Measuring well-being and its sustainability: The 2011 BCFN Index

Fondazione Barilla
il tuo cibo, la tua terra
people, environment, science, economy

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il tuo cibo, la tua terra

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Measuring well-being and its sustainability:
The 2011 BCFN Index (June 2011)

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Dear Reader,

For three years now, the Barilla Center for Food & Nutrition has been using a cross-disciplinary approach to deal with some issues of great importance related to the areas of nutrition, health, lifestyles and the sustainability of models of social and economic development. It is undeniable that all these aspects, by their very nature, affect the material well-being of people. It is with this conviction that last year we created a "construction site" for the development of a multidimensional indicator for measuring the all-around well-being of people. The first result of our activities in this direction was presented at the end of 2010, at the Second International Forum on Food and Nutrition in Milan.

Aware that the wealth of knowledge and skills of the Barilla Center for Food & Nutrition should be constantly innovated and improved in comparison with policy makers, opinion leaders and representatives of the scientific community and civil society, in these months we have listened carefully to suggestions, criticism and advice. The result is an improved contribution regarding the work that has already been carried out; it is innovative in approach, focusing more on aspects that can lead to the sustainability (which in some cases can become "vulnerability") of individual well-being.

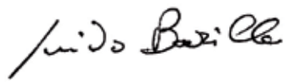
Therefore, in studies conducted in the first half of 2011, we also measured and analyzed the main effects that certain lifestyles, habits, food choices and social and economic policy can have on the level of future well-being. This complements our first "measurement" of well-being with an assessment of its future sustainability.

Thus, in presenting this document, we intend not only to report on the continuation of our efforts, but also to attempt to involve new expertise, skills, intelligence and willingness of anyone who believes that he or she can make a constructive contribution with regard to this issue. The model is that of an open "platform," or rather, the willingness to acknowledge suggestions from anyone who is interested in becoming involved in this ambitious undertaking and who is able and willing to contribute.

Well aware of the fact that the path is still long and challenging, we believe that contributing – much or little, according to our capabilities – to the difficult process of creating new tools for measuring the well-being of people, tools which are capable of representing reality in a way that is closer to the daily experience of each of us, is the best investment of our energy and attention.

Our hope is that one day this may be translated into policy choices and concrete actions leading to a better and more just world.

Enjoy the read,
Guido Barilla



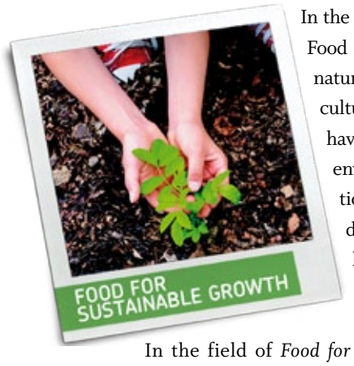
THE VISION OF THE BARILLA CENTER FOR FOOD & NUTRITION

TO OFFER A VARIETY OF HIGHLY SCIENTIFIC CONTRIBUTIONS AND BECOME A VALUABLE SERVICE TO THE INSTITUTIONS, THE SCIENTIFIC COMMUNITY, THE MEDIA AND CIVIL SOCIETY OVER TIME; A MEETING POINT FOR ANYONE WHO CARES ABOUT FOOD, THE ENVIRONMENT, SUSTAINABLE DEVELOPMENT AND ITS IMPLICATIONS ON PEOPLE'S LIVES.

THE BARILLA CENTER FOR FOOD & NUTRITION

The Barilla Center for Food & Nutrition (BCFN) is a center of multidisciplinary analysis and proposals which aims to explore the major issues related to food and nutrition on a global scale.

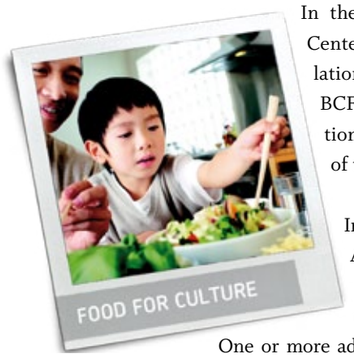
Created in 2009, BCFN intends to listen to the demands emerging from society today by gathering experience and qualified expertise on a worldwide level and promoting a continuous and open dialogue. The complexity of the phenomena under investigation has made it necessary to adopt a methodology that goes beyond the boundaries of different disciplines. These topics under study are broken down into four areas: *Sustainable Growth for Food, Food for Health, Food for All* and *Food for Culture*. The areas of analysis involve science, the environment, culture and the economy; within these areas, BCFN explores topics of interest, suggesting proposals to meet the food challenges of the future.



In the field of *Food for Sustainable Growth*, the Barilla Center for Food & Nutrition focuses on the issue of the optimization of natural resources within the framework of the food and agricultural sector. More specifically, the studies conducted so far have identified some critical issues and have evaluated the environmental impact of food production and consumption, putting forward a series of proposals and recommendations for individual and collective lifestyles which may have a positive effect on the environment and on natural resources.

In the field of *Food for Health*, Barilla Center for Food & Nutrition has decided to start its research work by analyzing the existing relationship between nutrition and health. It has studied in depth the recommendations provided by the most distinguished nutrition institutes in the world and the results of ad hoc panel discussions with some of the most accredited scientists at the international level. As a result, it has been able to provide civil society with a clear set of concrete proposals for more easily adopting a correct lifestyle and a healthy diet.

In the field of *Food for All*, the Barilla Center for Food & Nutrition deals with the issue of food accessibility and malnutrition with the aim to reflect how to promote better governance of the food and agricultural sector on a global scale, in order to have a more equitable distribution of food and a better impact on social well-being, health and the environment.



In the *Food for Culture* area, the Barilla Center for Food & Nutrition aims the relationship between man and food. In particular, BCFN has traced the most significant stages in the evolution of the man-food relationship, refocusing on the fundamental role of the Mediterranean diet.

In line with this approach, the activities of BCFN are guided by the Advisory Board, a body composed of experts from different but complementary sectors, which makes proposals, analyzes and develops the themes, and then drafts concrete recommendations.

One or more advisors have been individuated for each specific area: Barbara Buchner (expert on energy, climate change and the environment) and John Reilly (economist and expert on environmental issues) for the area *Food for Sustainable Growth*; Mario Monti (economist) for the area *Food For All*; Umberto Veronesi (oncologist), Gabriele Riccardi (nutritionist) and Camillo Ricordi (immunologist) for the area *Food for Health* and Claude Fischler (sociologist) for the area *Food for Culture*.

In its first two years of its activity, BCFN created and divulged a number of scientific publications. Driven by institutional deadlines and priorities found on the international economic and political agendas, it has reinforced its role as a collector and connector between science and research, and policy decisions and other governmental actions.
BCFN has also organized events which are open to civil society, including the *International Forum on Food & Nutrition*. This event is an important moment of confrontation with the greatest experts in the field and is now in its second edition. BCFN continues its path of analysis and sharing for a third year, making its content accessible to as many interlocutors as possible and acting as a reference point on issues of food and nutrition.

This paper focuses on this particular theme: the definition of a multidimensional index to measure the well-being of individuals, considering all the aspects involved in the quality of life. This "work in progress" was initiated by BCFN in 2010, when it presented the first version of BCFN Index. This year, the work continues, with the aim to improve its conceptual and methodological approach. During the first six months of 2011, research has focused on integrating the first "measurement" of well-being into the evaluation of its future sustainability.

Brooks Walker/National Geographic Image Collection

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MEASURING WELL-BEING AND ITS SUSTAINABILITY: THE 2011 BCFN INDEX

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EXECUTIVE SUMMARY

1. Well-being and how to measure it

IT IS NOT POSSIBLE TO CHARACTERIZE WELL-BEING ACCORDING TO A SINGLE DIMENSION

THE APPROACH TO EVALUATING THE WELL-BEING OF INDIVIDUALS CAN BE OBJECTIVE OR SUBJECTIVE

It is not possible to characterize well-being according to a single dimension. Indeed, there are many ways to define it. In fact, well-being has economic, political, environmental and social implications; it is the result of personal and health standards and it is linked to the lifestyle of societies and people. While there are difficulties in characterizing well-being in an exhaustive way, there are aspects to clarify in view of a more qualitative analysis of this dimension. Choosing the individual as the focal point of the study poses a fundamental problem, linked to the way in which the different factors involved in well-being are selected, measured and weighted. For individuals, it is necessary to take into consideration both subjective and objective factors.

One approach is to measure the actual features of the subject's life, which have to be collected and evaluated in an objective way because they are unrelated to a partial and personal perspective. In the other approach, the individual provides a subjective assessment of his or her own life, identifying and interpreting its objective features. The differences between the two approaches account for the wide and still unbridged gap between what actually exists and what is perceived.

WHATEVER THE APPROACH, MEASURING THE WELL-BEING OF INDIVIDUALS IS A COMPLEX ACTIVITY

Whatever the approach, measuring the well-being of individuals is a complex activity and forms certain perspectives, without a definitive solution. As aptly stressed by Fitoussi, Sen and Stiglitz in their final report to the Commission on the Measurement of Economic Performance and Social Progress, "what we measure has an impact on what we do." In other words, defining and measuring human well-being in a highly inclusive and shared perspective which is strictly in line with the complexity of reality is not only a fascinating challenge for social scientists but also a fundamental step forward to developing the best policy and economic practices, in view of a better world.

THE FIRST VERSION OF THE BCFN WELL-BEING INDEX PUBLISHED IN 2010 IS CHARACTERIZED BY ITS OBJECTIVE NATURE

The first version of the Barilla Center for Food & Nutrition (BCFN) Well-being Index was published in 2010. It is the first attempt to scientifically measure well-being and is objective in nature.

However, it is not correct to consider only one of the two aspects of well-being. And so, thanks to the experience acquired by the BCFN Advisory Board and meetings with experts and scholars dealing with this issue, it was decided to improve the original index in the second version of the BCFN Well-being Index, on the basis of a paper written by the OECD on this subject, entitled: *People reporting various positive and negative experiences* (2010).

2. Recent developments regarding the measurement of well-being and the BCFN contribution

THE GDP IS NOT ABLE TO CAPTURE ASPECTS RELATED TO THE PROGRESS AND WELL-BEING OF INDIVIDUALS

The Gross Domestic Product (GDP) is the main economic parameter believed to be able to provide a correct image of reality. GDP is a quantitative measure of macroeconomic activity. However, over time, it has become an indicator of the general economic and social development of countries as well. Due to its very nature, it must be integrated with other indicators related to the living conditions of the population, such as social inclusion, inequality and the state of the environment.

In fact, GDP is still a good economic growth index but it is not able to capture aspects related to the progress and well-being of individuals.

THE BCFN INDEX IS A MULTIDIMENSIONAL INDEX TO "THOROUGHLY" EVALUATE THE WELL-BEING OF INDIVIDUALS

The 2010 BCFN Well-being Index – the first measurement of well-being – was designed to define a multidimensional methodology to "thoroughly" evaluate the well-being of individuals. In fact, the index includes the variables already identified in the scientific literature, as well as some elements related to diet, nutrition and lifestyles. The aim of the 2011 BCFN Index is to improve this approach by fine-tuning this methodology and by increasing the number of indicators considered.

In sum, the methodology to calculate the BCFN Index has been improved as follows:

1. *The indicators of the BCFN Index are subdivided into two categories:*
   A. Indicators to measure the *current well-being* of individuals (what people experience today);
   B. Indicators to reveal the future trends/patterns (sustainable well-being).
2. *The set of indicators and the methodology adopted* to calculate the 2010 BCFN Index *have been revised*.
3. *Non-market-related activities have been included* because they have a considerable impact on the well-being of individuals (such as time dedicated to caring for children) but they cannot be captured by common economic indicators.

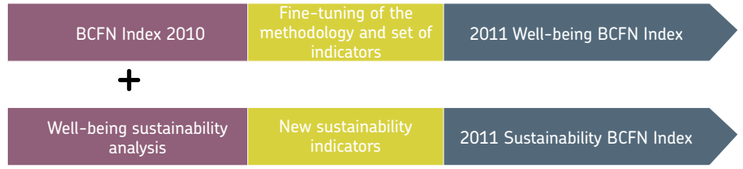
3. Methodology

IN 2011, TWO SYNTHETIC MULTIDIMENSIONAL INDICATORS WERE DEVELOPED TO CALCULATE THE WELL-BEING OF NATIONS: THE BCFN WELL-BEING AND SUSTAINABILITY INDEX

The methodological approach used is consistent with the one adopted for the 2010 BCFN Index. But the 2011 Index was used to build two multidimensional synthetic indicators for the quantitative measurements of the well-being of nations, in particular:

1. *The Current Well-being BCFN Index*, designed to measure the current well-being of individuals (what people experience today; that is, an indicator of a "well-being stock");
2. *The Well-being Sustainability BCFN Index*, designed to measure the future patterns/trends (sustainable well-being).

Figure 1. Main changes vs. the 2010 BCFN Index



Source: The European House-Ambrosetti, 2011.

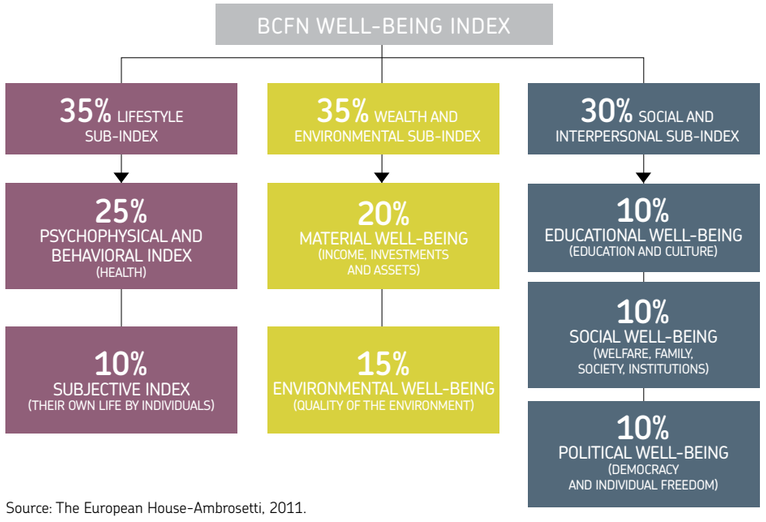
This figure shows the methodological approach adopted to calculate the two well-being indicators (current and sustainable).
In order to adopt a highly consistent and scientifically qualitative methodological approach for the final Index, we have started from the work conducted by Stiglitz, Sen and Fitoussi. In fact, they suggest a broad range of different variables (income, health, education, consistent social networks, the quality of democracy, etc.) in order to simultaneously evaluate multiple well-being dimensions.
The international comparative analysis has focused on a *10 nation benchmark*:

- Three representative countries of *Southern Europe*: *Italy*, *Spain* and *Greece*;
- Two representative countries of *Continental Europe*: *France* and *Germany*;
- Two representative countries of the *Scandinavian area*: *Denmark* and *Sweden*;
- The *United Kingdom*;
- The *United States*;
- *Japan*.

THE PERFORMANCE OF EACH NATION HAS BEEN EVALUATED THROUGH SPECIFIC INDICATORS, CALLED KEY PERFORMANCE INDICATORS

The performance of each nation has been measured in terms of seven well-being dimensions: "psychophysical and behavioral well-being," "subjective well-being," "material well-being," "environmental well-being," "educational well-being," "social well-being" and "political well-being," all of which are evaluated through specific indicators, called *Key Performance Indicators* (KPI).
Each KPI was selected with the specific aim of measuring one or more domains for each nation included in the model.
In addition, by giving a "specific weight" to each KPI, to each well-being dimension and to each of the three sub-indices – as shown in the previous figure – it is possible to calculate (through a simple weighted average) the partial synthetic indicators of each of the seven well-being dimensions, of each of the three sub-indices considered and of the final indicators, called the "BCFN Well-being Index" and the "BCFN Sustainability Index" (aggregating the results of the three sub-indices).

Figure 2. The reference methodological approach: the Current BCFN Well-being Index and its components



Source: The European House-Ambrosetti, 2011.

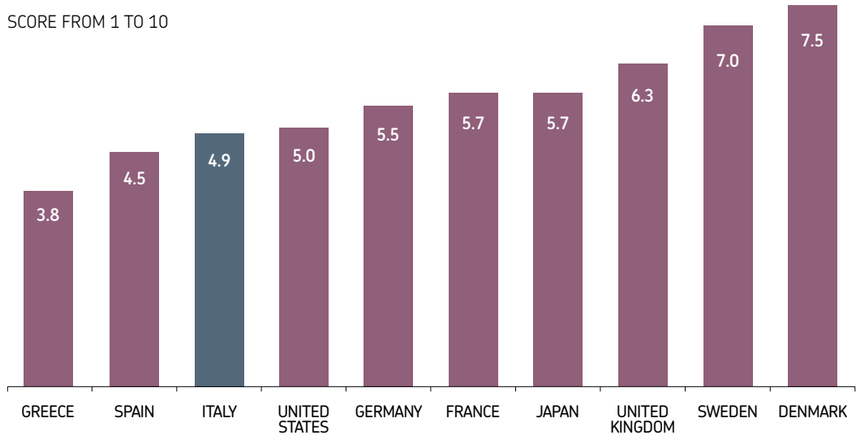
4. The BCFN Well-being Index

The BCFN Index defined as "current well-being" is a static, multidimensional measure of well-being. Ideally, in order to better frame this concept, it is possible to say that the current BCFN Well-being Index is a "snapshot" of the state of well-being which characterizes a population (country) at a specific moment in time (today).

THE CURRENT BCFN INDEX IS THE "SNAPSHOT" OF THE STATE OF WELL-BEING OF A POPULATION

As already anticipated, the current BCFN Well-being Index is an aggregate index, with 27 performance indicators to measure the seven well-being dimensions ("psychophysical and behavioral well-being," "subjective well-being," "material well-being," "environmental well-being," "educational well-being," "social well-being," "political well-being"). The current BCFN Well-being Index has three sub-indices: the *Lifestyle Sub-index*, the *Wealth and Environmental Sub-index* and the *Social and Interpersonal Sub-index*.
By aggregating the scores for the 10 nations in the three sub-indices on the basis of a simple weighted average as in the previous figure, it is possible to rank these countries according to their BCFN Well-being Index, as shown in the following figure.

Figure 3. Ranking of the BCFN Well-being Index



Source: The European House-Ambrosetti, 2011.

The BCFN Well-being Index provides the final results for the 10 nations in the model as to their current situation in terms of the seven "well-being" dimensions. Denmark ranks first with 7.5, followed by another Scandinavian country, Sweden, with a total of 7.0. The United Kingdom ranks third with 6.3.

DENMARK HAS THE HIGHEST CURRENT WELL-BEING INDEX

Then there are another three countries with a similar score. In order of ranking: Japan (5.7), France (5.7) and Germany (5.5).
The United States and Italy rank sixth and seventh, with 5.0 and 4.9 out of 10, respectively.
Spain (4.5) and Greece (3.8) rank in the second to last and the last positions, respectively.

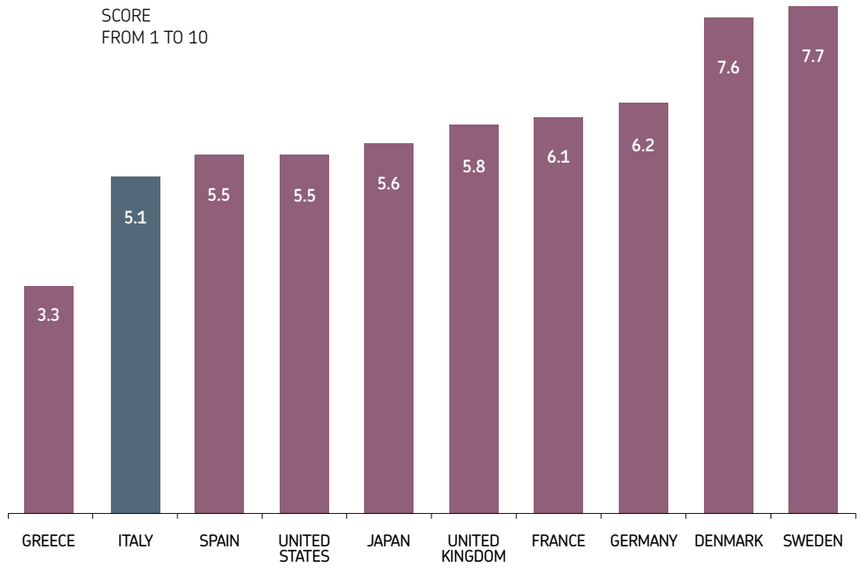
5. The BCFN Sustainability Index

The so-called BCFN Sustainability Index is a multidimensional measure of the future sustainability of individuals, according to a dynamic perspective.

THE BCFN SUSTAINABILITY INDEX EVALUATES WELL-BEING WITH A DYNAMIC PERSPECTIVE

The BCFN Sustainability Index is also an aggregate system, with 26 performance indicators to measure the seven well-being indicators ("psychophysical and behavioral well-being," "subjective well-being," "material well-being," "environmental well-being," "educational well-being," "social well-being," "political well-being). Finally, the BCFN Sustainability Index, too, has three sub-indices: the *Lifestyle Sub-index*, the *Wealth and Environmental Sub-index* and the *Social and Interpersonal Sub-index*.
By aggregating the scores for the 10 nations in the three sub-indices on the basis of a simple weighted average as shown above, it is possible to obtain the BCFN Sustainability Index, as shown in the following figure.

Figure 4. Ranking of the BCFN Well-being Sustainability Index



Source: The European House-Ambrosetti, 2011.

SWEDEN HAS THE HIGHEST BCFN SUSTAINABILITY INDEX

The BCFN Sustainability Index provides the final results of the 10 nations in the model as to their situation in terms of the seven "well-being" dimensions. Sweden ranks first with 7.7, followed by another Scandinavian country, Denmark, with 7.6, followed by France and Germany with a similar final score slightly above 6.1.
Italy ranks in the second to last position with 5.1, only slightly below (1 point) the nations ranking third and fourth. Greece ranks in the last position with 3.3, far below the other countries in the model.
The calculation of the BCFN Current and Sustainability Indices clearly shows that what matters is not the actual ranking of the countries – also determined by specific historical, social and economic factors – but the balance of the different identified and analyzed sustainability well-being dimensions. This makes it difficult to detect specific areas of improvement across these dimensions, and to enhance the overall well-being of people.

6. Conclusions

The two current and sustainable well-being domains included in the 2011 BCFN Index account for a major improvement with respect to the 2010 Index.
It is important to emphasize that these indicators are not so much designed to obtain a ranking of the countries included in the model but rather to analyze the balance of the different well-being and sustainability dimensions, then to indicate possible policy actions to improve well-being and its sustainability.

