

Social Indicators Research Series 75

Eduardo Bericat

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The Quality of European Societies

A Compilation of Composite Indicators

 Springer

Social Indicators Research Series

Volume 75

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A Compilation of Composite Indicators

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Foreword

This book on *The Quality of European Societies: A Compilation of Composite Indicators* – edited by Eduardo Bericat and María Luisa Jiménez-Rodrigo – is a long-awaited and unique volume. To the best of my knowledge, there is no other publication existing as yet that presents and reviews the currently available composite measures of individual quality of life as well as the quality of society in such a comprehensive and systematic way. The book impressively approves what Kenneth Land – one of the pioneers in *Social Indicators Research* – had predicted almost two decades ago: “With the tremendous increase in the richness of social data available . . . , a new generation of researchers has returned to the task of summary index construction. The field of social indicators probably will see several decades of such index construction and competition among various indices - with a corresponding need for careful assessments which indices have substantive validity in the assessment of the quality of life and its changes over time and social space” (Land 2000). In various parts of the book, the “careful assessment of indices”, that Land is asking for, has actually been done. But moreover, the systematic compilation as well as detailed characterisation of more than 70 composite indicators, which the book contains, prepares the ground and invites other researchers for a rigorous review and analysis of recent work on composite well-being indicators, both methodologically as well as substantially.

The 73 composite indicators are allocated to altogether 14 life domains, each of them considered to address a specific dimension of individual or societal quality of life. By presenting the composite indicators in such a systematic fashion, the book also builds a bridge between methodological work on index construction and substantial research that addresses the question to which extent Europeans are living in good societies and are enjoying good lives. Beyond the systematic compilation of available composite indicators, much value is added by the elaborate introductory chapter, which not only puts the presentation of indicators in a larger framework by outlining the elements of “a system of indices on the quality of European societies”. It also picks up many conceptual and methodological issues related to composite indicators, which are still all but undisputed in current debates.

This new book is certainly a “must read” for all those – researchers, official statisticians and policy-makers – who are interested in or even in charge of measurement and monitoring of well-being at national or supranational levels. I very much hope that it will achieve the recognition and success that it deserves.

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Heinz-Herbert Noll

Reference

Land, K. (2000). Social indicators. In D. F. Borgatta, R. V. Montgomery (Eds.), *Encyclopedia of Sociology*. Revised Edition (pp. 2682–2690). New York: Macmillan.

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Chapter 1

Towards a System of Indices on the Quality of European Societies (SIQES)



Eduardo Bericat, Mercedes Camarero, and María Luisa Jiménez-Rodrigo

This book presents a compilation of composite social indicators created in order to measure important aspects of the quality of European societies.

The complex and intense social, political, demographic, economic and cultural changes that the entire world is undergoing, the result of seemingly unstoppable processes of globalization and digitization, make it necessary to evaluate the current state of the European social model and how it might evolve in the future. We need to know if Europeans live in *good societies* (social quality), and enjoy good lives (*quality of life*). We need to know if European societies are becoming better as time passes, or if, on the contrary, their quality is slowly deteriorating. We need to know if the quality of life of Europe's citizens is improving over time or if it is gradually and irrecoverably getting worse.

This book includes two introductory chapters and fourteen substantive one. Each of these fourteen chapters covers about five composite indicators (hereafter, CIs) that measure some important aspect or phenomenon related to the quality of European societies: quality of life, subjective well-being, social and political participation, cultural practices, democratic quality, consumption, quality of work, environmental sustainability, social equality, gender equality, childhood well-being, elderly well-being, health conditions, and crime and safety. In total, the book contains the results from more than 70 CIs, including more than 280 dimensions. The data tables contained in the book offer the scores and positions obtained by each European country on different rankings of quality of life and social quality. After a thorough review of existing CIs examining the sphere addressed in each of the book's chapters, the compilers selected about five

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of them based on their methodological rigor, relevance and social interest. In short, this compilation offers the reader a broad yet concise and, at the same time, multifaceted, rigorous and precise vision of the quality of European society.

Knowledge of the state and evolution of the quality of life and social quality in Europe cannot be based on the information provided by one index alone, as thorough and complete as it may be. First, given the nature of social change taking place in our societies today, and second, given the great diversity among European countries, it is essential to have a complete system of social indices.

