done properly, measuring produces positive social meaning. But we should not shy away from the ethical questions posed by valuation: Can we measure everything? Should we?

In short, this book is a critical exposé of well-being, resilience, and sustainability indicators, aimed at showing the interdependencies of their various dimensions in order to help change policy so as to advance

the well-being and sustainability transition. Part I (chapters 1 and 2) sets the scene of our empirical world and affirms the need to govern our data-driven societies through the deconstruction of the dominance of standard economic metrics, chief among them GDP. It draws on the example of the European Union as a continent under the influence of powerful but flawed indicators.

Part II is organized to mirror a gradual understanding of the complexity of human well-being, from core economic well-being to the frontiers of sustainability analysis. It departs from the most familiar standard economic indicators to show how common notions such as personal income (chapter 3) or work (chapter 4) point to horizons that radically differ from gross domestic product growth. Chapters 5 through 7 enlarge the understanding of well-being to include human development indicators, both objective and subjective. Chapters 8 and 9 further widen the focal lens in order to make room for trust and institutions, thus moving from individual to collective well-being. Human well-being is then projected in time in order to identify the ecological conditions necessary for its perpetuation and highlight the social underpinning of sustainability. Chapter 10 shows how the economic sphere is contained in the biosphere and interacts with it (analysis of material flows), while chapter 11 demonstrates how unbalanced those exchanges have become, with the risk of short-term well-being destroying entire parts of the biosphere. Chapter 12 relates collective human development to the preservation of ecosystems (environmental performance indicators) and chapter 13 presents sustainability instruments and indicators that take the reader to the frontier of current knowledge, where as-yet unfinished metrics are being built in order to link well-being and sustainability. This organization reflects that the belief that we need to move beyond GDP is not so much a single composite indicator (replacing GDP with a counter-GDP) as policy area-specific indicators that form the building blocks of well-being and sustainability. We should not be looking so much for what Robert Costanza and his colleagues have called “the successor of GDP” as for its alternatives.<sup>15</sup> This pluralistic approach appears to be the best way to desacralize gross domestic product, not just in terms of substance, but also form.

Finally, part III (chapters 14 through 16) attempts to show how building good and resilient institutions at different levels of governance is the key to achieving the well-being and sustainability transition.

This book is an invitation to explore and understand our new economic world, where the passion for growth is gradually disappearing to make way for the pursuit of well-being (human flourishing), resilience (resistance to shocks), and sustainability (caring about the future). Because these three horizons have been overlooked by mainstream economics in the last three decades, our social world has been mismanaged and our prosperity is now threatened by inequality and ecological crises. Understanding how what matters to humans can be properly accounted for is the first step to valuing and taking care of what really counts.