THE INDICATORS CALCULATED ARE DESIGNED TO CALCULATE THE BALANCE OF THE DIFFERENT WELL-BEING AND SUSTAINABILITY DIMENSIONS

1. WELL-BEING AND HOW TO MEASURE IT

Joel Sartore/National Geographic Image Collection

1. WELL-BEING AND HOW TO MEASURE IT

IT IS NOT POSSIBLE TO CHARACTERIZE WELL-BEING ACCORDING TO A SINGLE DIMENSION

It is not possible to characterize well-being according to a single dimension. In fact, there are many ways to define it. Well-being has economic, political, environmental and social implications. It is the result of personal and health standards and it is linked to the lifestyle of societies and people.

For this reason, even an extremely detailed list of factors involved in the individual dimension of well-being is not exhaustive.

This dimension is so complex that there is still no scientifically shared and accepted approach to measuring it. Only recently have reseachers started to develop extremely advanced instruments to identity the right methodology in order to measure well-being and to analyze it in greater depth. As a result, for the purpose of our research, we have reviewed the most advanced international studies in this field, but we have decided to avoid any definition that may emphasize one element or a particular aspect of well-being over the others. We have tried to directly measure the well-being of individuals by considering the highest number of factors which have an impact on this dimension.

Again, it is difficult to have a thorough insight into the "well-being" dimension. Moreover, there are some aspects to be clarified for the purpose of this investigation. Choosing the individual as the focus of the analysis poses a fundamental problem in how to select, measure, and weigh the different factors involved in the well-being of individuals. In fact, there are both objective and subjective factors involved in this dimension.

THERE ARE OBJECTIVE AND SUBJECTIVE FACTORS OF WELL-BEING

On the one hand, well-being is measured by analyzing the elements which actually characterize the life of the individual in an objective way, that is, without a partial and personal perspective. On the other hand, well-being is measured on the basis of the self-evaluation given by the individual of his life and of his subjective interpretation of objective phenomena.

The differences between the two approaches account for the wide and still unbridged gap between what actually exists and what is perceived.

In our opinion, it is not correct to consider only one of the two aspects which, in some cases, are not consistent with the "interpretation" of the events and the value given to the factors involved in well-being.

There are different ways to bridge the gap between objective measures and subjective perceptions. One possibility is to ask individuals to evaluate the latter. This would make the measurement of the well-being of individuals more exhaustive and in line with the real evaluation of their life. A similar approach has been recently used by the OECD,[1] which has proposed three indicators to measure subjective well-being on the basis of the number of positive experiences/sensations of the last twelve months, and of the number of people who report having a high well-being standard in their life. This clearly shows that these variables introduce subjective elements to the measurement of well-being, thus making comparisons among individuals and countries more difficult. The alternative is to remain in the domain of objective measures, by broadening the specrtum of the co-determinants of well-being so as to asyntotically capture a well-being measure that is as close as possible to the "real" one.

This "approach," too, seems to have some critical aspects. First, statistical evaluation techniques are methodologically constrained by oversimplifications and a set of conventions, even when they use a very broad range of indicators. Second, they are based on a trade-off: focus/limitation vs. inclusion of different variables and their correlations. In fact, a limited number of observed and estimated variables provides some information about the focus and the limitations derived from distortions due to multiple measurements of a final effect on the subject of the investigation. On the other hand, the choice of a limited number of variables makes it difficult to decribe the reality and may not consider a set of decisive events. This risk is even higher when the focus is the individual.

The first version of the Barilla Center for Food & Nutrition (BCFN) Well-being Index in 2010 was a first attempt to scientifically measure well-being. It is an objective index which does not consider any subjective element of well-being.

THE FIRST VERSION OF THE BARILLA CENTER FOR FOOD & NUTRITION (BCFN) WELL-BEING INDEX IS OBJECTIVE IN NATURE

The experience acquired through the development of the first Index and the analyses conducted by the BCFN Advisory Board and meetings with experts and researchers in this field have encouraged us to try and improve the original Index by introducing subjective measures, on the basis of the OECD model.

This field of investigation is still evolving in the wake of the efforts undertaken by different countries and organizations around the world. In fact, measuring the well-being of individuals is a complex activity and, from certain perspectives, it does not have a definitive solution. But, in our opinion, it is a field to be thouroughly explored for its potential possibilities, for people and countries alike.

WE HAVE DECIDED TO TRY AND IMPROVE THE ORIGINAL INDEX BY INTRODUCING SUBJECTIVE MEASUREMENTS

As aptly stressed by Fitoussi, Sen and Stiglitz in their final report to the Commission on the Measurement of Economic Performance and Social Progress, "what we measure has an impact on what we do." In other words, defining and measuring human well-being in a highly inclusive and shared perspective that is strictly in line with the complexity of reality is not only a fascinating challenge for social scientists but also a fundamental step forward to developing the best policy and economic practices, in view of a better world.

2. RECENT DEVELOPMENTS IN MEASURING WELL-BEING AND THE BCFN CONTRIBUTION

Bruce Dale/National Geographic Image Collection

2. RECENT DEVELOPMENTS IN MEASURING WELL-BEING AND THE BCFN CONTRIBUTION

In the last few years, the high degree of complexity in society and the gap between macroeconomic variables and the perception of well-being by individuals have led observers to increasingly question the ability of the most commonly used indicators to provide a correct image of reality.

THE GDP CANNOT PROVIDE AN EXHAUSTIVE MEASURE OF PROGRESS OF A SOCIETY

The Gross Domestic Product (GDP)[1] plays a central role in this debate. It is a quantitative measure of macroeceonomic activity, and has evolved to become the indicator of overall economic and social development, and progress in general. However, since it is designed to measure the output of an economy, the GDP cannot provide an exhaustive measure of progress of a society. Rather, it must be integrated with other indicators which have an impact on the life of individuals, such as social inclusion, inequality and the state of the environment.

THERE IS A LONGSTANDING DEBATE ON THE NEED TO BROADEN THE SCOPE OF THE SOCIAL AND ECONOMIC INDICATORS

In general, there is a longstanding debate on the need to broaden the scope of social and economic indicators, in particular, the Gross Domestic Product (GDP). This has recently stirred much debate, both in Italy and abroad.

We have decided to participate in this very lively scientific and political debate, starting with our main mission, i.e., our specific studies on aspects related to nutrition and their impact on the quality of life.

THE AIM OF THE 2011 BCFN INDEX IS TO FINETUNE THE MEASUREMENT METHODOLOGY AND TO INCREASE THE NUMBER OF INDICATORS

The first measurement of well-being – the so-called 2010 BCFN Well-being Index – was designed to include not only the variables already identified in the scientific literature, but also elements related to nutrition and lifestyles. The aim of the 2011 BCFN Index is to finetune the measurement methodology and to increase the number of indicators. This is how the Index has been improved:

1. The *BCFN Index is subdivided into two domains*:
   A. Indicators to measure the *current well-being* of individuals (what people experience today, an indicator of the stock of well-being);
   B. Indicators to reveal the *future trends/patterns of the current well-being* (an indicator of sustainable well-being).
2. The indicators and the methodology adopted to calculate the 2010 BCFN Index have been reviewed for the following reasons:
   A. The *need to finetune some indicators* from the methodological point of view, notwithstanding their original, scientific nature;
   B. The presence of many variables providing statistically similar or correlated information (such as, for example, the "life expectancy" variable and the "life expectancy in good health" variable, which are correlated);
   C. The *need to replace some variables* with others capable of better capturing the factors to be measured (such as, for example, replacing the variable related to youth unemployment with the one related to youth inactivity in the field of education and/or of labor).
3. *Non-market-related activities have been included* because of their considerable impact on the well-being of individuals (such as time dedicated to caring for children, etc.).
4. The whole methodological approach has been enhanced in order to analyze output vs. input indicators for each area or aspect of well-being (for example, the mortality rate for chronic diseases – output – vs. the expenditure on the health care system – input).

THE BCFN INDEX HAS BEEN UPGRADED WITH MAJOR CONTRIBUTIONS FROM ECONOMISTS AND EXPERTS

As previously stated, the BCFN Index has been upgraded with major contributions provided by economists and experts during the 2nd International Forum on Food and Nutrition and by ad hoc meetings with Professor Fitoussi (who has been supporting the BCFN in developing this theme for two years now), with Professor Giovannini (ISTAT – the Italian Statistical Institute) and with Professor Marzano (CNEL – the National Economic and Labor Council). We would like to thank Professors Giovannini and Marzano for their collaboration and conceptual contributions. However, as a disclaimer, they cannot be considered accountable for the content of this work.

ISTAT AND CNEL HAVE RECENTLY SET UP A "STEERING GROUP TO MEASURE PROGRESS IN ITALIAN SOCIETY"

These two organizations, ISTAT and CNEL, have recently set up a "Steering group to measure progress in Italian society," with representatives from social partners and civil society.

The aim of this group is to develop a multidimensional approach to measuring "equitable and sustainable well-being," integrating the GDP – the indicator of economic activity – with other indicators capable of capturing inequalities (not only in terms of income) and sustainability (not only in terms of the environment).

As reported in a press release by ISTAT, "the issue related to progess measurement has two dimensions: the first is merely political, the second is technical and statistical. As clearly indicated by the international debate on this subject, it is not possible to replace the GDP with a single indicator of well-being of a society. In fact, it is necessary to select a set of indicators and this requires the involvement of all the sectors of society, as well as of measurement experts."

CNEL and ISTAT have decided to start this initiative in line with what is occurring in other countries. The BCFN has shared with them its experience and the results obtained.

The group set up by CNEL and ISTAT will work in 2011 and 2012 with the aim of developing a shared definition of progress in Italian society, defining its major economic, social and environmental domains (health, employment, material well-being, pollution, etc.) and then selecting a set of high statistical quality indicators to measure the different areas considered.

THE APPROACH ADOPTED BY CNEL AND ISTAT DERIVES FROM THE RECOMMENDATIONS OF THE "STIGLITZ-SEN-FITOUSSI COMMISSION"

The CNEL-ISTAT initiative places Italy among the countries – France, Germany, the United Kingdom, the United States, Australia, Ireland, Mexico, Switzerland and the Netherlands – that have decided to adopt a measurement of society's well-being based on a set of high statistical quality indicators, which were also selected by representatives of the social partners and of civil society.

The approach adopted by CNEL and ISTAT derives from the recommendations of the "Stiglitz-Sen-Fitoussi Commission," which we have used to build the well-being indicator.

2.1 THE BARILLA CENTER FOR FOOD & NUTRITION APPROACH

THE BARILLA CENTER FOR FOOD & NUTRITION HAS DEALT WITH A WIDE RANGE OF TOPICS RELATED TO NUTRITION AND DIET, WHICH HAVE A CONCRETE EFFECT ON THE WELL-BEING OF INDIVIDUALS

In these first three years of its activity, Barilla Center for Food & Nutrition (BCFN) has dealt with a wide range of topics related to nutrition and diet, which have – directly or indirectly – a concrete effect on the well-being of individuals. One might think of the effects of food choices on the health of children and adults, both negatively (direct cause or risk factor for the onset of some severe diseases) and positively (protective effect against some diseases). There are also the effects generated by lifestyles and dietary habits on the environment, in terms of depletion of natural resources (greenhouse gas emissions, soil exploitation, water overconsumption and pollution). And again, there are food-related aspects closer to the social and interpersonal domains (conviviality, socialization, time devoted to preparing and eating food, etc.). The discussions within the BCFN Advisory Board and the evidence of its research studies show that a major part of the overall well-being of individuals is linked to the food choices and the lifestyles adopted, especially because of their impact on human health and environmental sustainability.

FOLLOWING THE PRESENTATION OF THE 2010 BCFN INDEX, THE METHODOLOGY TO BUILD THE WELL-BEING MEASUREMNET INDICATOR HAS BEEN FURTHER IMPROVED AND FINETUNED

Following the presentation of the 2010 BCFN Index, the methodology to build the well-being measurement indicator has been further improved and finetuned, in part thanks to positive feedback from policy makers, opinion leaders and from the scientific community.

Our innovative approach is designed to measure the factors related to food choices and lifestyles, in addition to conventional factors.

This paper presents the second version of a constantly evolving effort, which will receive other technical and scientific contributions and supplementary input from ad hoc investigation instruments (interviews and questionnaires). These results will be pooled with the institutional statistical data used so far (from the databases of organizations such as OECD, WHO, IMF, IEA, World Bank, etc.).

THE MAJOR IMPROVEMENT IN THE BCFN WELL-BEING INDEX IS ITS TWO INDICATORS, ONE RELATED TO CURRENT WELL-BEING, THE OTHER TO SUSTAINABLE WELL-BEING

The major improvement in the BCFN Well-being Index vs. the 2010 Index is its two indicators, one related to current well-being, the other to sustainable well-being. Other factors have also been included which are able to capture non-market activities and subjective well-being measurements.

As we did last year, we have decided to give scientific credibility to our work on the basis of two fundamental criteria:

- the *high level of sources*, selecting only the data produced by reliable and distinguished institutions and organizations;
- the highest standards in terms of methodological and computational *transparency*, providing all the indications to understand the work and its results. This commitment to transparency has resulted in posting all the detailed processes to define the Index on our Barilla Center for Food & Nutrition website.

Paul Damien/National Geographic Image Collection

3. METHODOLOGY

Ken Ochiai/National Geographic My Shot/ National Geographic Stock

3. METHODOLOGY

As for the 2010 BCFN Index, we have reviewed the scientific literature and considered the recommendations provided by the Barilla Center for Food & Nutrition Advisory Board, in addition to the in-depth investigations conducted by the European House-Ambrosetti working group. As a result, we have developed an *ad hoc* methodology to quantitatively measure well-being and its sustainability, starting from a reference sample of countries.

THE BCFN CURRENT WELL-BEING INDEX MEASURES THE WELL-BEING EXPERIENCED BY PEOPLE TODAY

This methodological approach has generated two synthetic multidimensional indices for the quantitative measurement of well-being:

- The *BCFN Current Well-being Index* is designed to measure the current well-being of individuals (what people experience today, that is, an indicator of the "well-being stock");
- The *BCFN Sustainability Index* is designed to measure the future patterns/trends of sustainable well-being.

THE BCFN SUSTAINABILITY INDEX MEASURES THE FUTURE PATTERNS/TRENDS OF CURRENT WELL-BEING

The 2011 BCFN Index has been changed with respect to the 2010 Index to include two indicators of current and sustainable well-being.

10 benchmark nations have been selected for the international comparative analysis:

- 3 representative countries of *Southern Europe*: *Italy*, *Spain* and *Greece*;
- 2 representative countries of *Continental Europe*: *France* and *Germany*;
- 2 representative countries of the *Scandinavian area*: *Denmark* and *Sweden*;
- The *United Kingdom*;
- The *United States*;
- *Japan*.

The BCFN Current Well-being Index is calculated on 27 KPI's (*Key Performance Indicators*) to measure the national performance in terms of the 7 well-being dimensions identified by the Sen-Stiglitz-Fitoussi Commission:

- "Psychophysical and behavioral well-being;"
- "Subjective well-being;"
- "Material well-being;"
- "Environmental well-being;"
- "Educational well-being;"
- "Social well-being;"
- "Political well-being."

Figure 3.1. Main changes vs. the 2010 BCFN Index

Figure 3.2. Summary table of the 27 KPI's used to calculate the BCFN Current Well-being Index for the 10 nations considered

	PSYCHOPHYSICAL AND BEHAVIORAL WELL-BEING	RELATIVE WEIGHT
1	Life expectancy in good health	30%
2	Average meal time	10%
3	Obese and overweight population (adults)	20%
4	Suicide rate	30%
5	Antidepressants and mood stabilizers	10%
	SUBJECTIVE WELL-BEING	
6	OECD Positive Experience Index	25%
7	OECD Negative Experience Index	25%
8	People reporting high evaluation of their life as a whole (present time)	50%
	MATERIAL WELL-BEING	
9	Disposable income	70%
10	Household assets	30%
	ENVIRONMENTAL WELL-BEING	
11	PM10 levels	40%
12	Urban wastes	20%
13	Intensity of truck and passenger car traffic	40%
	EDUCATIONAL WELL-BEING	
14	PISA score	25%
15	Average number of graduates per year	35%
16	Foreign students in the universities	15%
17	Number of newspapers sold	10%
18	Unemployment rate of graduates	15%
	SOCIAL WELL-BEING	
19	Number of hours devoted to caring for children	25%
20	Youth inactivity rate	25%
21	Unemployment rate	10%
22	Days of vacation per year	15%
23	Broadband internet	15%
24	Interpersonal Trust Index	5%
25	National Institution Index	5%
	POLITICAL WELL-BEING	
26	The Economist Intelligence Unit's Index of Democracy	50%
27	Corruption Perception Index	50%

Source: The European House-Ambrosetti, 2011.

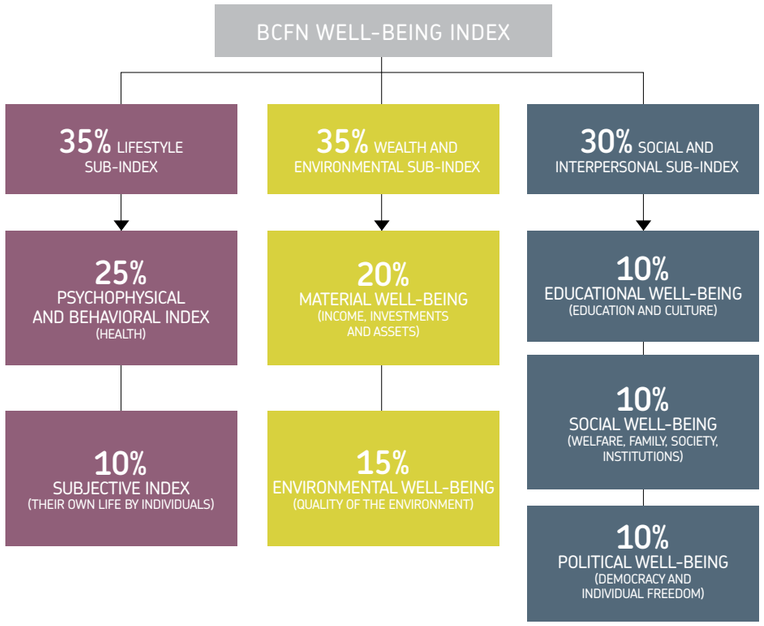
Each KPI measures one or more domains for each nation included in the model. In some cases, it is not possible to obtain precise measurements because of the limited amount of data and/or of the nature of the elements to be evaluated; proxies are used to obtain reliable measures.

THE SEVEN WELL-BEING DIMENSIONS HAVE BEEN AGGREGATED INTO THREE SUB-INDICES.

In turn, the seven well-being dimensions have been aggregated into *three reference clusters*, on the basis of three sub-indices:

1. *Lifestyle Sub-index* (8 KPI):
   - "Psychophysical well-being" (5 KPI);
   - "Subjective well-being" (3 KPI);
2. *Wealth and Environmental Sub-index* (5 KPI):
   - "Material well-being" (2 KPI);
   - "Environmental well-being" (3 KPI);
3. *Social and Interpersonal Sub-index* (14 KPI):
   - "Educational well-being" (5 KPI);
   - "Social well-being" (7 KPI);
   - "Political well-being" (2 KPI).

Figure 3.3. The reference methodological approach: the BCFN Current Well-being Index and its components



Source: The European House-Ambrosetti, 2011.

The BCFN Sustainability Index has been calculated on the basis of 26 KPI's (*Key Performance Indicators*) to measure the national performance in the 7 dimensions considered for the Current Well-being Index.

Figure 3.4. Summary table of the 25 KPIs used to calculate the BCFN Sustainability Index for the 10 nations considered

	PSYCHOPHYSICAL AND BEHAVIORAL WELL-BEING	RELATIVE WEIGHT
1	Change in cardiovascular mortality	15%
2	Change in cancer mortality	15%
3	Change in diabetes mortality	15%
4	Overweight and obese population between 11 and 15	10%
5	Number of smokers	15%
6	Alcohol consumption	5%
7	Physical activity	10%
8	Expenditure on fruit and vegetables	10%
9	Average daily calorie intake	5%
	SUBJECTIVE WELL-BEING	
10	People reporting high evaluation of their life as a whole (future time)	100%
	MATERIAL WELL-BEING	
11	Change in disposable income	40%
12	Level of *per capita* gross investment	60%
	ENVIRONMENTAL WELL-BEING	
13	Adjusted net saving	30%
14	Contribution of renewable energy sources	25%
15	Water Footprint	25%
16	Total emissions (CO_2/NOx/SOx)	20%
	EDUCATIONAL WELL-BEING	
17	Change in the number of people in higher education	60%
18	Participation in lifelong learning activities	40%
	SOCIAL WELL-BEING	
19	Poverty risk	25%
20	Dependency rate of elderly people	25%
21	Change in the National Institution Index	10%
22	Income distribution inequality	20%
23	Youth unemployment rate vs. total unemployment	20%
	POLITICAL WELL-BEING	
24	Change in the Economist Intelligence Unit's Index of Democracy	50%
25	Change in the Corruption Perceptions Index	50%

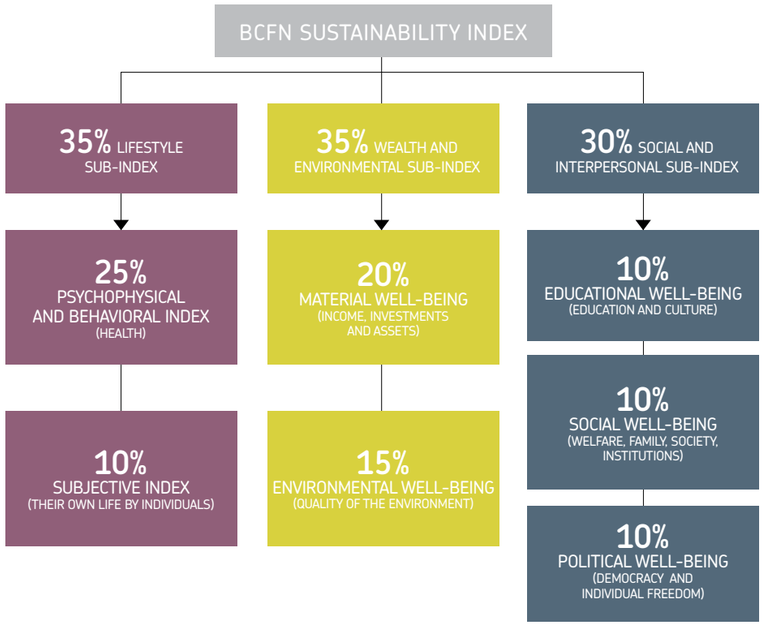
Source: The European House-Ambrosetti, 2011.

As indicated above, the seven well-being dimensions have been aggregated into *three reference clusters*, on the basis of three sub-indices:
Lifestyle Sub-index (10 KPI), *Wealth and Environmental Sub-index* (6 KPI), *Social and Interpersonal Sub-index* (9 KPI).