Firstly, the societal transformations currently taking place are so great, in contrast to the modern era, that it does not make sense to speak in the singular of one grand process or trend in social change. No longer do the different aspects of society evolve together and homogeneously. Each vector of change in our societies moves at its own pace and in its own direction. In addition, to a large degree the different vectors interact randomly with each other, either catalyzing emerging phenomena, or perhaps slowing down or even reversing the course of processes and events. In such circumstances, it would be a scientific error to observe and analyze social change in the singular, as well as the state and development of the quality of societies in general. We need a system of social indices that can measure the complexity of the phenomena under study. Hence, the system of composite indicators compiled in this book offers a multi-sided image based on independent information about very different aspects of the reality of European societies.

Secondly, given the great diversity among European countries in terms of their situation and evolution, it would be incorrect to refer to an average or uniform level of quality. The country by country data offered by the CIs compiled in this book reveal this existing heterogeneity. For example, great differences can be seen between Nordic, Mediterranean, Central and Eastern European countries. Indeed, levels of quality of life and social quality vary greatly across European countries, seriously affecting equality and social cohesion in Europe. While there is potential enrichment from social diversity, in order to take advantage of it we need an information system that will permit us to understand the effects different policies, forms of social organization, cultural features, political events, economic decisions and other factors may have on the quality of these societies. The System of Indices on the Quality of European Societies (SIQES) offered in this book represents an important step in this direction. In short, by offering data from more than 70 indices and 280 dimensions of the reality of these societies, it makes it possible to analyze their quality of life and social quality with great precision and rigor.

This compilation of CIs is one of the outcomes of the research project *Social Quality in Europe: Design and Development of Composite Indicators to Measure and Monitor the Quality of European Societies*. This project forms part of a line of research carried out by the authors in recent years, analyzing and designing systems of social indicators (Bericat and Camarero 2011). The project, carried out by a group of researchers under the direction of Eduardo Bericat and with the collaboration of international experts, has two objectives: first, to promote the design, development and construction of focused composite indicators specially designed to measure and monitor the quality of European societies; and, secondly, to provide

an inventory of, evaluate and select composite indicators created by other social scientists, whether in academia or in social institutions, that could be incorporated into the SIQES.

The design of this system is based on the conviction that focused composite indicators (FCIs) constitute the ideal analytical instruments for measuring and comparing the state of the quality of Europe's different societies, as well as for monitoring their future evolution. Composite social indicators are scientific instruments designed to provide quantitative measurements of those traits of reality we consider, (a) normative and (b) multidimensional in nature. Their normative character is derived from the social value, whether positive or negative, that human beings give to different aspects or phenomena of reality. That is, behind each indicator there is a social value, such as equality, wealth, health, safety, solidarity, environmental sustainability, etc. The multidimensional nature of these phenomena means that they cannot be adequately captured through a simple and uni-dimensional measurement; rather, there must be a descriptive model of measurement based on multiple data sources whose aggregation offers a synthetic or overall measurement. In this regard, composite indicators condense complex information into a single number and as a result, they offer us a simple interpretation of the data they contain.

This dual nature of composite indicators, that is, their capacity to capture complex multidimensional realities, while offering precise, valid and robust measurements that are simple and easily interpretable, is the reason for the enormous increase in their use in recent years, both in academia and in the political and public arena. Thus, an initial inventory carried out by Bandura in 2008 identified 178 composite social indicators, while this number had increased to 290 by 2011. Every month, academic journals publish new proposals for composite indicators and many public institutions and social organizations promote and sponsor the creation of CIs related to their sphere of activity.

Academic interest in this area stems in part from the increasing wealth of data available today, data that allow social scientists to establish adequate *descriptive measurement models* to compare and monitor the evolution of different phenomena or aspects of social reality. Composite indicators can compare the characteristics of different units of analysis or research objects in space and over time, such as countries, regions, governments, institutions and social groups. For these reasons, composite indicators are also attracting increasing interest in the public and political spheres. The comparative positions obtained by these countries, regions, governments, institutions, etc., based on the measurements established by the different composite social indicators that exist today, are regularly published and widely discussed, analyzed and debated in prominent media, and have great impact on their agendas, as well as on public opinion itself. In addition, the descriptive models used by these composite indicators, as well as the precise information they provide, are increasingly taken into account in political decision-making and in the evaluation of public policies.