A SCORING SYSTEM HAS BEEN USED TO COMPARE THE PERFORMANCE OF THE COUNTRIES IN TERMS OF KEY PERFORMANCE INDICATORS

In general, a scoring system has been used to compare the performance of the countries in terms of Key Performance Indicators, both for the BCFN Current Well-being Index and for the BCFN Sustainability Index.
Each KPI has been given the following scores: 10 scores for the nation with the best performance and 1 for the nation with the worst performance.
The other nations are ranked between 1 and 10, according to the absolute value of the indicator, according to the following rating scale:
SCALE = (maximum value – minimum value) / (highest score – lowest score)

Figure 3.5. The reference methodological approach: the BCFN Sustainability Index and its components



Source: The European House-Ambrosetti, 2011.

Then, each nation is rated accordingly:
SCORE = [(value of the nation – minimum value) / scale] + 1
This methodology provides homogeneous scores between 1 and 10 for each KPI, which can be compared and aggregated into synthetic indicators.

BY GIVING A "RELATIVE WEIGHT" TO EACH KPI AND TO THE THREE SUB-INDICES, IT IS POSSIBLE TO CALCULATE THE SYNTHETIC INDICATORS OF THE BCFN WELL-BEING INDEX

By giving a "relative weight" to each KPI, to each well-being dimension and to each of the three sub-indices considered, as shown in the two previous figures, it is possible to calculate (through a simple weighted average) the partial synthetic indicators of each of the seven well-being dimensions, of each of the three sub-indices considered and of the final indicator called the "BCFN Index" (aggregating the results of the three sub-indices).
If necessary, the KPIs are given a relative value with a specific denominator, in order to increase their significance in the national comparative analysis. For example, the data on consumption is more significant (in this context) if compared and expressed as a percentage of the national disposable income with a purchasing power parity. At the same time, the data on obesity and on the propensity for regular physical exercise of a population can be compared only if it is expressed as a percentage of the total population.
The following sections provide the evidence resulting from the comparisons among the 10 nations considered. We have provided all the graphs for each KPI used in the psychophysical and behavioral dimension. This is the innovative and distinctive character of the BCFN Index vs. other well-being indices.
Instead, for the other components, we present the summary tables for the seven well-being dimensions, for the three sub-indices (*Lifestyle Sub-index, Wealth and Environmental Sub-index* and *Social and Interpersonal Sub-index*) and for the BCFN Current and Sustainability Indices.

4. THE BCFN WELL-BEING INDEX

4. THE BCFN WELL-BEING INDEX

THE BCFN CURRENT WELL-BEING INDEX IS A "SNAPSHOT" OF THE STATE OF WELL-BEING THAT CHARACTERIZES A POPULATION

THE BCFN CURRENT WELL-BEING INDEX IS AN AGGREGATE INDEX COMPOSED OF 27 PERFORMANCE INDICATORS FOR MEASURING THE SEVEN DIMENSIONS OF WELL-BEING THAT HAVE BEEN IDENTIFIED

The BCFN Index of what we call "current" well-being is a multidimensional measure of the well-being of individuals, according to a static perspective. Ideally, to better frame this important concept, one could argue that the BCFN Current Well-being Index is a "snapshot" of the state of well-being that characterizes a population (country system) at a given moment (today).

As mentioned before, the BCFN Current Well-being Index is an aggregate index composed of 27 performance indicators for measuring the seven dimensions of well-being that have been identified. The BCFN Current Well-being Index consists of three sub-indices: the *Lifestyle Sub-index*, the *Wealth and Environmental Sub-index* and the *Social and Interpersonal Sub-index*.

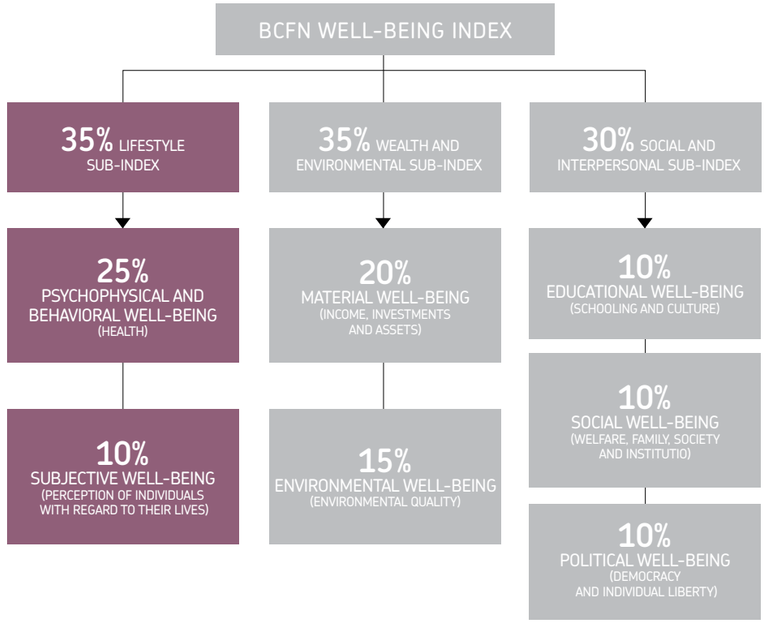
Shown briefly in the following is the evidence of the analysis of the 27 selected indicators.

4.1 LIFESTYLE SUB-INDEX

THE LIFESTYLE SUB-INDEX IS THE FIRST OF THE SUB-INDICES COMPRISING THE BCFN INDEX FOR MEASURING THE CURRENT LEVEL OF WELL-BEING

The *Lifestyle Sub-index* is the first of the sub-indices comprising the BCFN Index for measuring the current level of well-being (figure below). This sub-index refers to two particular dimensions of the well-being of individuals: the first relates to the psychophysical and behavioral sphere, that is, regarding health, nutrition and lifestyles; the second relates to the perception that individuals themselves have in relation to their own well-being and their quality of life (subjective well-being). The analysis regarding the *Lifestyle Sub-index* ("current" component) is based on a total of 8 Key Performance Indicators. Specifically, 5 KPIs were considered for the "psychophysical and behavioral" aspect and 3 KPIs for measuring "subjective well-being."

Figure 4.1. The Lifestyle Sub-index in the methodology system used, with evidence of the two dimensions that comprise it



Source: The European House-Ambrosetti, 2011.

4.1.1 Psychophysical and behavioral well-being

The indicators taken into account in measuring "psychophysical and behavioral well-being" are as follows:

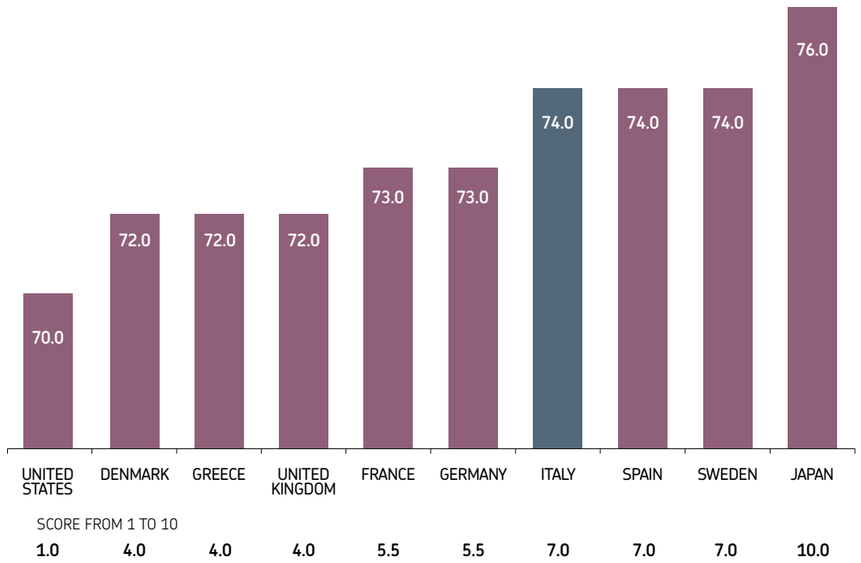
- *Healthy life expectancy* (number of years from birth);
- *Average time devoted to meals*;
- *Overweight and obese adult population* (BMI >25 kg/m^2), measured as a percentage of the adult population;
- *Standardized mortality rate for suicides*, measured as the number of deaths every 100,000 in habitants;
- *Expenditure on consumption of antidepressants* and mood stabilizers, as measured by total sales per person per year.

A ranking has been made for each of these indicators, giving each country a score between 1 (relatively "worst" performance) to 10 (relatively "best" performance).

4.1.1.1 Healthy life expectancy

The World Health Organization (WHO) detects the parameter of average life expectancy in good health for the peoples of many nations of the world. It is defined as "the average number of years a person can expect to live in 'good health,' thus taking into account all those periods living out situations of illness and/or recovering from bodily harm." It is, therefore, a parameter that is strongly associated with the "physical" well-being of individuals and for this reason, the relative weight assigned to it is 30%, the highest of the five indicators used to measure psychophysical and behavioral well-being.

Figure 4.2. Average life expectancy in good health expressed in number of years from birth (2007)



Source: The European House-Ambrosetti elaboration of data from the World Health Organization (2010).

JAPAN IS THE NATION WITH THE HIGHEST AVERAGE LIFE EXPECTANCY IN GOOD HEALTH, THE UNITED STATES WITH THE LOWEST

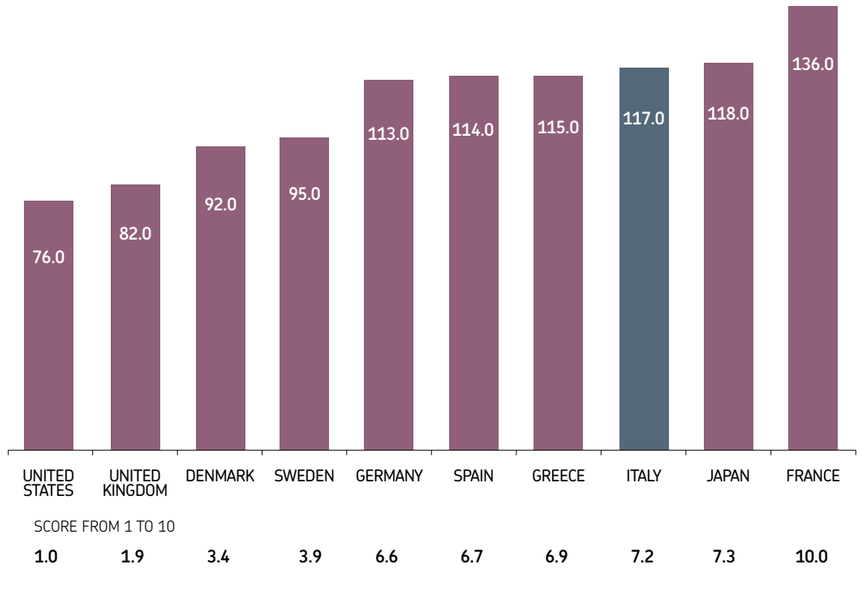
Looking at the data presented in the chart above, one observes that the Japanese population can count on living an "average" of 76 years in excellent health, while the Americans, the last in the ranking, will live without health problems for an average of 70 years of their life. Italy, Spain and Sweden are tied, having an average life expectancy in good health of 74 years; the average is reduced to 73 if we consider France and Germany. Greece and Denmark, instead, have an average value of 72 years.

4.1.1.2 Average time devoted to meals

THE AVERAGE TIME SPENT AT MEALS IS A VERY IMPORTANT FACTOR IN THE SOCIAL TERMS AND CONVIVIALITY THAT A MEAL WITH FAMILY OR FRIENDS SIGNIFIES

The average time spent at meals is a very important factor, both in the social terms and conviviality that a meal with family or friends signifies[1] and, above all, from the point of view of the individual's health. According to a recent study by the Laiko General Hospital of Athens, eating meals quickly inhibits the release of certain intestinal hormones that make you feel satiated. Therefore, the faster you eat, the hungrier you feel, since eating quickly leads to a reduction in the release of satiety hormones, which instead work properly when you eat slowly.[2] The result is that the body does not receive the signal that it is time to stop eating and this can lead to overeating. In addition, the study shows that it takes at least 12 minutes to ensure that the signals of satiety reach the brain in thin individuals and at least 20 minutes for an obese person.
With regard to this indicator, the United States confirms the last place. Instead, an award goes to France – with two and a half hours daily – because it is the country that spends the most time at meals during the day. Japan, Italy, Greece, Spain and Germany spend around two hours a day.

Figure 4.3. Average time devoted to meals, 2009 (minutes)

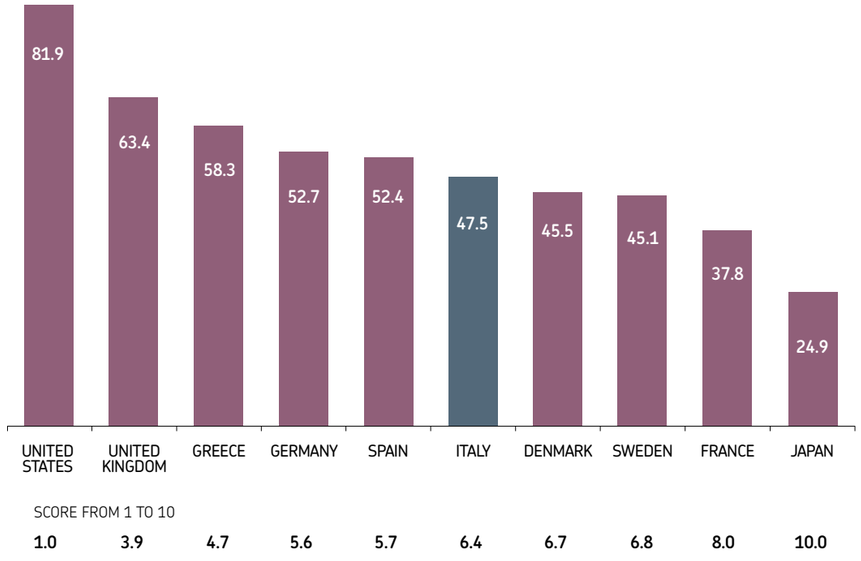


Source: The European House-Ambrosetti elaboration of data from the OECD, 2011.

4.1.1.3 Overweight and obese adult population

Obesity and the condition of being overweight in the adult population have been considered an indicator of current well-being, since this is an "overt" condition that compromises the physical well-being of a population. Nevertheless, it is necessary to remember that obesity and overweight conditions can also have an important impact on the "sustainability" of well-being. And so we refer you to the next chapter, in which the approach to measuring the "sustainability" of the well-being is described.[3]

Figure 4.4. Overweight and obese adult population (BMI>25 kg/m^2), measured as a percentage of the adult population (2009)



Source: The European House-Ambrosetti elaboration of data from the Euromonitor, WHO, Eurostat, 2010.

THE DATA ON OBESITY AND OVERWEIGHT PEOPLE IN THE UNITED STATES, BUT ALSO IN WESTERN EUROPE, IS QUITE ALARMING

The data on obesity and overweight people in the United States and Western Europe is quite alarming. In the United States, more than 8 out of 10 adults are obese or overweight; in the United Kingdom it is around 6.4 out of 10, while the average in continental Europe is around 5 out of 10 adults who are overweight or obese. On the other end of the spectrum, Japan appears to be the country with the least incidence of overweight conditions and obesity in adulthood, with less than 25%. This data allows us to infer lifestyles and eating habits adopted by the populations analyzed: the results indicate that, on average, the eating behavior of the American and British people is less balanced than that of continental Europe and Japan. Other considerations may arise from the comparison of data on the prevalence of obesity in the adult population with that of the dynamics of obesity among children (see next chapter).

4.1.1.4 Standardized mortality rate for suicides

In the context of measuring the BCFN Well-being Index, two indicators of the psychological well-being of individuals were considered useful in detecting the "current" condition of the psychological well-being of individuals. The first indicator used to measure this component was the standardized mortality rates for suicides (see figure below), assuming that the act of suicide is the extreme consequence of a profound, contingent malaise.

IN THE LAST 45 YEARS, SUICIDE RATES HAVE INCREASED BY 60% WORLDWIDE

In the past 45 years, suicide rates have increased by 60% worldwide. Furthermore, added to this data should be data relating to attempted suicides, which are estimated to be up to 20 times more frequent than completed acts of suicide.

MENTAL DISORDERS ARE THE MAIN RISK FACTOR FOR SUICIDE IN EUROPE

Mental disorders (particularly depression and alcohol-related disorders) are the main risk factor for suicide in Europe and North America, while in Asian countries, according to the WHO, cultural factors and impulsivity appear to play an important role.

The data collected for the 10 countries surveyed under consideration is shown in the figure below.

THE SPHERES OF PSYCHOLOGICAL WELL-BEING AND PHYSICAL WELL-BEING CAN SOMETIMES BE AT ODDS

As clearly seen in the graph, the evidence shows that the spheres of psychological well-being and physical well-being can sometimes be at odds. For example, Greece is the country with the lowest incidence of suicide among the nations under consideration, which tends to indicate a state of major psychological well-being of the population, although the indicators measuring the level of physical well-being often penalize this nation. On the contrary, Japan, which has the highest comparative value in relation to all the indicators related to the dimensions of physical well-being considered, appears in this case as the nation with the highest incidence of mortality from suicides.

As for the other nations considered, the rate of death from suicide is relatively low for Italy (although almost twice the value found for Greece), followed by the United Kingdom, Spain and Germany. Besides Japan, the other nations that have a higher death rate for suicide are France, Sweden, the United States and Denmark.

Figure 4.5. Standardized mortality rates for suicides, calculated as the number of deaths per 100,000 inhabitants, the latest year available for each country (2008)

Source: The European House-Ambrosetti elaboration of data from the World Health Organization, 2011.

4.1.1.5 Expenditure on consumption of antidepressants and mood stabilizers

The second indicator used to measure the "psychological" dimension of the psychophysical well-being of individuals is the average annual expenditure *per capita* for the consumption of antidepressants and mood stabilizers. This indicator was selected as fairly representative of the general level of the "psychological distress" of a population, referring – again – to a situation of a "contingent" type.

The following chart summarizes the results of this indicator.

If you look at the results presented in the figure below, it is clear that the populations of the United States of America and the Scandinavian countries consume, on average, a quantity of antidepressants and mood stabilizers that is significantly higher than the other countries surveyed. Instead, the United Kingdom, Italy and Japan are the countries in which the *per capita* expenditure on antidepressant drugs was found to be lowest, among the nations taken into consideration.

THE UNITED STATES OF AMERICA AND THE SCANDINAVIAN COUNTRIES CONSUME, ON AVERAGE, A QUANTITY OF ANTIDEPRESSANTS AND MOOD STABILIZERS THAT IS SIGNIFICANTLY HIGHER THAN THE OTHER COUNTRIES SURVEYED

If you look at the figure for Japan in comparison to the results of the indicator of the mortality rate for suicide, the two findings may appear to be at odds. However, it is possible that, in this case, the result is consistent with the cultural differences between the nations concerned: the Japanese could be driven to suicide by cultural reasons of particular contingencies, without necessarily suffering from depressive syndromes or other types of psychological distress.

Figure 4.6. Annual expenditure per capita for consumption of antidepressants and mood stabilizers, Euros per inhabitants (2011)

Source: The European House-Ambrosetti elaboration of data from IMS Health Spa.

4.1.1.6 Summarized indicator of psychophysical and behavioral well-being

"Psychophysical and behavioral well-being" represents a very significant part of the BCFN "Current" Well-being Index, and is a highly innovative and distinctive contribution with regard to other measurement indices of well-being already in existence. From the analysis of the international scientific literature, and in agreement with the indications that emerged during the meetings of the Advisory Board of the Barilla Center for Food & Nutrition,

PSYCHOPHYSICAL AND BEHAVIORAL WELL-BEING REPRESENTS A VERY SIGNIFICANT PART OF THE BCFN CURRENT WELL-BEING INDEX

weights were assigned to each component analyzed.
Specifically, the weights used for measurement are as follows:

- *Healthy life expectancy* (number of years from birth) – Relative weight: 30%;
- *Average time devoted to meals* – Relative weight: 10%;
- *Overweight and obese adult population* (BMI>25 kg/m^2), measured as a percentage of the adult population – Relative weight: 20%;
- *Standardized mortality rate for suicides*, measured as the number of deaths every 100,000 inhabitants – Relative weight: 30%;
- *Expenditure on consumption of antidepressants* and mood stabilizers, as measured by total sales per person per year – Relative weight: 10%.

As you can see, more weight was given to the KPIs related to life expectancy in good health and the standardized mortality rates for suicides.
The assignment of a score (from 1 to 10) to each nation for the 5 KPIs, and their consideration based on the weights assigned to them, has resulted in an intermediate summarized index relating to the dimension of "psychophysical well-being."

Figure 4.7. Ranking relative to "psychophysical well-being"

Source: The European House-Ambrosetti, 2011.

ITALY IS THE COUNTRY THAT HAS THE HIGHEST INDEX OF PSYCHOPHYSICAL AND BEHAVIORAL WELL-BEING WITHIN THE PERIMETER OF THE BENCHMARK CONSIDERED

As can easily be seen in the figure, Italy is the country that has the highest index of psychophysical and behavioral well-being within the perimeter of the benchmark considered, obtaining a total score equal to 7.7 points on a scale from 1 (lowest) to 10 (maximum). The positioning of Italy at the top of the ranking is explained by the high performance that it expresses in relation to some indicators related to mental health, including mortality rates for suicide and consumption of antidepressants and mood stabilizers.
Together with Italy, Spain and Japan lead the rankings, both with a score of more than seven summary points out of ten.
Germany, France and Greece – with scores between 6.3 and 6.5 – are positioned at the mid-range of the table, while Sweden, the United Kingdom and Denmark, though with scores of more than five points out of ten, are placed at the tail-end of the ranking related to this component of well-being.
Finally, a comparatively modest performance of the United States of America emerges with respect to this category of well-being. This positioning is due to the succession of low scores ob-

A COMPARATIVELY MODEST PERFORMANCE OF THE UNITED STATES OF AMERICA EMERGES WITH RESPECT TO THIS CATEGORY OF WELL-BEING

tained in most of the selected indicators, for example, the life expectancy in good health is the lowest among the 10 nations considered (six years less than that of Japan, the nation that is first in the rankings). In addition, the U.S. has the highest standardized mortality rate for suicides among the nations considered and the highest concentration of obese individuals in its population.
Psychophysical and behavioral well-being contribute to the calculation of the *Lifestyle Sub-index*, associated with a relative weight equal to 25%.
The second component of the *Lifestyle Sub-index* consists of subjective well-being, namely the direct detection of well-being as perceived by individuals.

4.1.2 Subjective well-being

"Subjective well-being" is the second of the two dimensions that make up the *Lifestyle Sub-index*. The detection of this component of the well-being of people is very important in a multi-dimensional synthetic indicator such as the BCFN Index (both in the current dimension and in the one relative to sustainability), since the "self-perception" of individuals with regard to their own well-being is a component that is alternative to the "objective" one, as measured by other indicators that make up the set selected for measurement.
It is useful to remember how, in general, the dimensions of well-being, while numerous, are also difficult to define and often difficult to measure, and there are so many aspects that can contribute to its complete definition.
Therefore, to seek to compensate for possible omissions relative to a measurement of well-being based on objective data that does not manage to glean aspects relating to the emotional and psychological state of the individuals, it is necessary to ask the individuals for an assessment of their latter state.
In this way, the measurement of individual well-being is more complete and adherent to the actual assessment of the quality of life. One such approach has been used recently by the OECD,[4] which issued three indicators measuring subjective well-being relating to the number of positive experiences/feelings experienced during the last year, the number of negative experiences/feelings experienced during the last year and the number of people who say they experience a high level of well-being in their lives.
More specifically, with reference to the *number of positive experiences/feelings* experienced, a sample representative of each population involved was asked (through a survey) to indicate whether they had felt or experienced the feeling of being:
- well rested;
- treated with respect;
- free to choose how to spend their own time;
- proud to have done something;
- happy to have done or learned something interesting;
- happy for their own situation in general.

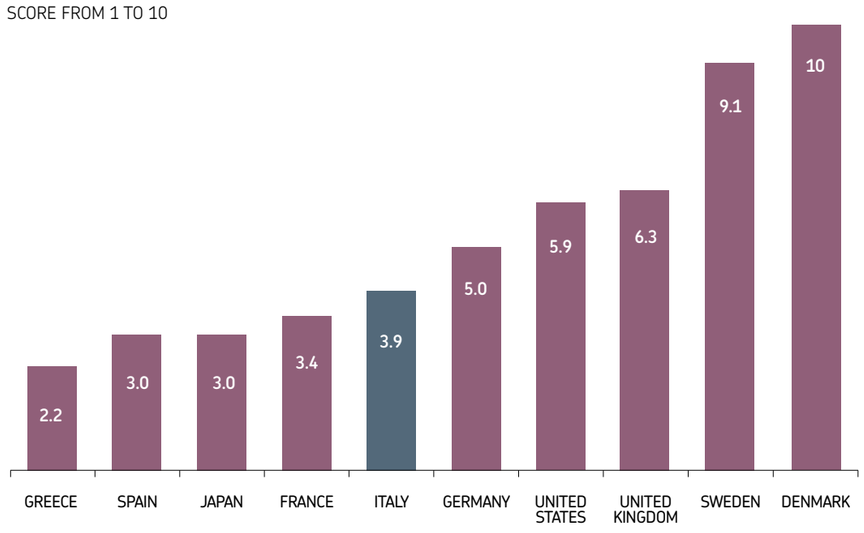
However, with reference to the *number of negative experiences/feelings* experienced, the sample representative of each population involved in the survey was asked to indicate whether they had experienced the feeling of:
- pain;
- worry;
- sadness;
- boredom;
- depression;
- anger/rage.

Lastly, the OECD estimated the number of people in every country who gave a *very positive evaluation of their life as a whole*.
That said, for the measurement of subjective well-being, the indicators selected, and the corresponding relative weights, are as follows:
- *OECD positive experience index* (composite index that measures the level of perception of a set of several different types of positive experiences of the day preceding the survey) – Relative weight: 25%;
- *OECD negative experience index* (composite index that measures the level of perception of a set of several different types of negative experiences of the day preceding the survey) – Relative weight: 25%;
- *People reporting high evaluation of their life as a whole (present time)* (composite index that measures the level of satisfaction expressed by individuals in relation to their lives) – Relative weight: 50%.

The assignment of a score (from 1 to 10) to each country for the three KPIs, and the balancing of these based on the weights assigned to them, has resulted in a synthetic intermediate index relating to the dimension of "subjective well-being."
As can be easily read in the figure above, Italy ranks sixth in the comparison table, with a relative score of 3.9 points. This positioning of Italy reflects a level of well-being perceived by Italian citizens in relation to their lives that is below the average of the benchmark 10 countries considered (equal to 5.2). According to the set of indicators considered, the citizens of Denmark appear to be among the most satisfied with their life, followed closely by Sweden. Great Britain, the United States and Germany achieved a score between 5 and 6.3. Countries with the lowest level of subjective well-being are (in descending order): France, Japan, Spain and Greece.
Subjective well-being contributes with a weight equal to 10% to the current BCFN Well-being Index, and, together with psychophysical and behavioral well-being, contributes to the calculation of the *Lifestyle Sub-index*, the results of which are presented in the next paragraph.

THE LEVEL OF SUBJECTIVE WELL-BEING DETECTED IN ITALY, IN RELATION TO ITS ACTUAL SIZE, IS BELOW THE AVERAGE OF THE 10 BENCHMARK COUNTRIES CONSIDERED

Figure 4.8. Ranking relative to subjective well-being



Source: The European House-Ambrosetti, 2011.

4.1.3 The result of the synthesis of the Lifestyle Sub-index

The aggregation, through a simple weighted average of the results obtained by each country in relation to the summary indicators of "psychophysical well-being" and of "subjective well-being," permits the calculation of the *Lifestyle Sub-index*, in making the ranking of the countries considered (figure below).

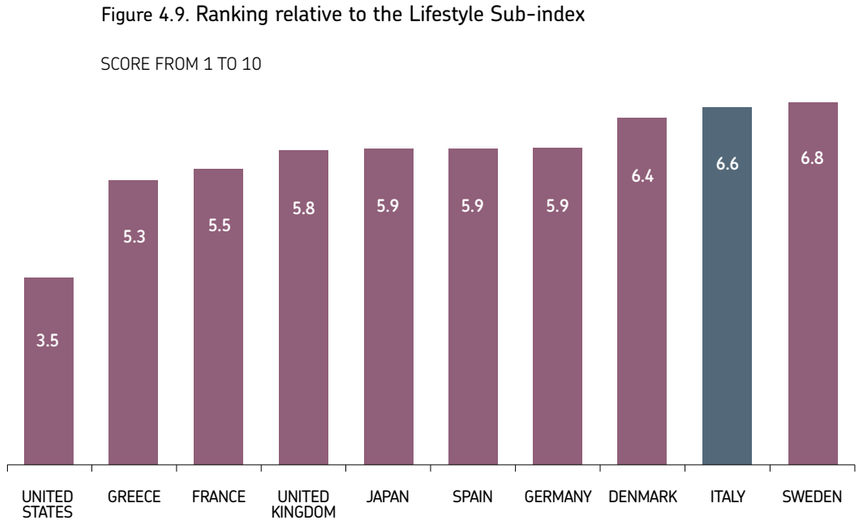
REGARDING THE LIFESTYLE SUB-INDEX, ITALY RANKS SECOND, AT CLOSE RANGE BEHIND SWEDEN

Regarding the *Lifestyle Sub-index*, Italy ranks in second place, at close range behind Sweden. This performance reflects the excellent positioning of Italy in the dimension of "psychophysical and behavioral well-being," compensating for its "modest" positioning in relation to the dimension of subjective well-being. This evidence, in the broadest sense, means that Italians "objectively" have a high level of psychological well-being. But (apparently for reasons not related strictly to the behavioral and psychophysical realm of the person) this does not correspond to the perception that individuals have relating to their own lives. This discrepancy can be better understood through the analysis of the other components of the BCFN's Well-being Index, presented in the preceding paragraphs. In contrast, Sweden gets a good ranking in this indicator because its citizens have a high level of self-perception of their state of well-being.

In addition to Sweden, Italy and Denmark, which dominate the rankings with a score greater than 6 out of 10 points, there is a group of six countries (in descending order: Germany, Spain, Japan, the United Kingdom, France and Greece) that achieve a score which is, on average, in line with the scope of reference (5.8 points out of 10).

Finally, the United States closes the rankings with a much lower score (almost two points), compared to the other benchmark nations. This finding can mainly be explained by the national performance within the U.S., which is relatively very low regarding many of the indicators for measuring psychophysical well-being (high rate of obesity, high consumption of antidepressants, low life expectancy in good health, little attention devoted to food, etc.).

Figure 4.9. Ranking relative to the Lifestyle Sub-index



Source: The European House-Ambrosetti, 2011.

4.2 OTHER COMPONENTS OF THE BCFN INDEX

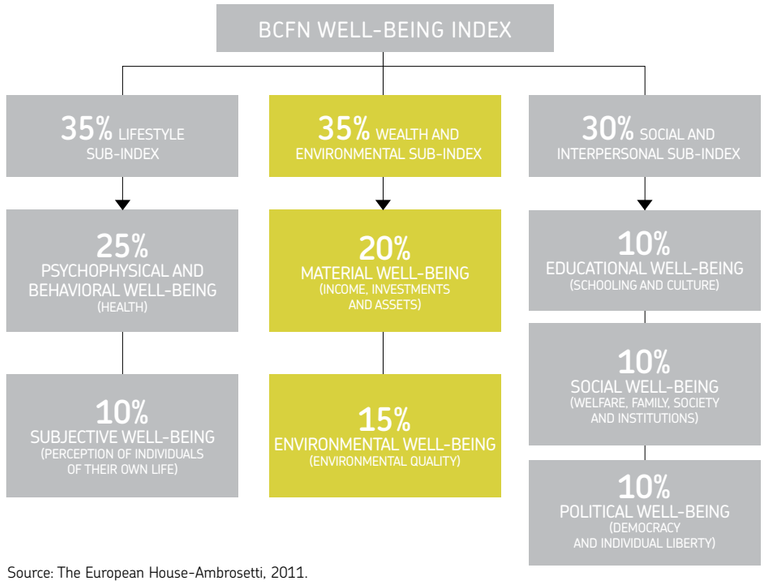
In addition to psychophysical well-being and subjective well-being, the BCFN Index (both Current and Sustainability) is made up of five other components, divided into the *Wealth and Environmental Sub-index* and the *Social and Interpersonal Sub-index*, which are presented below.

4.2.1 Wealth and Environmental Sub-index

THE WEALTH AND ENVIRONMENTAL SUB-INDEX IS THE SECOND SUB-INDEX CONSIDERED FOR COMPOSING THE BCFN INDEX OF WELL-BEING

The *Wealth and Environmental Sub-index* is the second sub-index for the construction of the BCFN Well-being Index. This indicator refers to two specific dimensions of the well-being of individuals: the first relates to the sphere of wealth and available income (defined as "material well-being"), the second is related to the quality of the environment and the ecological impact and environmental sustainability of the socio-economic model adopted ("environmental well-being").

Figure 4.10. The Wealth and Environmental Sub-index within the methodology system used with evidence of the two dimensions that comprise it



Source: The European House-Ambrosetti, 2011.

The analysis for the *Wealth and Environmental Sub-index*, witch analyzes the current situation (the subject of this paragraph), took into consideration the performance of nations considered on 5 KPIs for the latest year made available from the statistical sources used. Two performance indicators were considered for the dimension of "material well-being" (purposely avoiding the inclusion of the GDP in the set of selected indicators, in line with the objective of this work to "overcome" the intrinsic limitations of the GDP in national performance measurements) and 3 indicators to measure the current level of "environmental health."

4.2.1.1 Material well-being

MATERIAL WELL-BEING IS THE FIRST OF THE TWO DIMENSIONS THAT MAKE UP THE WEALTH AND ENVIRONMENTAL SUB-INDEX

"Material well-being" is the first of the two dimensions that make up the *Wealth and Environmental Sub-index*. The indicators taken into account, and the weights used for the measurement, are as follows:

- Median level of *available income per capita*, measured in Euros equal to terms of purchasing power – Relative weight: 70%;
- *Net wealth accumulated by the families,*[5] measured as a percentage of net available income of households – Relative weight: 30%.

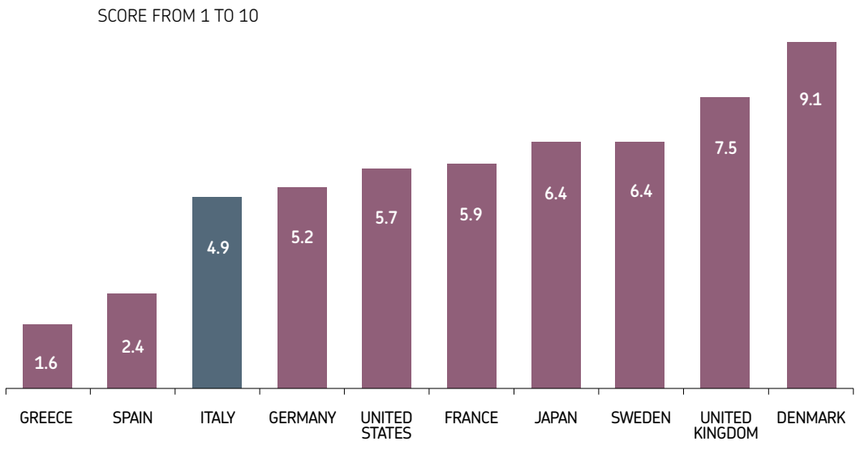
The assignment of a score (from 1 to 10) to each country for each of the two KPIs analyzed, and the weighing of the results obtained with the weights indicated above, has resulted in a synthetic intermediate index relating to the dimension of "material well-being." The ranking thus obtained is shown in the following table.

THE TOP THREE RANKINGS RELATING TO MATERIAL WELL-BEING ARE HELD BY DENMARK, THE UNITED KINGDOM AND SWEDEN

As can be seen in the figure, the top three rankings relating to material well-being are held by Denmark, the United Kingdom and Sweden, with a considerable distance between them (about three points of difference between the third and first place).

With regard to material well-being, it is interesting to note the duality that exists in some countries between "income" and "assets." Countries like Italy, for example, have very significant private capital compared to a modest median income *per capita*.

Figure 4.11. Ranking relative to material well-being



Source: The European House-Ambrosetti, 2011.

In practical terms, therefore, the measurement of wealth in the form of stock is an aspect that is not at all marginal in a similar economic analysis. The more the base of the family wealth grows (stocks), the more the well-being of the family can count on *capital gains* compared to income.

Even though, in analyzing the summary data, Italy's relatively modest position with regard to material well-being can be detected, the data also shows that Italy is the first country with regard to net wealth accumulated by families.

Considering the indicators of stock and accumulated wealth "altogether" (picture above), we observe that Italy is in the third to the last position, followed by Spain and Greece. The *Core Europe* countries (France and Germany), appear to show a reasonable balance between income and wealth, similar to what occurs in Japan, Denmark and the United States.

4.2.1.2 Environmental well-being

ENVIRONMENTAL WELL-BEING MEASURES THE LEVEL OF ENVIRONMENTAL HEALTH (CURRENTLY, IN THIS CASE) OF A COUNTRY

The *Wealth and Environmental Sub-index*, besides "material well-being," is also made up of "environmental well-being." This component was considered in the methodological approach adopted with the aim of measuring the condition of "environmental health" (currently, in this case) of a country. The environmental sustainability of the socio-economic model of reference, instead, is measured in the BCFN Sustainability Index.

The indicators taken into account, and the weights used, for the measurement of "environmental well-being" are as follows:

- *Levels of PM10 generated*, measured in micrograms per cubic meter – Relative weight: 40%;
- *Municipal waste produced*, measured in kilograms per person – Relative weight: 20%;
- *Intensity of road freight traffic*, i.e. the quantity of goods that are transported by road each year in the nation, compared to the extension of the national area – Relative weight: 40%.

The selection of indicators for measuring environmental well-being has been guided by a precise logic to ensure maximum consistency, with the aim to measure the current level of the "environmental health" of a nation, focusing on the assessment of the "sustainability" of the economic and social development model in the BCFN Sustainability Index (the results of which will be presented further on in this document).

AMONG THE MAJOR ATMOSPHERIC POLLUTANTS, SPECIAL ATTENTION HAS BEEN PAID TO THE CONCENTRATION OF PM10

Among the major atmospheric pollutants, which are particularly indicative of the environmental conditions of a territory, a region or nation, in recent years special attention has been paid to the concentration of PM10 in the atmosphere, since scientific evidence has recently emerged that demonstrates and ascertains the danger of this factor for human health. For this reason, we have chosen to analyze the amount of PM10 measured in micrograms per cube metres in the countries considered.

THE PRODUCTION OF MUNICIPAL WASTE IS A SECOND INDICATOR THAT IMPACTS DIRECTLY ON THE LEVEL OF ENVIRONMENTAL QUALITY

The production of municipal waste is a second indicator that impacts directly (and immediately) on the level of the environmental quality that characterizes any given country; therefore, it was decided to include this indicator as well in the measuring methodology of the BCFN Index.

IT WAS CONSIDERED NECESSARY TO ALSO INTRODUCE A MEASUREMENT OF ROAD TRAFFIC

Finally, it was considered necessary to also introduce a measurement of road traffic that, while congesting an area (urban or rural), generates a significant share of those types of pollution that most affect the quality of life of individuals.

Since there is no official measurement (from reliable sources and homogeneous nations taken into consideration), it was decided to build an ad hoc indicator to make this measurement. This indicator has been called "intensity of road freight traffic" and measures the tons-kilometer[6] of goods transported by road on the national road network, compared to the entire national surface.

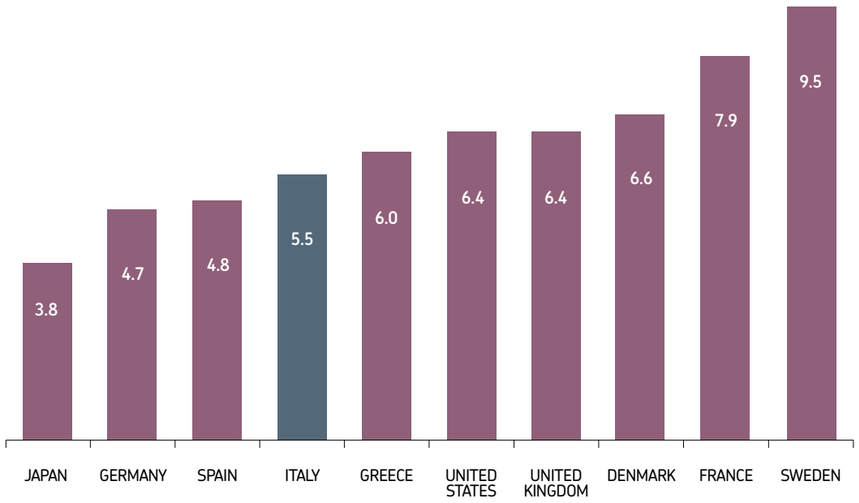
The assignment of a score (from 1 to 10) to each country for each of the three KPIs analyzed, and the weighting of the results obtained with the weights indicated above, obtained a synthetic intermediate index relative to the dimension of "environmental well-being." The ranking thus obtained is shown in the figure below.

WITH REGARD TO THE SET OF INDICATORS FOR MEASURING ENVIRONMENTAL WELL-BEING, ITALY RANKS IN THE FOURTH TO THE LAST POSITION

With regard to the set of indicators for measuring environmental well-being, Italy ranks in the fourth to the last position, albeit with a score (5.5 out of 10) which is not far from the average of the 10 nations considered (6.1).

The nation that outranks the others by far is Sweden, which had a relative score of 9.5, followed by France. Denmark, the UK, the USA and Greece were in line with the average scores of the sample, while the ranking was closed by Spain, Germany and Japan.

Figure 4.12. Ranking relative to environmental well-being



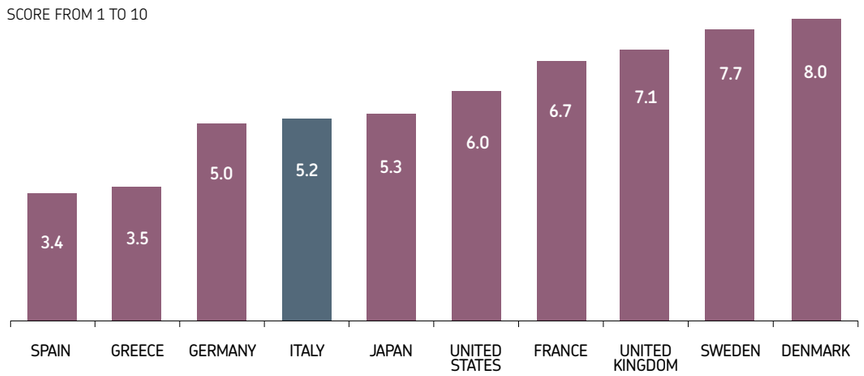
Source: The European House-Ambrosetti, 2011.

4.2.1.3 The result of the synthesis of the Wealth and Environmental Sub-index

As can be seen in the graph in the figure above, Italy is in seventh place in the ranking of the Wealth and Sustainability Sub-index, with a score of 5.2 points, a little distanced from Germany, which received 5 points.

The ranking is led by Denmark (8 points), followed closely by Sweden. The United Kingdom, France and the United States follow, while Spain and Greece are the lowest.

Figure 4.13. Ranking relative to the Wealth and Environmental Sub-index



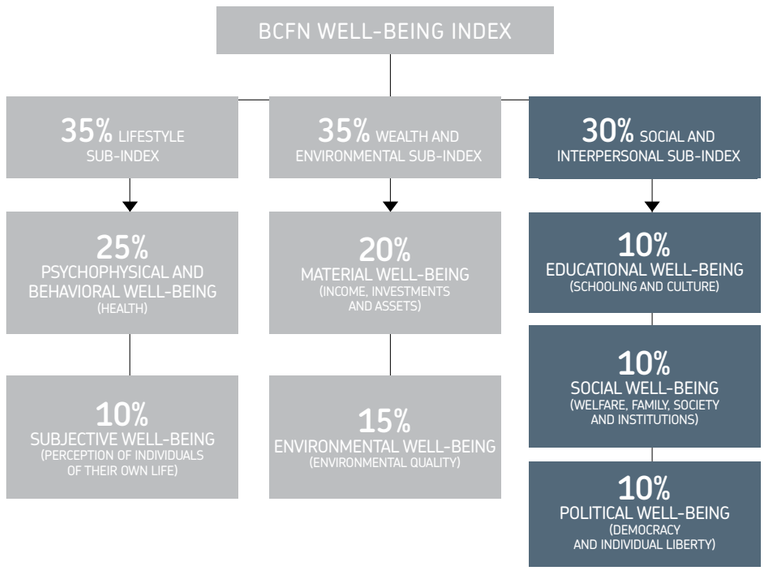
Source: The European House-Ambrosetti, 2011.

4.2.2 Social and Interpersonal Sub-index

The *Social and Interpersonal Sub-index* is the third sub-index considered for the construction of the BCFN Well-being Index. This indicator is derived from the integration of three dimensions of the well-being of individuals: one relates to the sphere of education and culture (called "educational well-being"), one is relative to the sphere of welfare, family, society and institutions (called "social well-being") and one regards the sphere of democracy and individual freedom (called "political well-being").

THE SOCIAL AND INTERPERSONAL SUB-INDEX IS THE THIRD SUB-INDEX CONSIDERED FOR THE CONSTRUCTION OF THE BCFN WELL-BEING INDEX

Figure 4.14. The Social and Interpersonal Sub-index within the methodology system used, with evidence of the three dimensions that comprise it



Source: The European House-Ambrosetti, 2011.