However, despite the enormous interest and usefulness of CIs, the fact remains that their construction is a complex task that involves a number of difficulties. The

design of a good composite indicator requires, first of all, a coherent conceptualization of the phenomenon it is intended to measure. The conceptual definition to delineate the reality being examined must be based on an adequate theoretical framework. Secondly, the empirical information needed to saturate the measurement model must be available, a seemingly simple goal that often turns out to be extremely complicated. The data must have a sufficient level of empirical quality, be available for the years required and be perfectly comparable. Third, the construction of a composite indicator involves many critical and complex methodological decisions (normalization, weighting, aggregation, imputation, etc.).

Slight changes in conceptual definitions, in the empirical data used, or in the methodological decisions behind the measurement model, lead to significant changes in the scores obtained by the social units measured by the index, whether they be countries, regions, governments, etc., which inevitably causes debate and doubts about their validity, reliability and robustness. The implicit complexity in the design of a composite indicator means that indices aiming to measure the same phenomenon may be based on very different theoretical conceptualizations, empirical content and construction methodologies. For example, from 1984 to 2010 we find more than twenty different composite indicators designed to measure the supposedly singular phenomenon of gender inequality (Bericat 2012). Such diversity in measuring a single phenomenon is surprising to the layperson, who interprets and judges it to be purely arbitrary. However, social scientists who have at some time faced the task of constructing an index know that capturing reality, especially social reality, whose nature is organic, not mechanical, is particularly difficult and complex. The nature of social phenomena, such as the state of health of a population, inequality, social capital, environmental sustainability, corruption or discrimination, is multidimensional, so that it can only be captured through multiple indirect empirical indicators. Thus, the fact that there can be different approaches for capturing the same phenomenon must be considered scientifically normal.

In short, the complexity involved in the creation of any composite indicator, as well as the large number of possible options in terms of its design, means that they are not all of equal quality. Hence, our research team, in addition to collecting and evaluating the vast production of existing CIs, has selected those that meet certain basic requirements of quality; in other words, we have chosen those with a vigorous theoretical conceptualization, based on valid empirical information that is robust and reliable, and a solid methodological structure.

All the CIs selected to form part of this compilation required great effort and dedication on the part of their authors in their construction and calculation, as well as in their maintenance over time. With this in mind, we want this book to be a recognition of all those scientists who have accepted the challenge of constructing models that describe and measure important aspects of the quality of our societies. This book is simply a compilation of the admirable scientific effort made by the social researchers who have created the more than 70 composite indicators described in its pages. This is the primary reason why we refer the reader of each chapter directly to their original texts and calculations.

Science is a collective effort, and thanks to the work of these social scientists, we now have a compilation of CIs that for the first time provides a complete and detailed overview of both quality of life and social quality in European countries. Europe's citizens long to live good lives within good societies. In this sense, the aim of the *System of Indices on the Quality of European Societies* (SIQES) is to be a valuable tool for understanding social reality so that we may advance in our attempts to fulfil our dreams of living in better societies.

Informational Content on Each Index

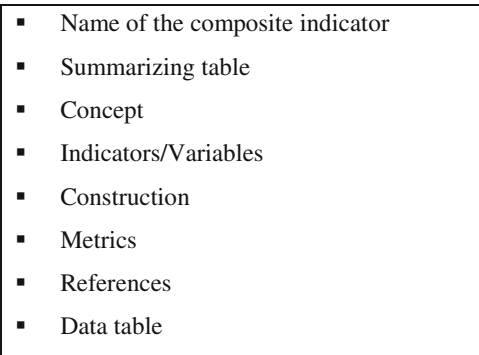
This book consists of fourteen chapters, each dedicated to one important aspect of the quality of life and social quality in European countries, such as subjective well-being, environmental sustainability, the well-being of the elderly and the quality of democracy or health. Each chapter examines five composite social indicators.

All the chapters have a similar structure, consisting of a general introduction and five sections, each describing one of the composite indicators included. In the introduction to each chapter, the compiler briefly explains the relevance of the sphere of social reality being examined, comments on innovations and developments in the production of CIs in this sphere and introduces those that have been selected for inclusion, justifying their selection.

Each section offers the reader the basic information needed to understand, interpret and correctly use the data for the countries shown in the tables. In order to make the description as accurate as possible, original extracts from the texts of the creators of each composite indicator have been used, referring the reader directly to the main publications of these authors, where readers can find a complete description of each composite indicator.