Similar to the analysis presented above relative to the other sub-indices, the *Social and Interpersonal Sub-index*, and the indicators that compose it, is calculated from a point of view that is "current," i.e., with the aim of providing a picture of the state "as is" of the different "types" of wealth that comprise it .

The analysis for the *Interpersonal and Social Sub-index* was based on 14 KPIs. Specifically considered were: 5 KPIs for the dimension of "educational well-being," 7 KPIs for measuring "social well-being" and 2 KPIs for measuring "political well-being."

THE ANALYSIS FOR THE INTERPERSONAL AND SOCIAL SUB-INDEX WAS BASED ON 14 KPIS.

4.2.2.1 Educational well-being

"Educational well-being" is one of the three dimensions that make up the *Social and Interpersonal Sub-index*. Educational well-being refers to the schooling and cultural level of the individual's well-being, according to the hypothesis that these aspects represent two key enabling factors that are fundamental for the happiness, in the broadest sense, of the population.

EDUCATIONAL WELL-BEING REFERS TO THE SCHOOLING AND CULTURAL LEVEL OF THE INDIVIDUAL'S WELL-BEING

The 5 KPIs taken into consideration for the construction of the indicator relating to educational welfare, and the weights used for the calculation, are as follows:

- *PISA Score (Programme for International Student Assessment)*, calculated as the number of students assessed in the 4th, 5th and 6th levels – Relative weight or percentage: 25%;
- Average annual number of *graduates and doctorates* (average of the last ten years, amounts per 100,000 inhabitants) – Relative weight: 35%;
- *Foreign students* enrolled in the national university system (per 100,000 inhabitants) – Relative weight: 15%;
- Average number of daily newspapers sold[7] (values per 100 inhabitants) – Relative weight: 10%;
- *Unemployment rate of graduates* – Relative weight: 15%.

The Programme for International Student Assessment (PISA) is an international investigation promoted by the OECD to ensure the skills of young schoolchildren. The ratings assigned to the students assessed in PISA are from 1 to 6, where 6 is the maximum score and 1 is the minimum. For the construction of the indicator presented here, the three highest levels (4, 5, 6) were taken into account, since these are considered to be representative of students with analytical skills and a certain cultural level. This indicator was included in the KPIs selected because it was considered to be an approximation of the level of cognitive and intellectual abilities developed by individuals during their educational process (as well as an index of the effectiveness of the training system).

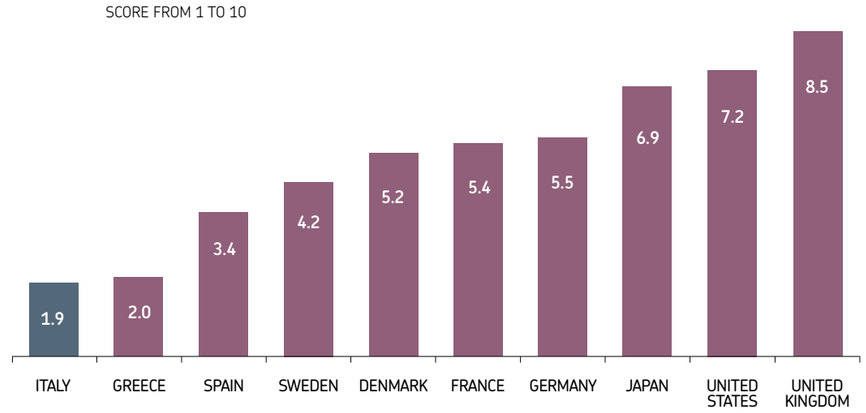
Another indicator used to measure "health education" in the countries considered is the average annual number of graduates and doctorates. The indicator was made by calculating the average, in the time frame of the last 10 years, of the number of students who finished the courses of study on the ISCED 5th and 6th levels.[8]

This indicator was included in the set of KPIs selected because it was considered that the general level of diffusion of culture and education in a population is linked to the rate of the generation of new graduates and doctorates (ISCED level 6, in the case of Italy) in the national system of tertiary education. In order to eliminate a bias toward the most populous nations of the indicator (which, *ceteris paribus*, would be able to generate an absolute number of graduates greater than the others), the annual average of new graduates was compared to the national population and expressed in units per 100,000 inhabitants.

In addition to the two indicators described briefly above, which both contribute to the calculation of the *Social and Interpersonal Sub-index* with a relative weight equal to 50%, the other selected indicators measure: the level of internationalization of the education system (a

parameter which may allow greater inter-cultural contamination, with an impact on educational well-being); the rate of cultural openness and updating of the population (circulation of daily newspapers); and the unemployment rate of graduates (to measure the social consequences, discussed in detail in the dimension of social well-being, of the performance of the education system).
The assignment of a score (from 1 to 10) to each country for each of the 5 KPIs analyzed, and the results obtained with the weights indicated above, has resulted in a synthetic intermediate index relative to the aspect of "environmental well-being." The ranking thus obtained is shown in the figure below.

Figure 4.15. Ranking relative to educational well-being



Source: The European House-Ambrosetti, 2011.

THERE IS A VERY POOR PERFORMANCE ON THE PART OF ITALY WITH REGARD TO ALL THE INDICATORS FOR MEASURING EDUCATIONAL WELL-BEING

As can be easily read in the figure above, there is a very poor performance on the part of Italy with regard to all the indicators for measuring educational well-being. Our country, in fact, closes this ranking, which is dominated by the countries belonging to the Anglo-Saxon world (global benchmark for the tertiary education system). Japan also achieved a higher score than the average of other countries, ranking in third position.
The European core countries (Germany and France), together with the nations of Scandinavia (Sweden and Denmark), have a level of welfare education that is in line with the average. Spain and Greece, with Italy, close the ranks.

4.2.2.2 Social well-being

THE DIMENSION OF SOCIAL WELL-BEING REFERS TO THE RELATIONAL COMPONENT OF THE INDIVIDUAL WITH SOCIETY

The dimension of "social well-being" refers to the relational component of the individual with society. What is defined as "social well-being" is then generated in the attitude of individuals to build profitable relationships of sharing and mutual support in the society in which they themselves live (welfare, family, etc.).
Social well-being, therefore, is derived from the result of parameters which are external to the individual and linked to the type of society (such as the ability to do a job that draws an income sufficient for self-sufficiency and self-confidence, or the trust felt toward other members of society or to the institutions that govern its operation), but also from parameters under the control of individuals, such as, for example, the recognized value of the institution of the family, the ability to actively contribute to society, etc.
Based on this consideration, the indicators chosen, and the weighting used, for the measurement of social well-being are as follows:

- Average number of *hours devoted to childcare* (weekly average, children aged between 0 and 12) – Relative weight: 25%;
- Average rate of *youth inactivity* – Relative weight: 25%;
- Average rate of *unemployment* – Relative weight: 10%;
- *Days of vacation per year* (paid) – Relative weight: 15%;
- *Broadband deployment* – Relative weight: 15%;
- *National Institution Index*, measure of trust in institutions – Relative weight 5%;
- *Interpersonal Trust Index*, measure of trust toward others – Relative weight: 5%.

THE AMOUNT OF TIME SPENT BY FAMILIES IN CARING FOR CHILDREN WAS INCLUDED IN THE SET OF INDICATORS USED

The amount of time spent by families in caring for children was included in the set of indicators used to measure social well-being since it is considered indicative of the functioning of the social model of reference, in the hypothesis that the availability of time to devote to family activities will be reflected in a better functioning of society as a whole.

THE PROPORTION OF PEOPLE AT RISK OF POVERTY HAS BEEN SELECTED WITH THE AIM TO MEASURE THE QUALITY OF INTERACTION BETWEEN THE INDIVIDUAL AND SOCIETY

The second indicator under consideration, i.e., the proportion of people at risk of poverty, has been selected with the aim to measure, albeit in the form of a proxy, the quality of interaction - in economic terms - between the individual and society. It can be assumed that the highest quotas of individuals at risk of poverty reflect less virtuous social mechanisms.
The rate of youth inactivity and the unemployment rate are selected to measure the current level of social "tension," in terms of access to work and education.
The number of days of vacation per year, by law, assigned to the workers in each of the benchmark nations considered, is an indicator of the quality of the work-life balance, as well as being an expression of the "closeness" of society to individuals (in this case, workers); not mere "factors of production" or "supporters of the national economic growth" but men and women, with social relationships and personal needs that go beyond the working life.
The diffusion of broadband has been considered in this context because it is a proxy of the level of connectivity of the population, which today goes increasingly hand-in-hand with access to information, updates, new mechanisms of socialization and communication, within new social systems in the making.

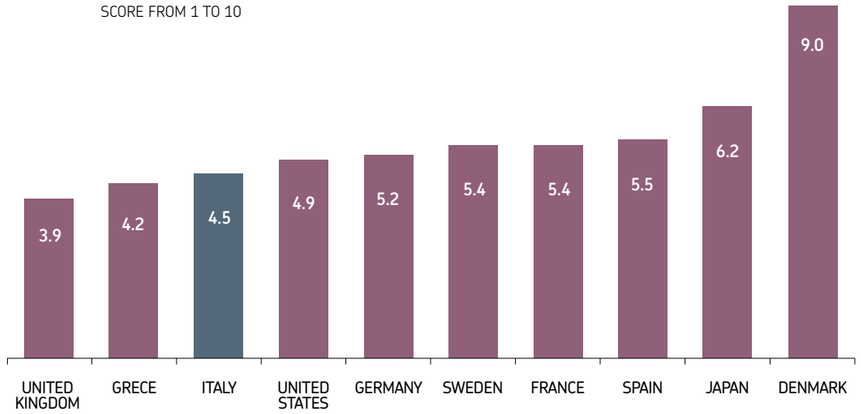
THE INDEX CALLED THE "NATIONAL INSTITUTION INDEX" MEASURES THE LEVEL OF PUBLIC CONFIDENCE IN THE MAIN INSTITUTIONS OF THEIR COUNTRY

Carried out by the Gallup company through international surveys called "Gallup World Poll", the index called the "National Institution Index" measures the level of public confidence in the main institutions of their country, such as the national government, justice and the courts, the army, etc., as well as the fairness of elections.

THE INTERPERSONAL TRUST INDEX IS AN INDICATOR WHICH IS COMMONLY USED TO COMPARE THE LEVEL OF TRUST TOWARD OTHERS IN DIFFERENT COUNTRIES

The Interpersonal Trust Index is an indicator calculated by the World Values Survey (WVS) which is commonly used to compare the level of trust toward others in different countries. This measurement is calculated by asking respondents if, in general, they can trust in others and by counting the responses of those who claim to trust in most people.
The assignment of a score (from 1 to 10) to each country for each of the seven KPIs analyzed, and the weighting of the results obtained with the weights indicated above, has resulted in a synthetic intermediate index relating to the dimension of "social well-being." The ranking thus obtained is shown in the following figure.

Figure 4.16. Ranking relative to "social well-being"



Source: The European House-Ambrosetti, 2011.

ITALY, WITH A COMPOSITE SCORE OF 4.5 POINTS, IS THE THIRD TO THE LAST NATION AMONG THE 10 UNDER CONSIDERATION

As can be seen in the figure, Italy, with a composite score of 4.5 points, is the third to the last nation among the 10 under consideration, followed by Greece and the United Kingdom.
Denmark is, instead, the first nation in relation to this index, in particular on the basis of very low rates of youth inactivity, a low proportion of families considered at risk of poverty, a high average number of hours devoted to childcare and high levels of trust in "others" and institutions (indices calculated from Gallup Poll Word and the World Values Survey respectively).
The second country that has the highest index of social welfare is Japan, which builds its position on the basis of a performance similar to that of Denmark (with the exception of the diffusion of broadband and the amount of annual paid vacation days assigned by right to individuals).
Spain, France, Sweden, Germany and the United States obtained a score between 4.9 (Germany) and 6.2 (the United Kingdom).

4.2.2.3 Political well-being

POLITICAL WELL-BEING REFERS TO THE TYPE OF WELFARE THAT IS GENERATED IN THE ORDERLY INTERACTION OF THE INDIVIDUAL WITH PUBLIC INSTITUTIONS

"Political well-being" refers to the type of welfare that is generated in the orderly interaction of the individual with public institutions.
For the measurement of national performance in this area, two summary indicators were selected:[9]

- *The Economist Intelligence Unit Index of Democracy*, a multidimensional summary indicator that measures, in the logic of comparison, the quality of democracy in 167 countries worldwide – Relative weight: 50%;
- *Corruption Perceptions Index*, a multidimensional summary indicator that measures, in the logic of comparison, the perception of citizens with regard to the degree of corruption in the public and political sectors – Relative weight: 50%.

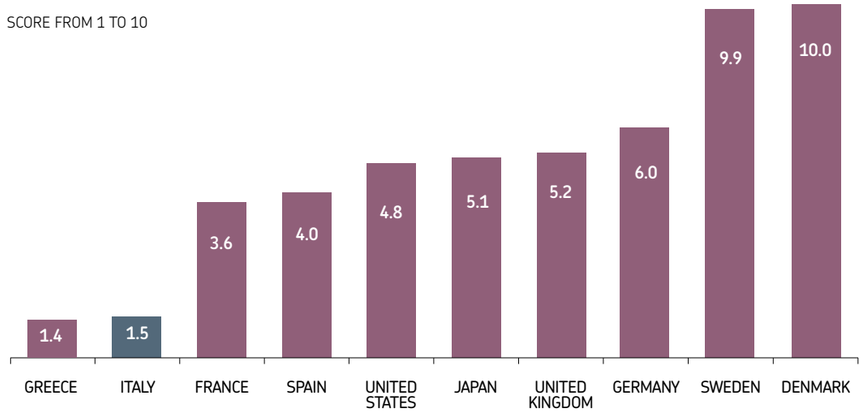
THE ECONOMIST INTELLIGENCE UNIT INDEX OF DEMOCRACY

The Economist Intelligence Unit Index of Democracy is a summary index that measures the annual state of democracy in 167 countries worldwide.

The *Corruption Perceptions Index*, instead, is an indicator calculated every year (since 1995) by the agency Transparency International, which ranks a number of countries according to the perception of its citizens regarding the degree of corruption (the misuse of delegated power for private gain) in the public and political sectors.
The assignment of a score (from 1 to 10) to each country for the two KPIs, based on the weights assigned, obtained a synthetic intermediate index relative to the size of "political well-being," which is shown in the following figure.

THE CORRUPTION PERCEPTIONS INDEX RANKS A NUMBER OF COUNTRIES ACCORDING TO THE PERCEPTION OF ITS CITIZENS REGARDING THE DEGREE OF CORRUPTION IN THE PUBLIC AND POLITICAL SECTORS

Figure 4.17. Ranking relative to "political well-being"



Source: The European House-Ambrosetti, 2011.

As clearly emerges by looking at the charts shown in the figure, the Scandinavian area of Europe clearly prevails in this sub-index, with Denmark and Sweden, which dominate the rankings, being almost equal. Italy is the second to the last nation, with a score of 1.5 points, only bettering that obtained by Greece, which achieved a score of 1.4 points, the lowest score in relation to this dimension of well-being.
Germany ranks in third position, followed by the United Kingdom and Japan (all three with a score greater than 5 points out of 10). The United States, Spain and France obtained a score below the average, albeit with a radical departure from the nations in the last rankings: Greece and Italy.

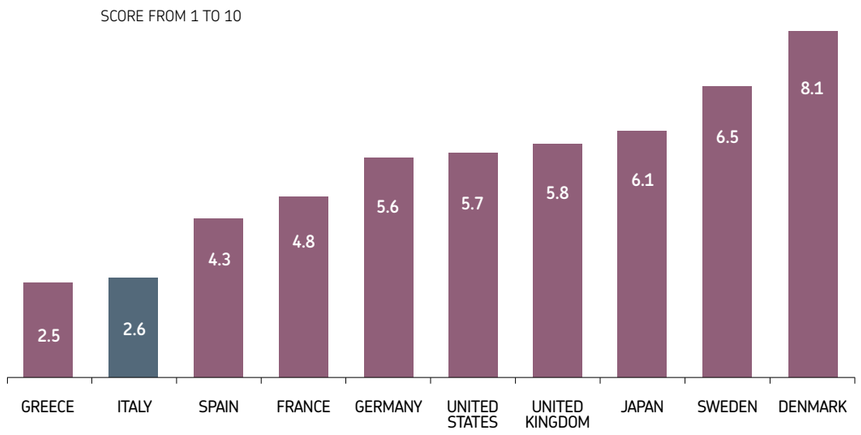
THE SCANDINAVIAN AREA OF EUROPE CLEARLY PREVAILS IN THIS SUB-INDEX

4.2.2.4 Summary result of the Social and Interpersonal Sub-index

The grouping of the summary indicators for "educational well-being," "social well-being" and "political well-being" allow for the calculation of the *Social and Interpersonal Sub-index*, the results of which are found in the figure below.
As can be seen from the graph, Denmark places first in the rankings of the Social and Interpersonal Sub-index with a score of 8.1, followed (with a gap of about 1.5 points) by another Scandinavian country, Sweden (which achieved a score of 6.5 points out of 10). Japan, the UK, the USA and Germany form the "quartet" that follows, with substantially uniform scores between 5.6 (Germany) and 6.1 (Japan). France and Spain follow, both with a score of more than 4 and farther down, Italy and Greece (in last position).

DENMARK PLACES FIRST IN THE RANKINGS OF THE SOCIAL AND INTERPERSONAL SUB-INDEX

Figure 4.18. Ranking relative to the Social and Interpersonal Sub-index



Source: The European House-Ambrosetti, 2011.

The results that emerged indicate the Scandinavian countries as the economic and social model that integrates the dimensions of education, welfare, the sphere of family and society, democracy and individual freedom in a way that is more balanced.
On the other hand, Mediterranean countries like Greece, Italy and Spain are in difficulty with regard to these aspect of social and interpersonal well-being.

4.3 THE BCFN WELL-BEING INDEX: MAIN FINDINGS

As mentioned before, the BCFN Index is a tool of comparative analysis developed for the creation of a comparison on an international basis of the level of well-being (broadly-speaking) that the people of each nation "enjoy" at present (precisely in this feature of a "snapshot of the current state," as mentioned, this index differs from the BCFN Sustainability Index, which will be shown in the following chapter).
Among the most innovative and distinctive elements of contribution for the BCFN Index (current, in this case, but also in the case of the BCFN Sustainability Index) is the one relative to the measurement of the psychophysical well-being and behavior of individuals.
It is believed that this component can have a major impact on the welfare of citizens because it regards some important dimensions related to the sphere of health and lifestyle. For this reason, in the construction of the well-being index overall, those components have been pondered with a relatively considerable weight. Consistent with this hypothesis, the *Lifestyle Sub-index* (the first of three sub-indices used to calculate the current BCFN Well-being Index) contributes to the overall well-being of individuals at a rate which stands at 35%. The same weight, i.e., 35%, was attributed to the summary indicator of material and environmental well-being and 30% was attributed to the indicator of educational, social and political well-being (figure below).
Although recognizing the importance and innovative nature of the *Lifestyle Sub-index* in order to give an organic, wide-ranging view of the work conducted, the analysis (both within the survey of current well-being and of the assessment of sustainability) is not limited only to that more innovative and specific part.
On the contrary, by using the main findings that emerged in the literature and by analyzing the work conducted by the OECD and by internationally recognized institutions that publish indices for the measurement of overall well-being, variables related to other dimensions of well-being (material, social and political environment, etc.) have also been taken into consideration.
At an overall level, the three sub-indices presented in the previous paragraphs are the basis upon which the BCFN Well-being Index has been constructed.
By combining the scores calculated for the 10 countries in the three sub-indices, through a simple weighted average shown in the Figure 4.19, the ranking in the BCFN Well-being Index is obtained, and is represented in the Figure 4.20.
The ranking of the BCFN Well-being Index, which returns the final result of the comparison ("snapshot") of the 10 selected countries in relation to the current level of the seven dimensions of "well-being," is led by Denmark, with 7.5 points, closely followed by the other Scandinavian country, Sweden, with its total of 7.0 points. The United Kingdom achieved third place with 6.3 points.

BY COMBINING THE SCORES CALCULATED FOR THE 10 COUNTRIES IN THE THREE SUB-INDICES, THROUGH A SIMPLE WEIGHTED AVERAGE, THE RANKING IN THE BCFN WELL-BEING INDEX IS OBTAINED

Figure 4.19. Schematic representation of the three components (sub-indices) that make up the BCFN Well-being Index

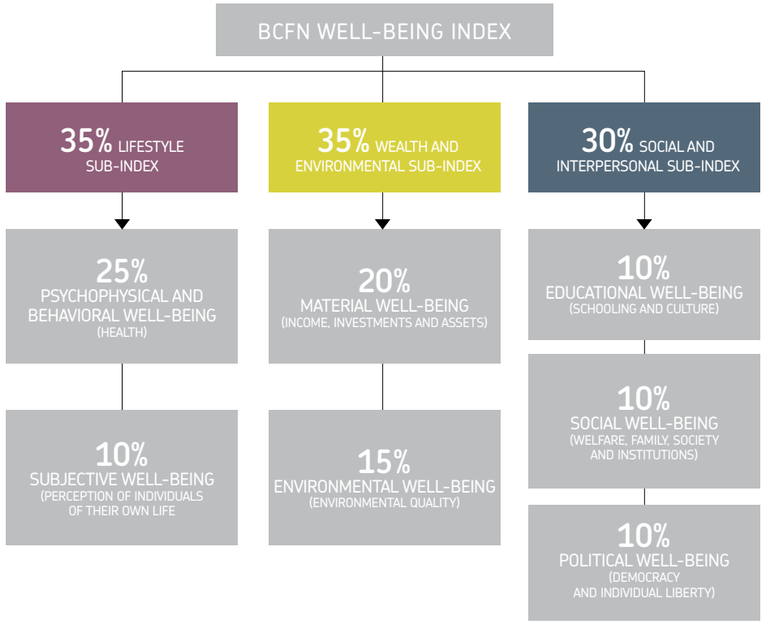
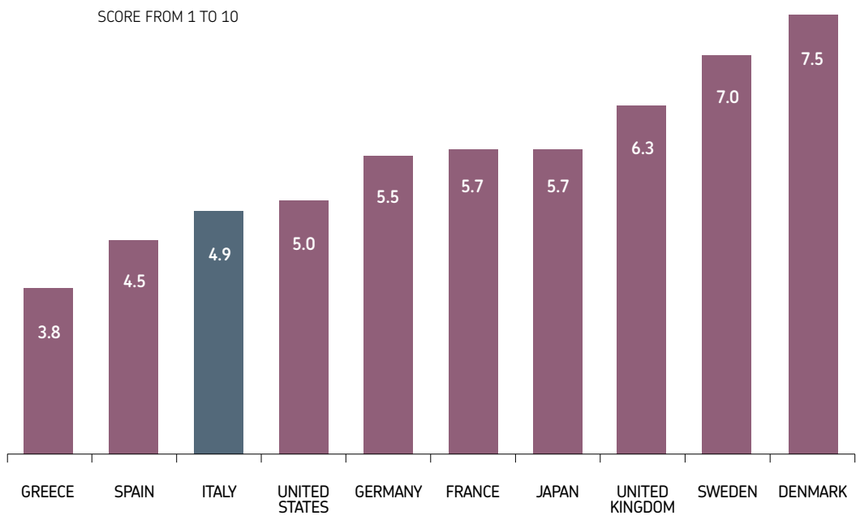


Figure 4.20. Ranking of the BCFN Well-being Index



Source: The European House-Ambrosetti, 2011.

These are followed by a "trio" of countries achieving a final score that is substantially similar, consisting of (in order) Japan (5.7 points), France (5.7 points) and Germany (5.5 points). The United States and Italy placed in the sixth and seventh places, respectively, with 5.0 and 4.9 points out of ten.
Spain (4.5 points) and Greece (3.8 points) occupy the next to the last and the last place in the ranking.

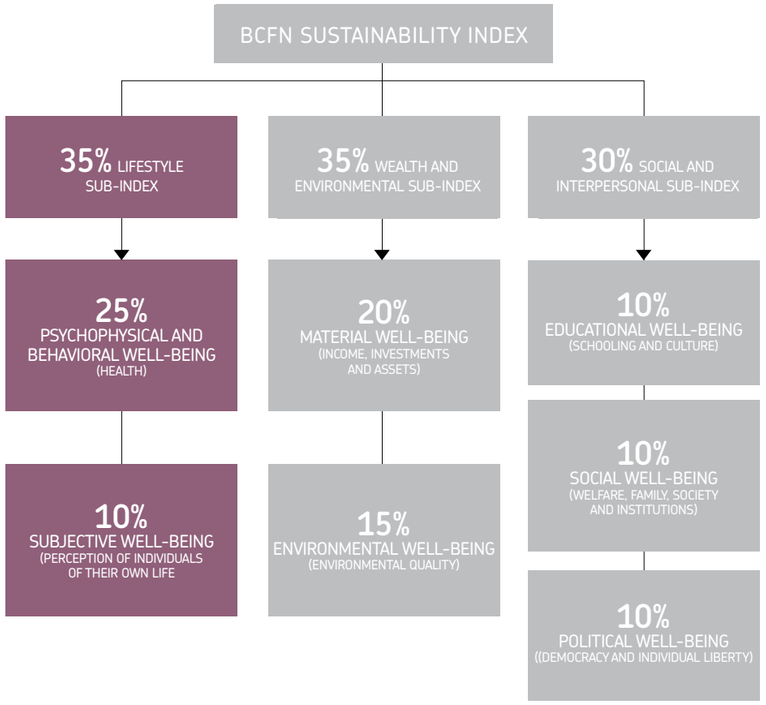
5. THE BCFN SUSTAINABILITY INDEX

5.1 LIFESTYLE SUB-INDEX

THE BCFN SUSTAINABILITY INDEX ASSESSES THE VULNERABILITY OF WELL-BEING, IN A DYNAMIC PERSPECTIVE

As for the BCFN Current Well-being Index, the first sub-index taken into consideration is the one relating to the *Lifestyle Sub-index*.
The analysis of the *Lifestyle Sub-index* was based on a total of 10 KPIs. Specifically, 9 were considered key performance indicators for the dimension of "psychophysical" and behavioral well-being, and one KPI was for measuring "subjective well-being."

Figure 5.1. The Lifestyle Sub-index within the methodology system, with findings of the two dimensions that comprise it



Source: The European House-Ambrosetti, 2011.

5.1.1 Psychophysical and behavioral well-being

PSYCHOPHYSICAL AND BEHAVIORAL WELL-BEING IS THE FIRST OF THE TWO DIMENSIONS THAT MAKE UP THE LIFESTYLE SUB-INDEX, IN ITS DIMENSION OF SUSTAINABILITY

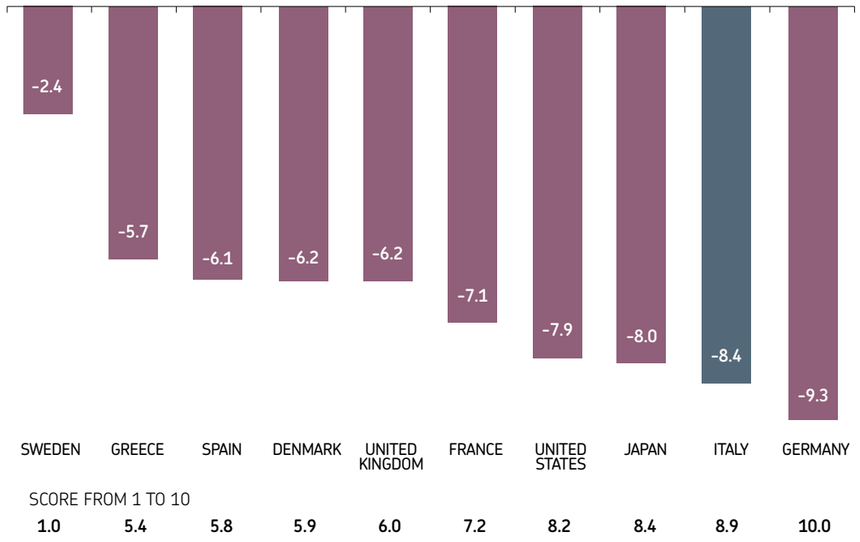
"Psychophysical and behavioral well-being" is the first of the two dimensions that make up the *Lifestyle Sub-index*, in its dimension of sustainability. The indicators taken into consideration are the following:
- Variation in the mortality rate for cancer;
- Variation in the mortality rate for cardiovascular diseases;
- Variation in the mortality rate for diabetes mellitus;
- Children in conditions of obesity and being overweight;
- Percentage of adult smokers;
- Consumption of alcohol (number of liters per person);
- Practice of regular physical activity (% of the population);
- Expenditure on consumption of fruits and vegetables (% of available income);
- Average individual daily intake of calories.

In accordance with the methodology described above, a ranking has been made for each of these indicators, assigning each country a score between 1 (relatively "worst" performance) and 10 (relatively "best" performance).

5.1.1.1 Variation in the mortality rate for cancer

Cancer is the second leading cause of death in the world, in Europe and in Italy. The estimates indicate a future global growth in deaths from cancer from up to 9 million in 2015 to 11.4 million in 2030; the vast majority will occur in medium-low income countries, while the phenomenon seems to be shrinking in high-income, developed countries.

Figure 5.2. Percentage variation in standardized mortality rates for cancer, calculated as the number of deaths per 100,000 inhabitants (2002-2009 period)



Source: The European House-Ambrosetti elaboration of data from the OECD, 2011.

THE NATION THAT HAS THE BEST PERFORMANCE IN TERMS OF CHANGES IN THE MORTALITY RATE FROM CANCER IS GERMANY

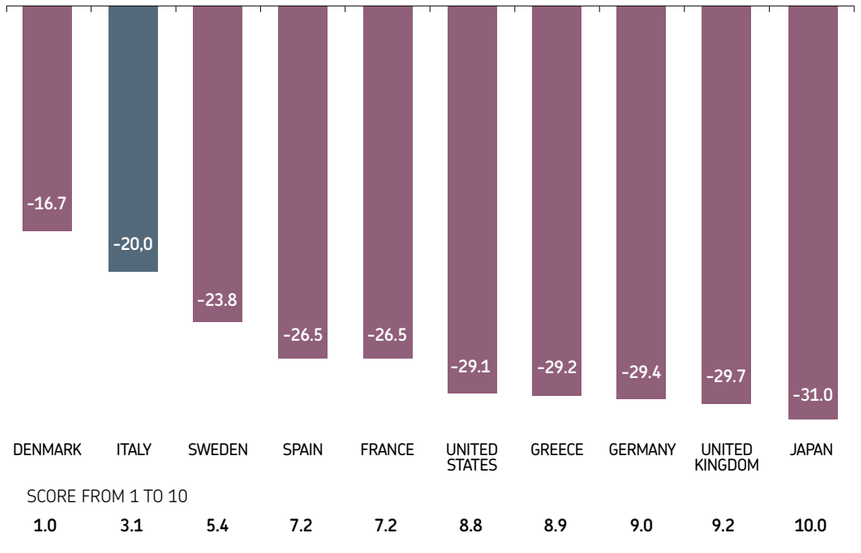
As shown in the chart above, the nation that has the best performance in terms of changes in the mortality rate from cancer is Germany, with a decrease of 9.3% during the period between 2002 and 2009. It is followed by Italy with -8.4%, Japan with -8.0% and the United States with -7.9%.
Beyond the direct impact on people's psychological well-being, the incidence of tumors is closely linked to the habits and lifestyles (relating to food, physical activity, etc.) of the individuals. It is also for this reason that, in measuring behavioral well-being in the two BCFN Indices, some indicators were calculated relating to some patterns of behavior that can influence the development of cancer the most or that, conversely, will lower the risk factors for this type of disease (smoking, alcohol abuse and low intake of fruits and vegetables).

5.1.1.2 Variation in the mortality rate for cardiovascular diseases

THE MORTALITY RATE FOR CARDIOVASCULAR DISEASES IS AN INDICATOR THAT AFFECTS THE SUSTAINABILITY OF WELL-BEING BECAUSE IT IS INDICATIVE OF FUTURE PHYSICAL WELL-BEING

Cardiovascular diseases[1] are the leading cause of death in all developed nations. By 2015, it is estimated that the number of deaths from cardiovascular diseases globally will grow to reach 20 million units, confirming its position as the leading cause of death in the world.
With regard to the sustainability of well-being, it is evident that the mortality rate for cardiovascular diseases is an indicator that affects the sustainability of well-being because it is indicative of future physical well-being (life expectancy in the future).
All the countries considered, as in the case above, show a trend of reduction in mortality from cardiovascular disease; therefore, the data is regarded as positive.
Considered within the scope of comparison, the nation that has the best change regarding cardiovascular disease is Japan, with a reduction in the period between 2002 and 2009 by as much as 31%, followed by the United Kingdom and Germany. Italy, despite a reduction of 20%, and thus, positive data, is in the next to the last place before Denmark, which also recorded a positive trend and a 16.7% reduction in mortality from cardiovascular disease.

Figure 5.3. Percentage variation in the standardized mortality rate for cardiovascular diseases, calculated in number of deaths per 100,000 inhabitants (2006)

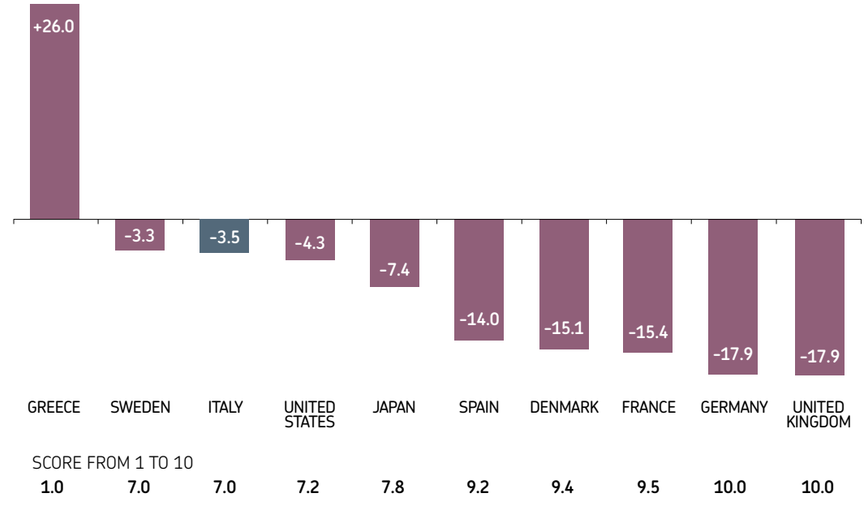


Source: The European House-Ambrosetti elaboration of data from the OECD, 2010.

5.1.1.3 Variation in the mortality rate for diabetes

Diabetes has been confirmed as one of the most widespread chronic diseases in the world. With regard to the latest data available,[2] among people between 20 and 79 years of age, there is an estimated worldwide prevalence of the disease of 5.9%,[3] equal to 246 million people affected.
On a global level, estimates indicate that by 2025, there will be a significant increase in its prevalence, reaching 7.1% of the population and involving 380 million people around the world.

Figure 5.4. Percentage variation of the standardized mortality for diabetes mellitus, calculated as number of deaths per 100,000 inhabitants (in the period between 2002 and 2009)



Source: The European House-Ambrosetti elaboration of data from the OECD, 2011.

WITH THE ONLY EXCEPTION OF GREECE, THE ANALYSIS OF CHANGES IN THE STANDARDIZED MORTALITY RATE FOR DIABETES MELLITUS SHOWS A TREND OF REDUCTIONS

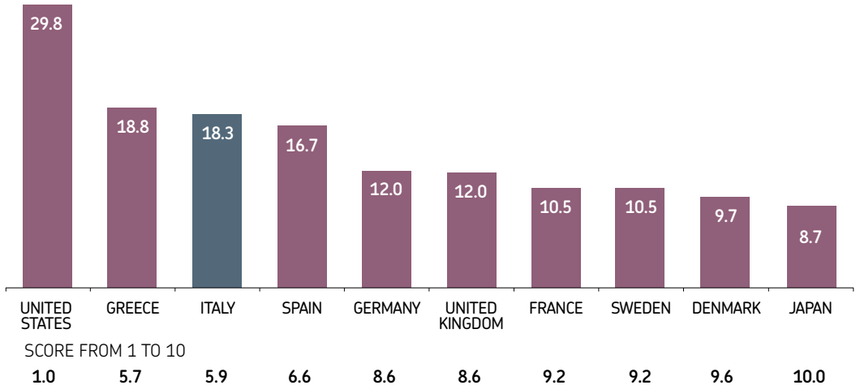
Between 2002 and 2009, with the only exception of Greece, where there is a marked increase in the incidence of diabetes mellitus in the population, the analysis of changes in the standardized mortality rate for diabetes mellitus shows a trend of reductions between -3.3% in Sweden and -17.9% in the United Kingdom and Germany.
These two nations have the best variations in incidence of diabetes mellitus, followed by France, Denmark and Spain. Italy, despite a reduction of 3.5%, and therefore a positive trend, ranks in third to the last place in front of Sweden, which also registers a positive figure, followed by Greece, the only country where there is a negative trend, i.e.. an increase in mortality from diabetes mellitus.
In summary, also taking into consideration the dynamics in relation to variations in the mortality rate for cardiovascular diseases and cancer, we can say that a substantial and transversal reduction of mortality from chronic diseases is evident in the countries considered.

5.1.1.4 Obese and overweight youth population

THE MOST COMMON CONSEQUENCE OF CHILDHOOD OBESITY IS THE PERSISTENCE OF OBESITY IN ADULTHOOD

For children, an overweight condition and obesity may cause a number of serious physical and psychological consequences that show up in early childhood (early consequences), as well as problems, often more serious, that they may easily come up against in adulthood (late consequences). The most common consequence of childhood obesity is the persistence of obesity in adulthood: about 70% of obese adolescents will remain in this condition as an adult. This evidence is the reason for the inclusion of this KPI in the BCFN Sustainability Index of Well-being.
In fact, those who were overweight/obese when young are more prone to cardiovascular disease, as well as to muscular-skeletal and metabolic disorders.

Figure 5.5. Overweight and obese youth population (BMI>25Kg/m^2) measured as percentage of the population between 11 and 15 years of age



Source: The European House-Ambrosetti elaboration of data from the OECD – International Obesity Task Force, 2011.

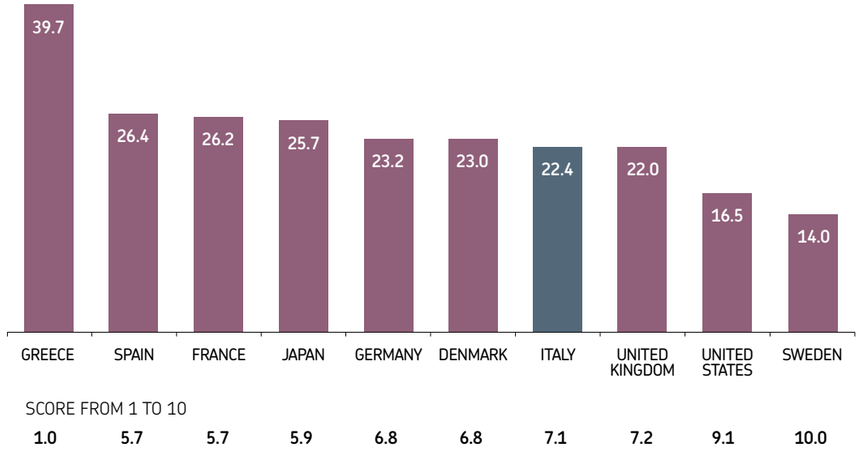
From a reading of the phenomenon of obesity in the young, the United States emerges with a share of almost 30%, and it is the country with the most alarming data from this standpoint. On the other hand, Japan is the country with the fewest young people who are overweight and obese, followed by Denmark and France.
Excluding the United States, the two countries where the Mediterranean diet should be more widespread, i.e., Italy and Greece, are those with the highest percentage of obese young people, showing a significant drop of the adoption of the Mediterranean diet by young Italians and Greeks.

5.1.1.5 Percentage of adult smokers

CURRENTLY, TOBACCO SMOKE IS RESPONSIBLE FOR APPROXIMATELY 5 MILLION DEATHS WORLDWIDE AND ESTIMATES FOR 2020 SHOW AN INCREASE OF UP TO 9 MILLION DEATHS, IN THE ABSENCE OF CORRECTIVE ACTIONS

In scientific literature, numerous studies have shown that a percentage higher than 30% of the tumors and cancers that arise can be attributed to tobacco smoke.[4] Currently, tobacco smoke is responsible for approximately 5 million deaths worldwide and estimates for 2020 show an increase of up to 9 million deaths, in the absence of corrective actions.
On an overall level, the studies carried out have shown that smoking causes or contributes to the onset of cancer of the oral cavity, throat, lungs, damage to the skin, psoriasis, heart disease, ulcers, wrinkles, osteoporosis, cataracts, diabetes, Alzheimer's disease, leukemia, sexual dysfunction, infertility and gum disease.

Figure 5.6. Percentage of adult smokers in the total adult population



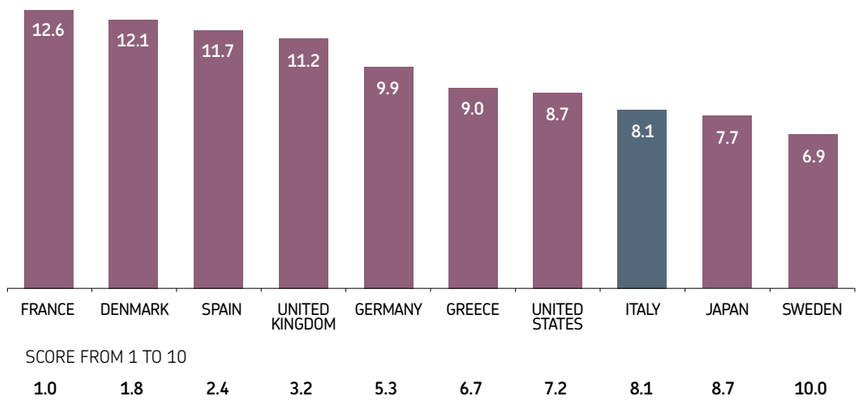
Source: The European House-Ambrosetti elaboration of data from the OECD and Japan Statistic Bureau and Statistic Center, 2011.

The results show how in Greece, nearly 40% (maximum value) of adult citizens are smokers, while in Sweden the figure stands at 14% (minimum). Italy is in the fourth to the last place, with about 22% of people who smoke, a value only slightly above that of the United States and the United Kingdom.

5.1.1.6 Average consumption of alcohol

In the face of evidence shared by the international scientific community, which is negative for excessive alcohol consumption in contrast to moderate alcohol consumption, recommendations provided by all major international scientific unions are to avoid the consumption of alcohol and/or alcoholic beverages. France, with an average of 12.6 liters per adult, is the first country in the rankings regarding the average consumption of alcohol per person per year. Sweden, similar to its percentage of smokers, is still one of the best countries in terms of healthy behavior.

Figure 5.7. Consumption of alcohol measured in number of liters consumed per adult



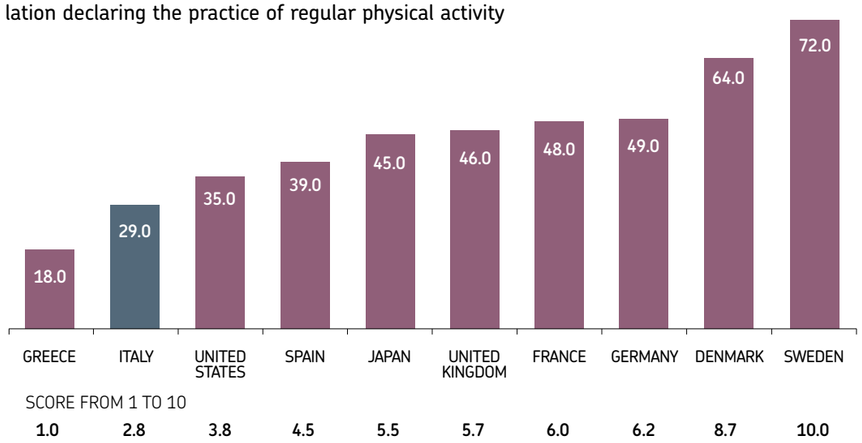
Source: The European House-Ambrosetti elaboration of data from the OECD, 2011.

5.1.1.7 Practice of physical activity

Regular physical activity, indicated as at least 30 minutes a day most days of the week, is one of the most important factors, if not the most important, in the prevention of chronic diseases.
Many studies have shown that adopting a lifestyle that includes adequate physical activity is inversely correlated to the onset of cardiovascular disease, cancer and the risk of developing type 2 diabetes.
In accordance with these findings, *ad hoc* surveys have been used to measure physical activity, the objective of which is to profile the average level of physical activity of residents in the countries analyzed.
The above chart shows how only 18% of Greek citizens declare they practice regular physical activity, significantly lower than in other countries. Italy is in the second to the last place, with less than 30% of the population claiming to perform regular physical activity, while Spain ranks in the fourth to the last place.
In general, citizens of Scandinavian countries claim an average of physical activity on a regular basis at a rate that is more than double the average of the Mediterranean countries (Greece, Italy and Spain).

REGULAR PHYSICAL ACTIVITY IS ONE OF THE MOST IMPORTANT FACTORS IN THE PREVENTION OF CHRONIC DISEASES

Figure 5.8. Practice of physical activity, measured as a percentage share of the population declaring the practice of regular physical activity



Source: The European House-Ambrosetti elaboration of data from Eurobarometro, American Time Use Survey and Japan Statistic Bureau and Statistic Center, 2011.