The information offered on each index is homogeneous, organized into the following sections (Fig.1.1):

Fig. 1.1 Information on the composite indicator

- 
- Name of the composite indicator
 - Summarizing table
 - Concept
 - Indicators/Variables
 - Construction
 - Metrics
 - References
 - Data table

- **Summarizing table:** After indicating the name of the composite indicator, each section includes a small table with basic information about the composite indicator. It identifies the concept being measured, the number and nature of the dimensions that constitute the index, the authors of the index, the institution that has promoted its construction and/or sponsors its maintenance, its geographic scope (global or European) and the number of EU countries included in the index, the year or years which the index covers, its frequency (yearly, bi-annual, etc.), the basic reference publication where the reader can find a complete description of the index, and the website, if any, where index data is explained or published.
- **Concept:** This section offers a brief description of the theoretical perspective inspiring the index, a conceptual definition of the overall index, and the dimensions it includes. For the reader to be able to interpret the content of the index, it also provides information on the indicators or variables that constitute each of the dimensions. This information is essential to understand exactly what phenomenon or aspect of social reality the index is attempting to measure. In this regard, we must underscore the importance of also understanding the content of each of the dimensions, not only because the data tables offer the scores obtained by the countries in each of these, but also because the overall score of the composite indicator is obtained through aggregation rules that combine the scores of the different dimensions.
- **Indicators/Variables:** This section provides the total number of indicators or variables that make up the index, as well as their distribution among the different dimensions. The reader who is interested in knowing exactly which indicators or variables the index uses can go to the corresponding bibliographical references.
- **Construction:** This section provides a brief and simple explanation of the construction of the index, the basic methodological and technical decisions and the data sources used. Given that the methodologies and techniques applied for a correct operationalization can be extremely sophisticated, the information in this section has been strictly limited to its necessary minimum (calculation mode, weighting, aggregation, etc.). In any case, this section also includes the bibliographical references where the complete and detailed methodological structure is explained.
- **Metrics:** Knowing the measurement, scale, meaning and value of the scores that the composite indicator assigns to each country is essential for interpreting the data correctly. This section provides information on the type of measurement scores (ratios, z-scores, factor scores, etc.) and the range of index values (their minimum and maximum). Given that composite indicators have a normative nature, indicating favourable or unfavourable situations, it is necessary to define the meaning of their scores (for example, the higher the better). Finally, composite indicators do not only offer relative scores (better or worse), but also reveal situations that can be evaluated qualitatively, in absolute terms, as positive or negative (good or bad).
- **References:** This section provides original and essential bibliographical references, whether articles, books or web pages, which provide a complete explanation of all aspects of the index.

- **Data tables:** All of the sections include tables indicating the scores and relative positions for each of the European countries as estimated by the index. The tables show the data for the most recent year available. The columns in the table, from left to right, offer the following information: the overall score assigned to each European country (score), and its position with respect to global and European rankings (global and European position) if the index has a global scale, or its position in the European ranking (position) if the index is only European. In addition, if the information is available, the columns on the right show the scores of the countries for each of the dimensions of the index.

The Social Indicators Movement

This book can also be considered as the initial material manifestation of a proposal aimed at public institutions in Europe for the future establishment and maintenance of a system of focused composite indicators, with the ultimate aim of comparing and monitoring the quality of European societies over time.

This proposal is part of a tradition in empirical social research that originated in the 1960s with the emergence of the so called *Social Indicators Movement* in the United States. Although certain antecedents existed (Duncan and Duncan 1955; Lazarsfeld 1958), a research project under the auspices of NASA and directed by Raymond Bauer is regarded as the origin of this research practice. The resulting book by Bauer and his colleagues, *Social Indicators* (Bauer 1966), inaugurated the contemporary period of research with social indicators (Noll 2002b; Land 1983). This research practice spread rapidly from the very beginning. The use of social indicators was especially apt for capturing the changing trends societies were undergoing, as well as for carrying out comprehensive social reports that provided an overview of different countries' general situations.

This practice gained momentum largely due to a cultural change that called into question the idea of progress in societies as merely an advance in the material well-being of the population. In contrast to this purely economic, materialistic and quantitative notion of development ("standard of living"), the social indicators movement introduced other factors to be taken into account in the analysis ("quality of life"). In this regard, as noted by Noll and Michalos, a large number of the recommendations in the well-known *Stiglitz-Sen-Fitoussi Report* (2009), from which the current movement known as *Beyond GDP* has emerged, have been present in the spirit of the research carried out by the social scientists who have been working with social indicators over the past 50 years (Noll 2011; Michalos 2011).

After suffering a certain stagnation from 1975 to 1985, systems of indicators began to again arouse interest at the end of the 1980s (Noll and Zapf 1994; Berger-Schmitt and Jankowitsch 1999), and have experienced a renewal since then, especially in the first decade of the twenty-first century. However, the list of indicators compiled by the OECD (1973), which gave rise to the series of reports known as *Society at a Glance* (OECD 2014), the list of themes and indicators gathered in the United Nations' *Handbook of Social Indicators*, and the broad compilation carried out by Eurostat, do not provide an adequate general picture for monitoring overall living conditions and social change in Europe (Berger-Schmitt and Jankowitsch 1999: 79). Understanding the difference between a "thematically structured inventory of indicators" and real "scientific systems of social observation" is essential if we are to continue to advance in the development of social indicators as a key strategy both for research and the normatively oriented reform of society.

At the beginning of the twenty-first century scientific systems of social indicators based on sound and substantiated theoretical frameworks began to be developed. These systems were of great reach and were inspired by an all-encompassing vocation, that is, a longing to offer a synthesis of all social reality. The systems of indicators for measuring and monitoring social cohesion developed by the European Council (European Council 2005) or by the Canadian government (Canadian Council on Social Development 2000) serve as examples of these approaches. However, in this area the European System of Social Indicators developed by the Leibniz Institute (GESIS) within the framework of the EuReporting project deserves special mention (Berger-Schmitt and Noll 2000; Berger-Schmitt 2002; Noll 2002a). This system is an exceptional example in the design and implementation of an architecture based on a rigorous framework, the result of an excellent theoretical conceptualization and based on three concepts of well-being: quality of life, social cohesion and sustainability. It takes into account both individuals' quality of life and the social quality of countries.

In the context of this rebirth of systems of social indicators, many other successful experiments could also be mentioned. The European Foundation for the Improvement of Living and Working Conditions (EUROFOUND) carries out two important European surveys on the quality of life and work, which are also the basis for a system of indicators (Fahey et al. 2003). The Netherlands Institute for Social Research (SCP) has maintained its Life Situation Index, based on an annual survey, since 1974 (Boelhouwer 2002, 2010).

Analyzing the recent development of theoretically grounded systems of social indicators we find two important changes in perspective, one substantive and the other methodological. Both changes have been incorporated into the proposal for a *System of Indices on the Quality of European Societies* (SIQES).

First of all, systems of social indicators have evolved from models with an almost exclusive concern for the quality of life of individuals (Sirgy et al. 2006) to more comprehensive models in which the quality of societies is also considered. Concretely, the initiative of a group of social scientists during the presidency of the

Netherlands of the European Union in 1997 led to a new model focused on “social quality”, understood as “the extent to which citizens are able to participate in the social and economic life of their communities in conditions that serve to improve their well-being and individual potential” (Beck et al. 1997, 2001: 6–7). Claire Wallace and Pamella Abbott, as well as other social scientists in the International Association of Social Quality have continued since then to ground, develop and apply a social quality paradigm (Wallace and Abbot 2007; Abbott and Wallace 2012; Abbott et al. 2016; Lin and Herrmann 2015; Van der Maesen and Walker 2011). In addition, Ruut Veenhoven’s model of well-being and happiness (2000), which identifies four aspects to quality of life (life chances, life results, outer and inner qualities), also considers both perspectives of the quality of societies. In short, these three important models, as well as others, combine quality of life and social quality. In the words of Noll (2002b), a *good life* can only be lived within a *good society*.

The second change in orientation, which is methodological in nature, refers to the increasing importance that the scientific community is giving to composite indicators. “The demand for and debate on summary indices, synthesizing a multitude of welfare dimensions and indicators into one single or at least a restricted number of composite measures, builds on a long-lasting tradition. However, the interest in constructing composite indices has grown again considerably. Moreover, some observers expect this issue to rank high on the future research agenda (Noll 2002b). “With the tremendous increase in the richness of social data available . . . today as compared to two or three decades ago, a new generation of researchers has returned to the task of summary index construction. The field of social indicators probably will see several decades of such index construction and competition among various indices – with a corresponding need for careful assessments of which indices have substantive validity in the assessment of the quality of life and its changes over time and social space” (Land 2000).