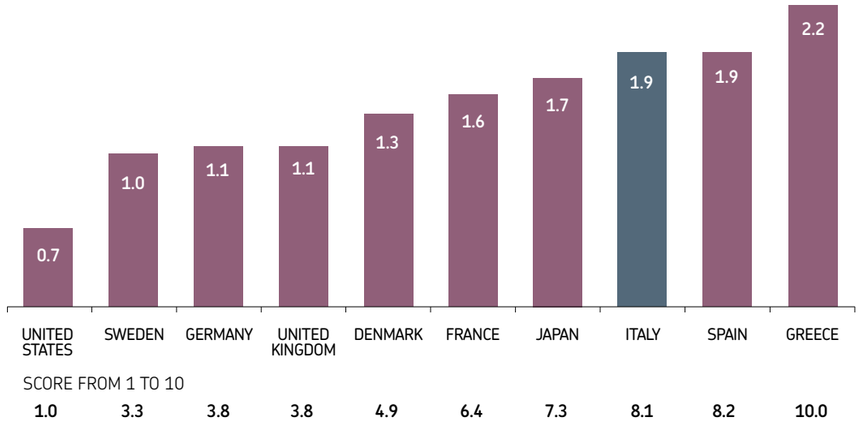
5.1.1.8 Expenditure for consumption of fruits and vegetables

Scientific studies have shown that there is an inverse relationship between the consumption of fruits and vegetables and the onset of chronic diseases;[5] that is to say, the increased consumption of fruits and vegetables reduces the occurrence of chronic diseases.
Lacking surveys on the consumption of fruits and vegetables, the decision was made to use the

THERE IS AN INVERSE RELATIONSHIP BETWEEN THE CONSUMPTION OF FRUITS AND VEGETABLES

spending on consumption of fruits and vegetable as a *proxy* of the consumption. More specifically, spending on the consumption of fruits and vegetables was calculated as a percentage of available income, to normalize the data with respect to income earned.
Of certain impact is a fact estimated by the World Health Organization (WHO), which points out that each year about 2.7 million deaths are attributable to an insufficient consumption of fruits and vegetables.[6]

Figure 5.9. Expenditure on the consumption of fruits and vegetables as a percentage of available income



Source: The European House-Ambrosetti elaboration of data from Eurobarometro, estimates on data from the United States Department of Agriculture and the Japan Statistic Bureau and Statistic Center, 2011.

THE MEDITERRANEAN COUNTRIES HAVE THE HIGHEST LEVELS OF EXPENDITURE ON THE CONSUMPTION OF FRUITS AND VEGETABLES OUT OF TOTAL AVAILABLE INCOME

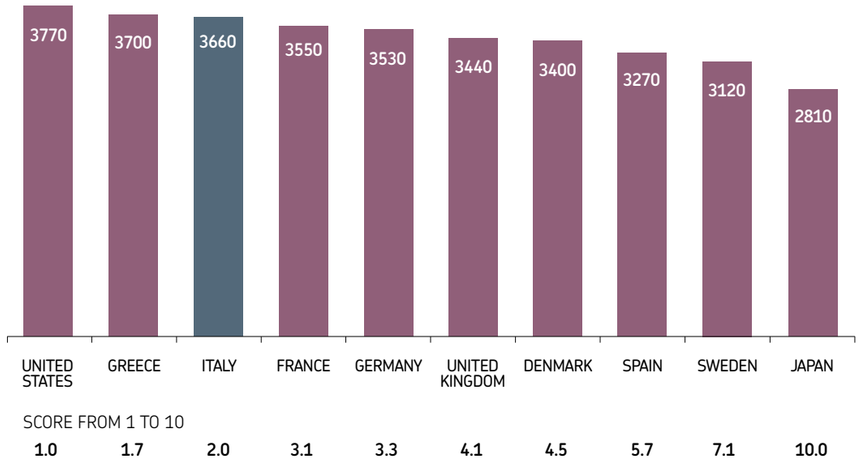
As shown in the chart above, in this case the Mediterranean countries, namely Greece, Spain and Italy, have the highest levels of expenditure on the consumption of fruits and vegetables out of total available income. The United States is once again in last place, as in the charts on adult and juvenile obesity, with a percentage of spending on fruits and vegetables of about 0.7%, characterizing it as the only country with a value of less than 1%.

5.1.1.9 Average individual daily intake of calories

A HIGH INTAKE OF CALORIES IS POSITIVELY ASSOCIATED WITH THE INCREASED RISK OF DEVELOPING CARDIOVASCULAR DISEASE

A high intake of calories during meals, and during the day in general, has negative effects on body weight and is, therefore, positively associated with the increased risk of developing cardiovascular disease. This evidence must necessarily be considered in the light of the differences that may exist in terms of physique and physical activity among individuals of the same country and between citizens of different nations.
The current trends, with special reference to the West, show continuous and steady increases of daily caloric intake and an increasing trend in the consumption of food of high caloric content. For example, the calories consumed by an average American over the past 30 years have increased by 25% on a daily basis and this growth has been accompanied by an increase in the consumption of food with a high level of sugar and fat.
In conclusion, given the differences in body composition, physical activity and combination of foods eaten, the indicator on the average caloric intake of the population can be used as a proxy of the level of over-eating, which has, and will have in the future, a direct impact on body weight and, therefore, on heart disease.

Figure 5.10. Average individual daily intake of calories



Source: The European House-Ambrosetti elaboration of data from the UN Food and Agriculture Organisation, FAOSTAT, 2011.

THE UNITED STATES IS THE FIRST COUNTRY WITH REGARD TO THE DAILY INTAKE OF CALORIES, WITH AN AVERAGE VALUE OF CLOSE TO 3,800 CALORIES

The United States is the first country with regard to the daily intake of calories, with an average value of close to 3,800 calories.
Greece and Italy place second and third. They are followed by France and Germany. Japan is the country with the lowest daily intake of calories, almost 1,000 less than Americans, which represents about 25% less. According to the above data, today, the Japanese have an intake of calories similar to that of Americans in the '80s.

5.1.1.10 Summary Indicator of psychophysical and behavioral well-being

"Psychophysical and behavioral well-being" represents that part of the BCFN Index that is highly innovative and distinctive with regard to other indices measuring well-being that are already in existence.
As a result of the analysis of the international scientific literature, and in agreement with the indications that emerged during meetings with experts, weights were assigned to each of the KPIs under analysis.
Specifically, the weights used for weighing the measurements are as follows:

- Variation in the mortality rate for cancer – Relative weight: 15%
- Variation in the mortality rate for cardiovascular diseases – Relative weight: 15%
- Variation in the mortality rate for diabetes mellitus – Relative weight: 15%
- Children in conditions of obesity and being overweight – Relative weight: 10%
- Percentage of adult smokers – Relative weight: 15%
- Consumption of alcohol (number of liters per person) – Relative weight: 5%
- Practice of regular physical activity (% of the population) – Relative weight: 10%
- Expenditure on consumption of fruits and vegetables (% of available income) – Relative weight: 10%
- Average individual daily intake of calories – Relative weight: 5%

As can be clearly seen, more weight was given to the KPIs related to variations in mortality rates for chronic diseases, cancer and smoking.

The assignment of a score (from 1 to 10) to each country for the 9 KPIs, and the balancing of weights assigned to them, has resulted in an intermediate summary index relative to the dimension of "psychophysical and behavioral well-being."
As can be clearly seen in the figure below, Japan is the nation that has the highest index of psycho-physical and behavioral well-being (in terms of sustainability), within the perimeter of the benchmark under consideration, obtaining a total score equal to 8 points on a scale from 1 (lowest) to 10 (maximum).

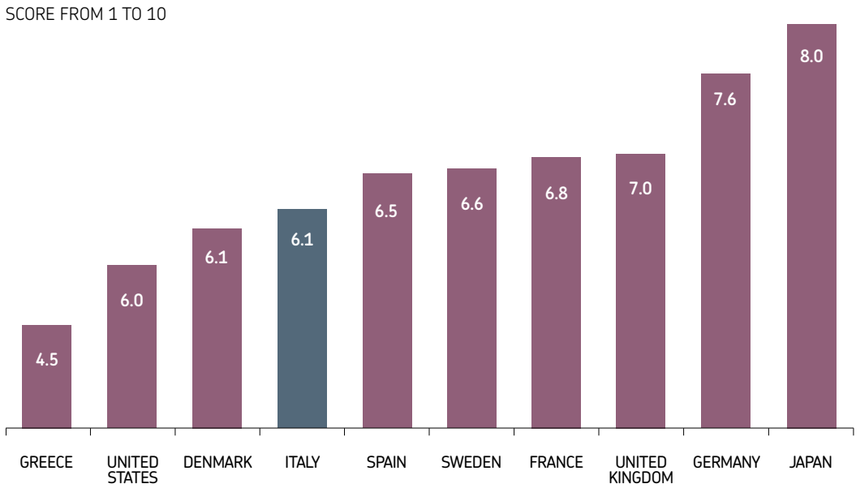
JAPAN IS THE NATION THAT HAS THE HIGHEST INDEX OF PSYCHOPHYSICAL AND BEHAVIORAL WELL-BEING (IN TERMS OF SUSTAINABILITY)

The position of Japan at the top of the ranking is explained by the high performance that the nation expressed in the indicators for the average intake of calories, the very limited number of obese or overweight children and significant reductions in mortality rates for chronic diseases.
Italy – with a score of 6.1 – is positioned in the fourth to the last place, ahead of Greece, the United States and Denmark. The placement reflects some of Italy's performances that are not positive, such as its high daily intake of calories and low level of physical activity.

ITALY – WITH A SCORE OF 6.1 – IS POSITIONED IN THE FOURTH TO THE LAST PLACE, AHEAD OF GREECE, THE UNITED STATES AND DENMARK

As mentioned above, the psychophysical and behavioral well-being of individuals is largely influenced by the behaviors and lifestyles themselves (food choices, lifestyle choices relating to the practice of sports, etc.). For this reason, the analysis of the so-called *Lifestyle Sub-index* (an impact weighted at 35% overall on the BCFN Sustainability Index of Well-being) is completed with the indicator for subjective well-being.

Figure 5.11. Ranking relative to "psychophysical and behavioral well-being"



Source: The European House-Ambrosetti, 2011.

5.1.2 Subjective well-being

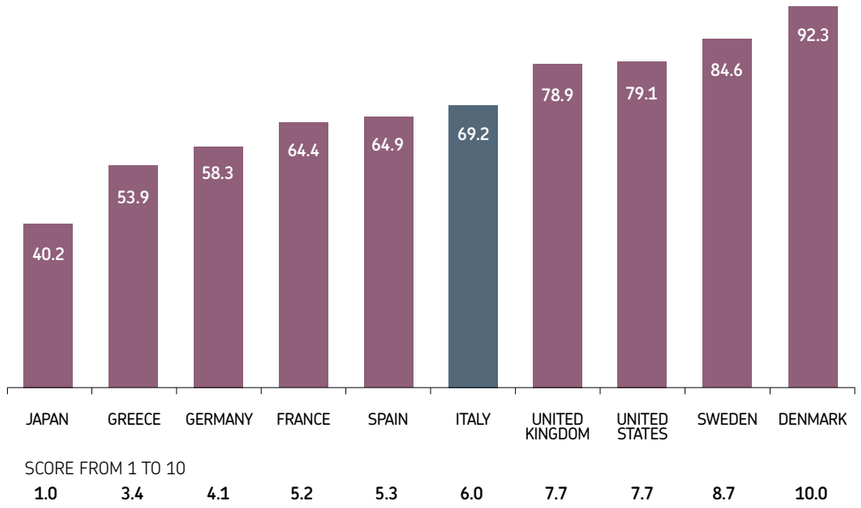
Similar to the case of the BCFN Well-being Index, even when analyzing the sustainability of well-being (the subject of this chapter), it was deemed appropriate to remedy the possible omission of a measure of well-being based solely on objective data which fails to grasp issues related to the mental and emotional state of individuals, by introducing an indicator of the "subjective" type (i.e., a direct revelation of the degree of well-being

perceived by individuals with regard to their future prospects of life).
The indicator chosen for this evaluation of the level of well-being of individuals has been developed recently by the OECD[7] and measures the proportion of people who claim to have a positive perception concerning their future prospects of life (figure below).

OVER 92% OF SWEDES HAVE A VERY POSITIVE PERCEPTION ABOUT THEIR LIFE IN THE FUTURE, FOLLOWED BY THE DANES, AMOUNTING TO ALMOST 85%

As you can see, over 92% of Danes have a very positive perception about their life in the future, followed by the Swedes, amounting to almost 85%. The United States and the United Kingdom are in third and fourth place behind the Scandinavian countries, with values close to 80%.
After the Scandinavian and Anglo-Saxon countries, comes Italy, with nearly 70% of individuals claiming to have a very positive perception about their life in the future, followed by Spain and France with around 65%, Germany with about 58% and Greece with approximately 54%. Last is Japan, where only 40% of citizens have a very positive perception about their life in the future.

Figure 5.12. Percentage of people who claim to have a positive perception concerning their future prospects of life

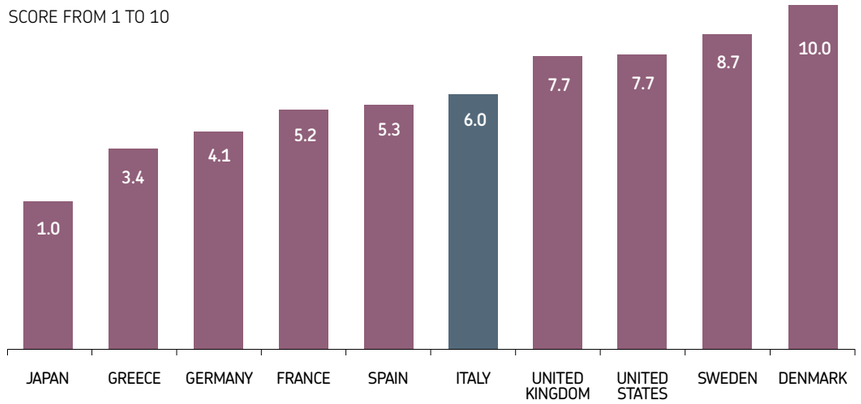


Source: The European House-Ambrosetti, 2011.

5.1.2.1 Summary indicator of subjective well-being

"Subjective well-being" is a methodological improvement over last year's BCFN Index. With the goal of giving the most authoritative and reliable data possible, the summary indicator of the OECD on subjective well-being was used as the best proxy to capture information on the level of well-being as perceived by citizens.
In accordance with the methodology described above, a ranking has been constructed for each of these indicators, assigning each country a score between 1 (relatively "worst" performance) and 10 (relatively "best" performance).
As a summary index, the ranking reflects the positions and distances shown by the OECD indicator.

Figure 5.13. Ranking relative to "subjective well-being"



Source: The European House-Ambrosetti, 2011.

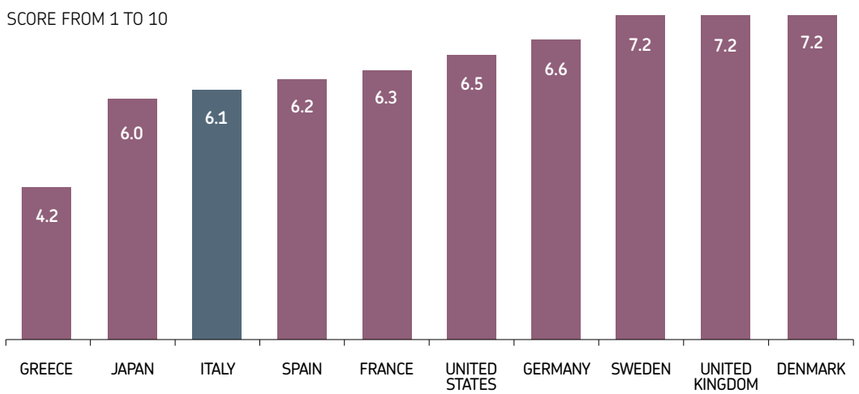
5.1.3 Result of the summary of the Lifestyle Sub-index

After calculating the summary indicators for "psychophysical and behavioral well-being" and "subjective well-being," the following is the ranking of the *Lifestyle Sub-index*, calculated from the weighted average of the previous two summary indicators.
Denmark, the United Kingdom and Sweden are at the top of the *Lifestyle Sub-index* (in terms of sustainability), with a score of 7.2. Germany, the USA, France, Spain, Italy and Japan, although detached from the group of the top three countries, do not show disappointing and negative results. In fact, between the second to last position, held by Japan, and the fourth from the top, held by Germany, there is only a difference of 0.6 on a scale from 1 to 10.

DENMARK, THE UNITED KINGDOM AND SWEDEN ARE AT THE TOP OF THE LIFESTYLE SUB-INDEX (IN TERMS OF SUSTAINABILITY)

The figure regarding Greece is alarming. The results indicate how, of all the countries under consideration, the Greeks, from the point of view of behavior that impacts on the future of their health, nutrition and more generally, their lifestyles, are the ones who make choices that are less virtuous regarding the future; on the opposite end of the spectrum are the Danish, the English and the Swedish.

Figure 5.14. Ranking relative to the Lifestyle Sub-index



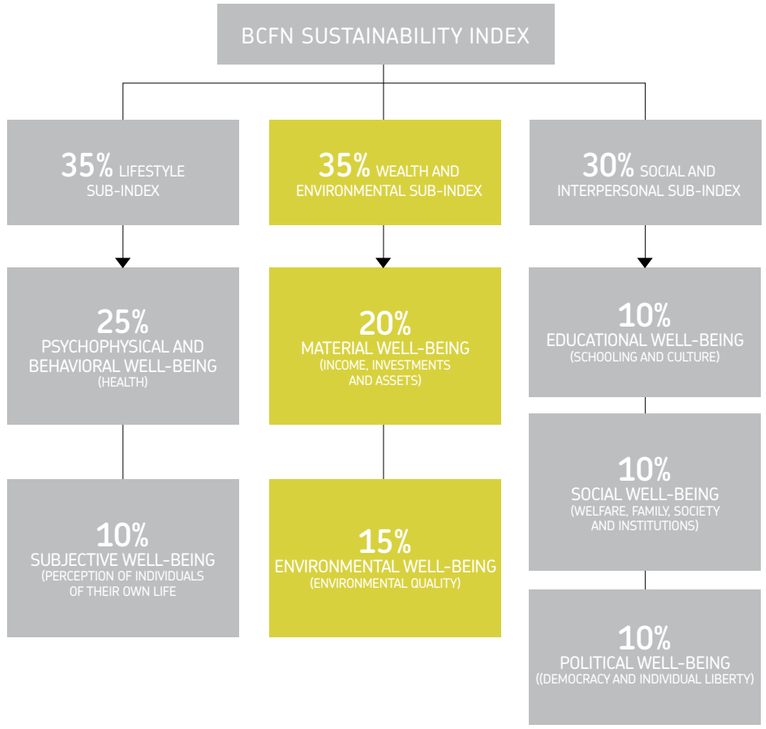
Source: The European House-Ambrosetti, 2011.

5.2 OTHER COMPONENTS OF THE BCFN SUSTAINABILITY INDEX

5.2.1 Wealth and Environmental Sub-index

The *Wealth and Environmental Sub-index* is the second sub-index considered for the construction of the BCFN Sustainability Index of Well-being. This sub-index refers to two particular dimensions of the welfare of individuals: the first relates to the sphere of wealth and available income (called "material well-being"); the second is related to the quality

Figure 5.15. The Wealth and Environmental Sub-index within the methodological system of the two dimensions that comprise it



Source: The European House-Ambrosetti, 2011.

of the environment and the ecological impact and environmental sustainability of the socio-economic model adopted ("environmental well-being").
The analysis of the Wealth and Environmental Sub-index took into consideration the performance of the nations with regard to the 6 KPIs, according to the most recent data available from the statistical sources used. Taken into consideration were two performance indicators for the dimension of "material well-being" and four indicators for the measurement of "environmental well-being."

5.2.1.1 Material well-being

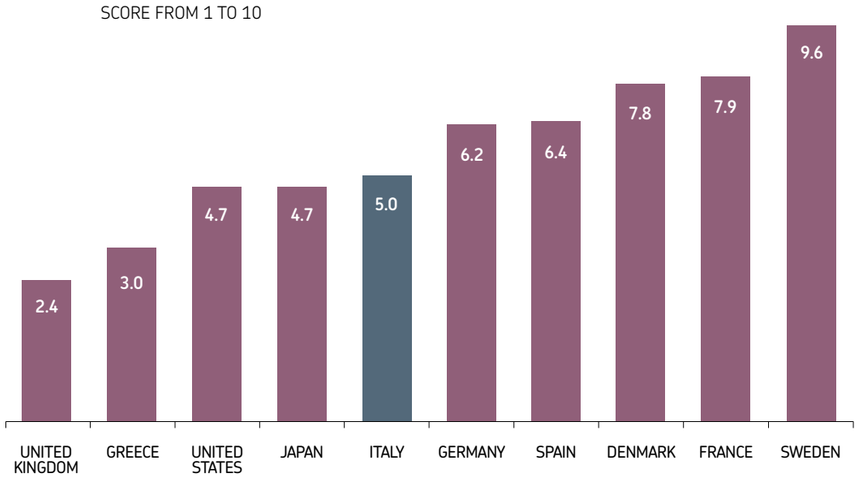
"Material well-being" is the first of the two dimensions that comprise the *Wealth and Environmental Sub-index*. The indicators chosen, and the weights used for measuring the weight, in view of the information that emerged during in-depth meetings with experts, are as follows:

- Variation in the median real available income, measured over the last five years, in Euros and parity of purchasing power – Relative weight: 40%;
- Variation in gross fixed capital formation (GFCF) *per capita*, measured as the total amount of investments in the nation compared to the population – Relative weight: 60%.

THE VARIATION IN THE MEDIAN REAL AVAILABLE INCOME IS AN INDICATOR OF ECONOMIC GROWTH/ EXPECTATIONS ABOUT THE FUTURE HAVING AN IMPACT ON FUTURE MATERIAL WELL-BEING

The variation in the median real available income is an indicator of economic growth/expectations about the future having an impact on future material well-being, while the gross fixed capital formation is an indicator of capacity for future economic growth.
The assignment of a score (from 1 to 10) to each country for each of the 2 KPIs above, and the weighting of the results obtained with the weights indicated above, has resulted in an intermediate summary index relating to the dimension of "material well-being." The ranking thus obtained is shown in the figure below.
In the final classification and summary, Sweden ranks first, followed by France, Denmark, Spain and Germany.
Italy came in at a level similar to that of Japan and the United States, while Greece and United Kingdom are positioned in the penultimate and the last place.

Figure 5.16. Ranking relative to "material well-being"



Source: The European House-Ambrosetti, 2011.