The renewed interest in indices, as well as the difficulties involved in their design and construction, can be seen in the numerous scientific contributions published recently (Hagerty et al. 2001; Land 2004; Hagerty and Land 2007, 2012; Saltelli 2007; Krishnakumar and Nagar 2008; Narayan and Petesch 2010). In this field, the excellent work carried out by the researchers at the Econometrics and Applied Statistics Unit of the Joint Research Centre of the European Commission deserves special mention (Nardo et al. 2008; Sasiana and Tarantola 2002). Michaela Saisana currently leads the European Commission’s Competence Centre on Composite Indicators (COIN), a reference regarding the methodology for constructing composite indicators. The proliferation of CIs Land refers to, can be seen, as we have already mentioned, in Bandura’s general inventories for 2008 and 2011, as well as in other more specific inventories, such as that of Michaela Saisana (2012), focused on risk, or that of Lin Yang (2014), on indicators measuring human progress. The growth in composite indicators since 2000, and especially since 2006, in the social sciences and in other spheres is reflected in the Fig. 1.2.

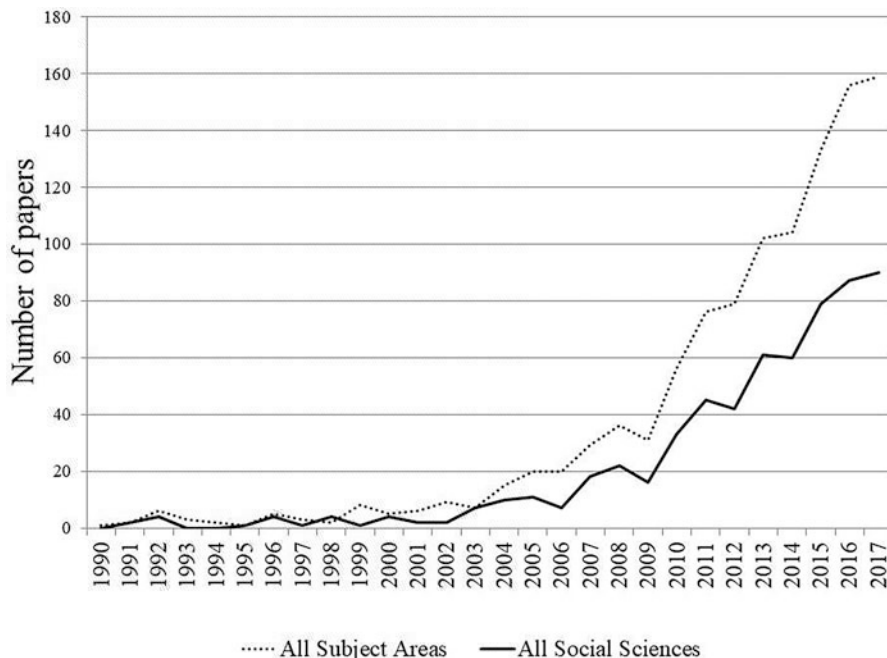


Fig. 1.2 Papers on composite indicators registered in Scopus (fields: article title, abstract and keywords). 1990–2017

Source: By authors based on data from Scopus. <https://www.scopus.com>. Accessed 20 Sept 2018

Focused Composite Indicators

Given that *focused composite indicators* (FCIs) are the basic unit of the *System of Indices on the Quality of European Societies*, it is necessary to distinguish them from other types of indicators. A basic typology will serve to establish the essential differences (Fig. 1.3).

Indicators are empirical records of reality that, as with all signs, are characterized by meanings that go beyond or *transcend the nature of their concrete materiality*. For example, obesity may indicate a state of anxiety, in the same way that smoke may indicate the existence of fire. Charles S. Peirce classified signs into “indexes”, “symbols” and “icons”. According to this classification, and unlike symbols and icons, indexes are characterized by the fact that a *physical connection always exists between the sign and the reality signified*. In this sense, a photograph is an index because there is a physical connection (light) that links the image with the reality represented, for example, the portrait with the person portrayed.

The two characteristics set out in the preceding paragraph are the only ones that turn any recording of a perceivable reality into a potential indicator. From there, the possibilities are endless. In the field of social research it is evident that the measurements from single variables, such as the average height of a population, its

Fig. 1.3 Typology of indicators

- | | |
|--------------|-------------------|
| a) Simple | Univariate |
| | Several variables |
| b) Synthetic | |
| c) Composite | Comprehensive |
| | Focused |
| d) Specific | |

satisfaction with life, average education level, or the number of women killed per year in a country because of gender violence, are examples of *simple univariate indicators*. However, there can also be *simple indicators of several variables*. They remain simple to the extent that the information they provide is combined through a relatively simple and predefined mathematical function. For example, the body mass index (combining weight-height-age-gender), the density of the population (combining population and land area), or Veenhoven's Happy Life Years Index (obtained by multiplying life expectancy in a country by level of happiness) (Veenhoven 2004), are all simple indicators although formed by several variables.¹

Synthetic indicators, in contrast, are characterized by the large quantity of information they contain. However, in general, the difference between them and the former is purely quantitative, as synthetic indicators aggregate information of the same substantive nature and based entirely on a single unit of measurement. That is, they are basically uni-dimensional indices. Gross Domestic Product (GDP), Life Expectancy (LE), the Consumer Price Index (CPI) and the stock indexes, such as the NASDAQ-100, are examples of synthetic indices. In these cases, both the unit of measurement and the nature of the reality they are measuring are homogeneous, whether it is the monetary value of production, the longevity of life, the cost of products, or the market capitalization of companies. However, many of these indices use stratification and weighting in the universe of their units of analysis, as there may be great diversity among them. For example, businesses listed on the stock exchange have very different levels of market capitalization, or the variety of existing consumer products on the market is extraordinarily wide.

Composite indicators are those formed by combining a set number of simple and/or synthetic indicators. This strategy has a dual function. First, composite indicators combine information to improve the validity, reliability and robustness that can be obtained from a simple indicator. Secondly, composite indicators combine information to be able to empirically characterize realities that are, by their very nature, multidimensional and that therefore cannot be captured in all of their

¹Currently, the most common use for the term "indicator" is reserved for simple indicators, whether univariate or composed of several variables. The term "index" tends to be reserved for synthetic and composite indicators. In concrete, it is common to refer to "composite indicators" as "composite indices", or simply "indices". In this book, we use "composite indicator" and the more general term "index" as equivalents.

substantive extent with a simple indicator. Given this multidimensional nature, and following the guidelines originally established by Paul Lazarsfeld, the concept to be measured must be broken down into dimensions and sub-dimensions, ultimately including concrete indicators or empirical information that can show the extent of the presence of the elements of reality that informationally saturate the content of the concept. After the breakdown implicit in the construction of the index, it is necessary to carry out a proper recomposition in order to obtain the estimation of its overall measurement (Lazarsfeld 1958).

Finally, composite social indicators need to be classified according to the scope and complexity of the definition of the concept through which an aspect or phenomenon of reality is being measured. In general, the pioneering projects in the construction of composite indicators were oriented toward capturing large concepts whose theoretical definitions turned out to be problematic, presenting clear areas of ambiguity and indetermination. Macro-concepts, such as social progress, well-being, quality of life, development, social quality, living conditions, human development, and other similar concepts, were operationalized empirically using the methodology of composite indicators. However, the practice itself has demonstrated the implicit difficulties in the design and construction of these indicators, which require the development of an extremely complex and broad theoretical framework as well as the combining of numerous incomparable and distinctive domains and sub-domains.

Consider, for example, the Better Life Index² (OECD 2016), the comprehensive composite index created by the OECD to compare the “well-being” of countries, and which considers 11 domains that the institution sees as essential measures of living conditions and quality of life. These domains are housing, income, employment, community, education, environment, civic commitment, health, satisfaction, safety and work-life balance. A critical analysis of this otherwise excellent index highlights two important weaknesses affecting comprehensive composite indicators: the difficulty in establishing a theoretical framework and defining a coherent conceptual structure on the one hand, and the methodological impossibility of aggregating in one quantitative measure qualitatively different life domains, which by their very nature are incommensurable. In other words, you cannot add apples and oranges, ultimately leading to the problem of weighting (Hagerty and Land 2007, 2012), which is compounded when we try to add *domains*, and not only *dimensions* of a single concept, as we do in the case of focused composite indicators.³

²An excellent on-line application created to disseminate the index can be found at <http://www.oecdbetterlifeindex.org>.

³Although the literature on social indicators uses the terms “domain” and “dimension” interchangeably, we believe that a fundamental difference exists between them. Domains, used in general in the construction of comprehensive composite indicators, are spheres or parcels of reality, substantially different (work, criminality, housing, etc.), that cover a space part of a broader reality. Dimensions, used in the structure of focused composite indicators, are necessarily constitutive aspects of the nature of the concept intended to be measured.

For example, how much should each of the domains forming part of the concept of “living well” weigh? And how much if we aim to measure the concept of the “good life”? To resolve this problem, the Better Life Index invites each individual to weigh each of the eleven domains in the way he/she considers to be the most appropriate. However, this clever resource does not solve the problem in the end, since these results in as many different indices, scores and combinations of weightings as users freely decide to apply. We should remember that the original leitmotif of composite indices is to offer a single measurement of a complex phenomenon. In addition, including many different aspects of reality in one concept means that the final overall index score will not be unambiguously interpretable. That is, the same estimated level of well-being, progress, quality of life or development may be obtained through many different combinations of domains and sub-domains.

Following in the footsteps of Robert K. Merton, who stressed the need to develop middle-range theories, we believe that the methodology of composite indicators offers its full scientific potential when researchers design *focused composite indicators* (FCIs), that is, *measurement models, based on a descriptive and multidimensional structure, of a limited characteristic, aspect or phenomenon of social reality, which is captured through a precise and coherent conceptual definition, and quantified with a dense but commensurate empirical structure.*

Recent research practice has evolved toward the design, construction and social application of focused composite indicators. With some exceptions, grand concepts, framed in all-encompassing theoretical paradigms, have gradually given way to middle-range concepts, framed in focused theoretical perspectives and measured using operationalizable empirical structures. The aspects or features of reality these focused indices aim to measure, as with the majority of the indices included in this book, are much more limited and defined, although they continue to be important aspects or features of the state and dynamic of the quality of societies. As an example, included among the concepts forming part of our system of indices are the following: gender inequality, social capital, innovation, quality of government, socio-emotional well-being, consumer trust, quality of work, social inclusion, environmental sustainability, childhood well-being, state of health and corruption.

There are clearly pros and cons to the construction and use of composite indicators (Saisana and Tarantola 2002; Saltelli 2007; Nardo et al. 2008). However, focused composite indicators reinforce the advantages and reduce the disadvantages, the opposite of what occurs with comprehensive composite indicators. Focused composite indicators, by addressing a single clearly defined aspect of social reality, reduce the risk of being poorly constructed or misinterpreted. For this same reason, they also do not encourage political and institutional actors to adopt overly simplistic narratives and policy decisions. The structure of the methodological decisions that have to be made in the design of a focused composite indicator, although complex and to some degree arbitrary is much more manageable than in the case of a comprehensive one. FCIs appreciably restrict the degree of methodological contingency and the consequences that methodological decisions can have on the

results offered by their measurement models. An important corollary to this is that the degree of methodological transparency of focused composite indicators is potentially superior to that of comprehensive indicators. In addition, the extreme complexity involved in the construction of the latter leaves many methodological issues open to self-interested criticism. Thus, for example, the countries evaluated by an index could reject it based on legitimate scientific criticisms when the image from the index is not totally to their liking. In addition, the quantity of data necessary to empirically saturate the dimensions of the concept of a focused composite index is much less than that required to saturate those of a comprehensive index.

Compared to comprehensive indices, focused indices also reinforce all the advantages offered by composite indicators, although we will highlight only their main virtue at this time; that is, their ability to scientifically address what we refer to as the *paradox of statistical abundance*: the exponential growth in the availability of socio-statistical information in recent decades has not been accompanied by a parallel growth in the knowledge and understanding we have of our societies. On the one hand, the vast accumulation of isolated empirical information is likely to cause great confusion and “noise”. The quantity of information accumulated by official statistical institutes and public and private centers, whether European, national or regional, has come to be, as in Borges’ *Library of Babel*, practically infinite from the perspective of the average citizen, making it extremely difficult for the public to manage and draw knowledge from it. On the other hand, isolated socio-statistical data, without being integrated into an adequate theoretical framework and into a socially meaningful comparative strategy, could provide support for images and interpretations of social reality that are completely arbitrary or insignificant, if not outright deceptive, misleading or false.

In this context, focused composite indicators represent one of the best instruments scientific research has to contribute to solving this paradox of statistical abundance. Through the design and development of focused composite indicators (FCIs), social scientists can describe and measure, with much greater validity, reliability and rigor, the phenomena and aspects of reality most important in leading us toward a better world. The difficulty involved in their design and construction should be an incentive encouraging social scientists to meet the challenge and the responsibility of offering accurate images of social reality.

The Quality of Societies

Since the emergence of *quality of life* as the key idea underlying the attainment of social well-being, some excellent theoretical paradigms and frameworks have been developed to reflect on and unravel the content of the major concepts, such as progress, well-being, quality of life, social cohesion, and social quality, that have inspired the construction of indices and systems of indicators in recent decades. This has led to many approaches that look at – depending on the theoretical framework applied in each case – very different spheres of individual and social reality that, for one reason or another, are considered key to the development of a good life and a good society.