5.2.1.2 Environmental well-being

The second dimension of the *Wealth and Environmental Sub-index* is the one relating to "environmental well-being." This component was included to assess the environmental sustainability of the socio-economic model of reference.
The indicators taken into account, and the weights used for the measurement of "environmental well-being" with respect to the information that emerged during in-depth meetings with experts, are as follows:

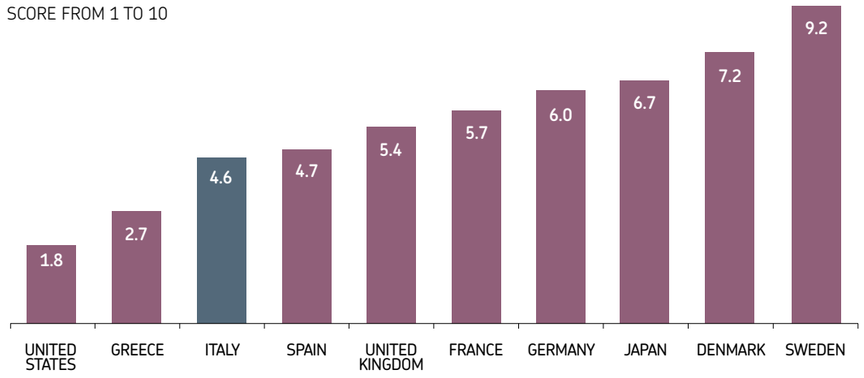
- Adjusted Net Saving, i.e., the net rate of savings, a sustainability indicator calculated by the World Bank that measures the real savings of an economy, also taking into account negative externalities deriving from the consumption of natural resources and pollution – Relative weight: 30%;
- Contribution of renewable sources to supply national energy, measured as a percentage of the total primary energy supply – Relative weight: 25%;
- Water Footprint *per capita*, i.e., the amount of water absorbed to support the national socio-economic model (production of goods and services and personal consumption), measured in cubic meters per year (virtual) – Relative weight: 25%;
- CO_2 emissions deriving from the use of fossil fuels, measured as kg per person – Relative weight: 20%.

These KPIs have been included in the analysis because they represent indicators of the environmental sustainability of the economic development model adopted.
The assignment of a score (from 1 to 10) to each country for each of the four KPIs analyzed, and the consideration of the results obtained with the weights above, have made it possible to calculate an intermediate summary index relating to the dimension of "environmental well-being." The ranking thus obtained is show in the figure below.
As can be seen in the chart above, Sweden is the country with the highest environmental sustainability of the socio-economic model of reference of the countries considered.

SWEDEN IS THE COUNTRY WITH THE HIGHEST ENVIRONMENTAL SUSTAINABILITY OF THE COUNTRIES CONSIDERED

Denmark is in second place, once again highlighting the primacy of the Scandinavian model of development as compared to that of continental Europe and the U.S.
Italy ranks in third to the last place and suffers from a low utilization of renewable sources for energy production and from a high Water Footprint indicator.
The model that results as the least environmentally sustainable for the future seems to be that of the U.S., with a very low score of 1.8.

Figure 5.17. Ranking relative to "environmental well-being"

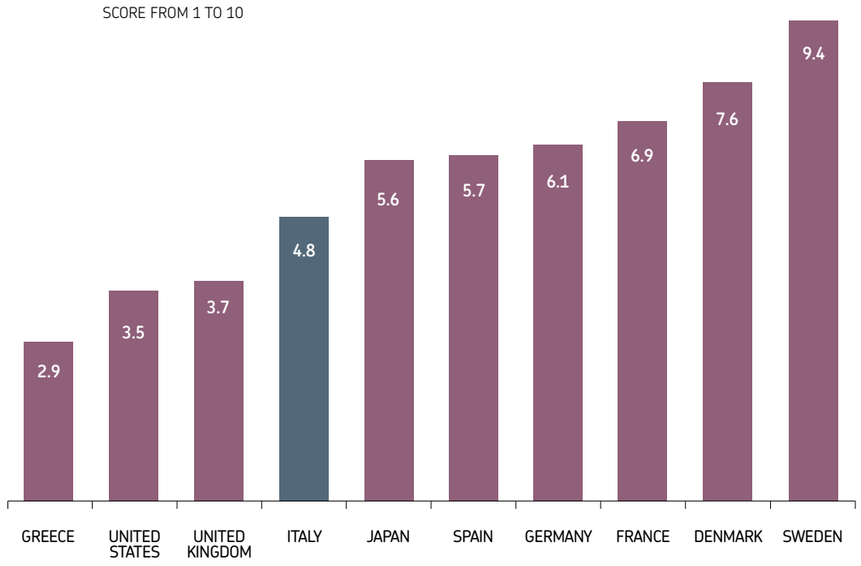


Source: The European House-Ambrosetti, 2011.

5.2.1.3 The result of the summary of the Wealth and Environmental Sub-index

"Material well-being" and "environmental well-being" are the two dimensions that comprise the *Wealth and Environmental Sub-index*, which is obtained through the aggregation of the scores achieved by each nation in the 6 KPIs selected.
The ranking is led by Sweden (9.4 points), followed by Denmark, confirming, once again, the efficacy of the Scandinavian model of development with a view toward future sustainability. France, Germany, Spain and Japan follow. Italy ranks seventh, with a score of 4.8, behind the countries of continental Europe.
Ranking behind Italy are the United Kingdom and the United States (strongly penalized by the score with reference to "environmental well-being"). Greece closes the ranking, in last place.

Figure 5.18. Ranking relative to the Wealth and Environmental Sub-index

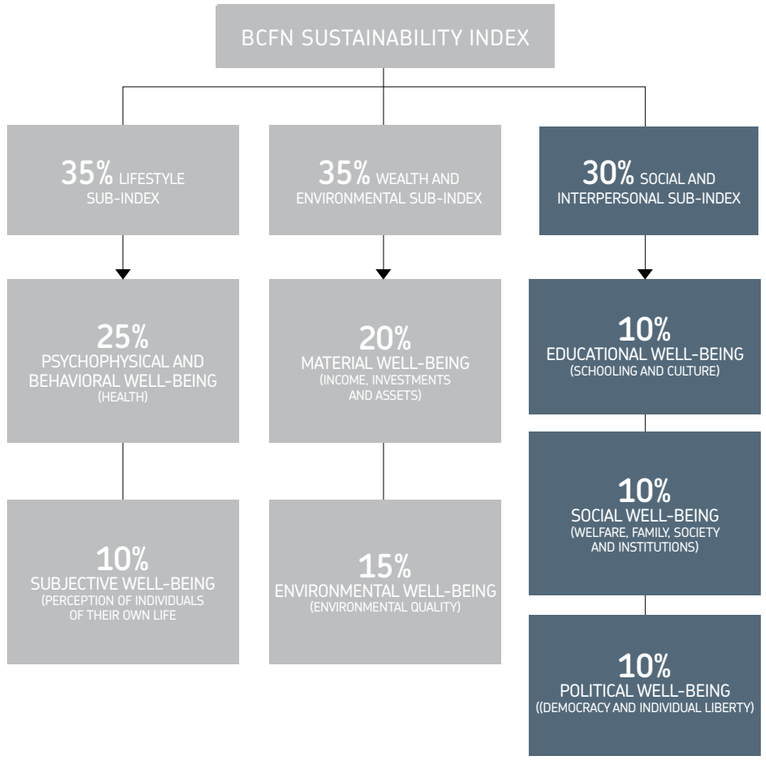


Source: The European House-Ambrosetti, 2011.

5.2.2 Social and Interpersonal Sub-index

The *Social and Interpersonal Sub-index* is the third sub-index considered for the construction of the BCFN Sustainability Index. This indicator is derived from the integration of three dimensions of well-being of individuals: one relates to the sphere of welfare, family, society and institutions (called "social well-being") and the other relates to the sphere of democracy and individual liberty (called "political well-being").
The analysis relating to the *Social and Interpersonal Sub-index* is based on 9 KPIs. Specifically considered were: 2 KPIs for the dimension of "educational well-being," 5 KPIs for measuring "social well-being" and 2 KPIs for measuring "political well-being."

Figure 5.19. The Social and Interpersonal Sub-index within the methodological system used with the findings of the three dimensions that comprise it



Source: The European House-Ambrosetti, 2011.

5.2.2.1 Educational well-being

"Educational well-being" is the first of the three dimensions that comprise the *Social and Interpersonal Sub-index*. As mentioned before, educational well-being refers to the dimension of schooling and cultural well-being, according to the hypothesis that these aspects represent two fundamental enabling factors for the happiness of people.
The 2 KPIs taken into consideration for making the summary indicator relating to educational well-being, and the weights used for the calculation, are the following:
- Variation of enrollment in the tertiary education system – Relative weight: 60%;
- Rate of participation in activities of permanent updating (Lifelong Learning) – Relative weight: 40%.

Given that culture and education are the cornerstones for the happiness and well-being of individuals, with a view toward the sustainability of this well-being, the analysis of variations in enrollments in the tertiary education system is an indicator of a country's ability to preserve or maintain this component that also affects future well-being.
For individuals who have already completed their studies, however, we have inves-

CULTURE AND EDUCATION ARE THE CORNERSTONES FOR THE HAPPINESS AND WELL-BEING OF INDIVIDUALS

tigated the rate of participation in activities of permanent updating, also known as Lifelong Learning.

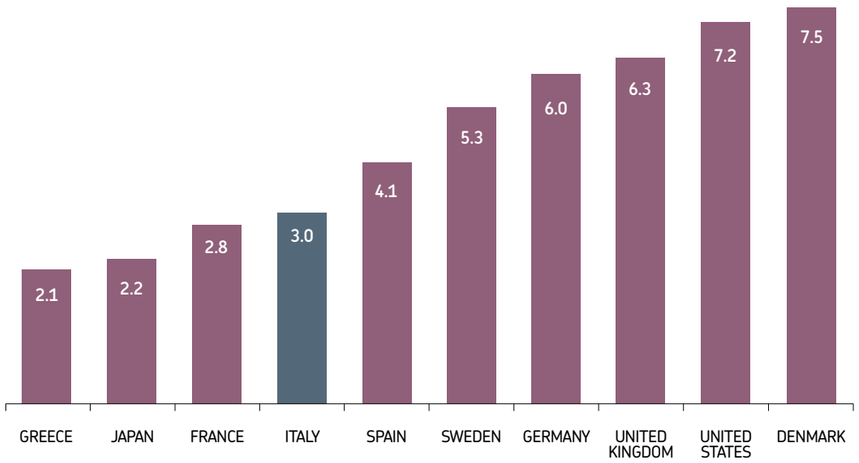
THE LOW SCORE OBTAINED BY ITALY IS DUE TO AN UNREMARKABLE PERFORMANCE IN BOTH THE INDICATORS USED TO MEASURE THE FUTURE SUSTAINABILITY OF THE WELL-BEING GENERATED BY EDUCATION AND TRAINING

The assignment of a score (from 1 to 10) to each country for the two KPIs, based on the weights assigned, obtained a summary intermediate index relative to the dimension of "educational well-being," as shown in the figure below.

As can be seen in the graph of the educational well-being index for the 10 countries under consideration, Italy ranks in the fourth to the last place with a rather low rating. First place is held by Denmark, followed by the United States and the United Kingdom.

The low score obtained by Italy is due to an unremarkable performance in both the indicators used to measure the future sustainability of the well-being generated by education and training.

Figure 5.20. Ranking relative to "educational well-being"



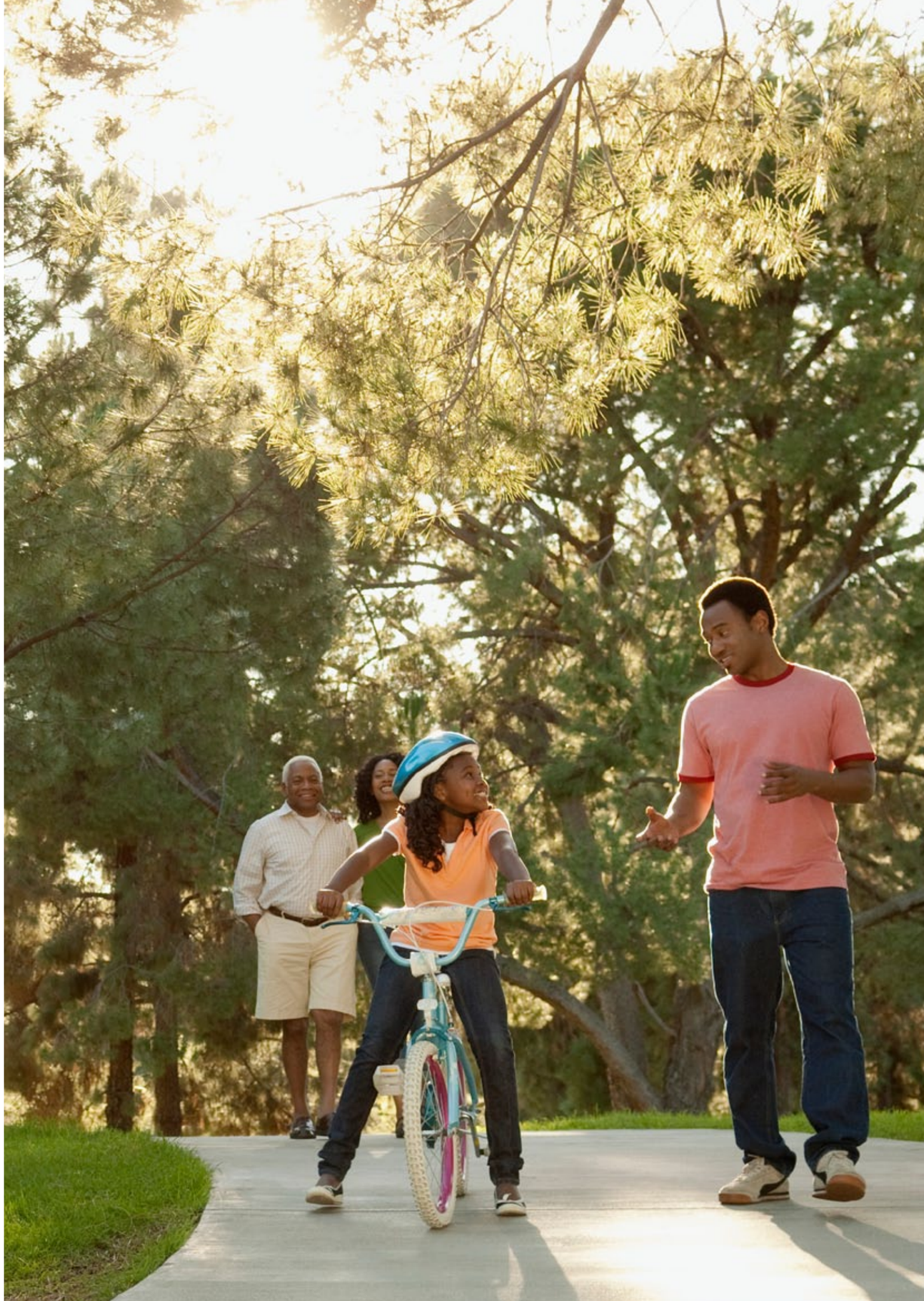
Source: The European House-Ambrosetti, 2011.

5.2.2.2 Social well-being

"Social well-being" is the second dimension that makes up the *Social and Interpersonal Sub-index*. Social well-being refers to the relational component of the individual with society; what is called "social well-being" is, therefore, generated by the attitude of individuals to build profitable relationships of sharing and mutual support with the society in which they themselves live (welfare, family, etc.).

Such well-being partly stems from parameters external to the individual, related to the type of social context (for example, such as the ability to do a job drawing enough income for self-sufficiency and self-fulfillment or trust toward the other members of society or toward the institutions that govern its operation) but also from parameters which are under the control of the individual, such as the recognized value given to the institution of the family, the ability to actively contribute to society, etc.

Based on this consideration, the indicators taken into consideration, and the weights used



for the measurement of social well-being, are the following:

- Percentage of people at risk of poverty, measured as income less than or equal to 60% of the median *per capita* income including social transfers8 – Relative weight: 25%;
- Elderly dependency ratio, measured as a proportion of the population over 65 years of age compared to the population of working age (aged 15-64) – Relative weight: 25%;
- Variation of the National Institution Index, which measures the change in the confidence in the institutions – Relative weight: 10%;
- Rate of inequality in income distribution – Relative weight: 20%;
- Difference between the rate of youth unemployment and the overall unemployment rate – Relative weight: 20%.

PEOPLE AT RISK OF POVERTY AND THE RATE OF INEQUALITY IN INCOME DISTRIBUTION ARE TWO IMPORTANT KPIS FOR MEASURING THE SUSTAINABILITY OF SOCIAL WELL-BEING

People at risk of poverty and the rate of inequality in income distribution are two important KPIs for measuring the sustainability of social well-being. In fact, a high proportion of individuals at risk of poverty and high inequality in income distribution are two factors that undermine the foundation of social stability and, thus, the well-being that comes from building profitable relationships of sharing and mutual support of individuals in a society in which they themselves live.

THE ELDERLY DEPENDENCY RATIO IS AN INDICATOR THAT SHOWS THE SUSTAINABILITY (OR VULNERABILITY) OF THE WELFARE SYSTEM

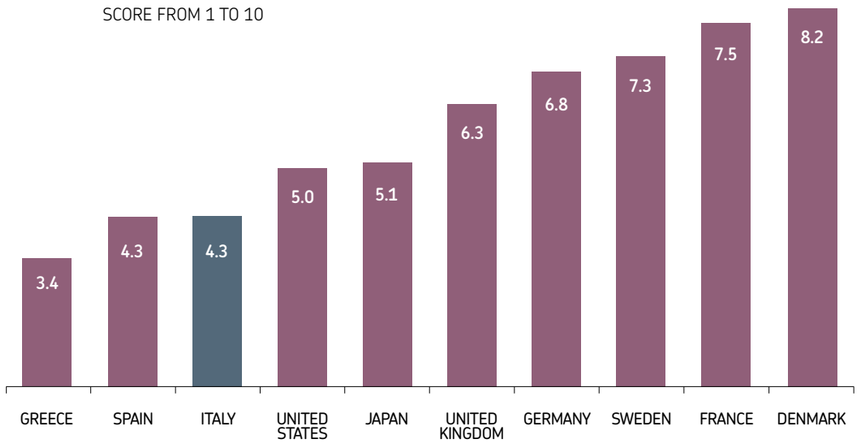
The elderly dependency ratio is an indicator that shows the sustainability (or vulnerability) of the welfare system adopted by each nation, while the variation in the National Institution Index is an indicator that measures the change in the levels of trust in the institutions.

Finally, always with a view toward the sustainability of the well-being generated by the social sphere, the difference between the rate of youth unemployment and the overall unemployment rate is an indicator of the level of social discrimination against young people.

The assignment of a score (from 1 to 10) to each nation for the 5 KPIs, based on the weights assigned, obtains a summary intermediate index relative to the dimension of "social well-being," which is shown in the figure below.

As can be seen in the graph, Italy, with a combined score of 4.3, is the third to the last country among the ten under consideration, followed only by Spain and Greece. Denmark, instead, is the first country in this index, particularly on the basis of low rates of poverty and inequality in income distribution. Italy is mainly penalized by higher juvenile discrimination regarding work than in other countries and the high dependency ratio of its elderly people.

Figure 5.21. Ranking relative to "social well-being"



Source: The European House-Ambrosetti, 2011.

5.2.2.3 Political well-being

Finally, the third dimension of the *Social and Interpersonal Sub-index* is that of "political well-being." This dimension refers to the well-being generated by the interaction between the individual and the political institutions and the political-institutional order of the nations.

Two indicators have been selected for this area, made up of international institutions of reference on the basis of a series of parameters that were then combined. In particular, these are:

- Variation of the *Economist Intelligence Unit's Index of Democracy*[9] – Relative weight: 50%;
- Variation of the *Corruption Perceptions Index*[10] – Relative weight: 50%.

THE VARIATION OF THE ECONOMIST INTELLIGENCE UNIT INDEX OF DEMOCRACY IS A KPI THAT INDICATES HOW THE QUALITY OF THE DEMOCRATIC SYSTEM IS EVOLVING

The variation of the Economist Intelligence Unit Index of Democracy is a KPI that indicates how the quality of the democratic system is evolving and, thus, does not measure the level reached but rather the trends that are taking place. If the indicator improves there is an improvement of the sustainability of well-being relating to the political sphere; vice versa, if the indicator worsens, it indicates that well-being in the political sphere is declining.

The Corruption Perception Index, calculated by Transparency International, is defined as the abuse of power or activity of corruption resulting in private gain.

As before, if the indicator improves there is an improvement regarding corruption in the public sector, and conversely, if the indicator worsens, it means that there is an increase of corruption in the public sector.

The assignment of a score (from 1 to 10) to each nation for the 2 KPIs, based on the given weights, obtained a summary intermediate index relating to the dimension of "political well-being," which is shown in the following figure.

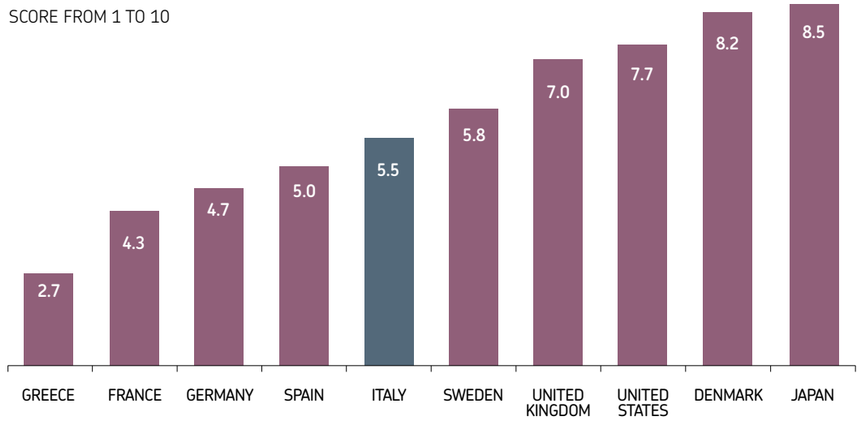
Since political well-being was assessed solely on the basis of two indicators (each of which is, in turn, an expression of a process of aggregation of a number of specific indicators), with an identical weight for the same two KPIs, the intermediate summary index relating to this dimension of well-being essentially corresponds to the average of the two KPIs.

JAPAN IS THE COUNTRY WHERE THE SUSTAINABILITY OF WELL-BEING REGARDING THE POLITICAL SPHERE IS THE HIGHEST OF ALL THE COUNTRIES CONSIDERED

Japan is the country where the sustainability of well-being regarding the political sphere is the highest of all the countries considered. It is followed by Denmark, the United States and the United Kingdom.

Italy ranks in the sixth place, in front of the other countries of continental Europe and the Mediterranean. In the last place is Greece, with an indicator that is almost 70% less than Japan's.

Figure 5.22. Ranking relative to "political well-being"



Source: The European House-Ambrosetti, 2011.

5.2.2.4 The result of the summary of the Social and Interpersonal Sub-index

THE SOCIO-ECONOMIC MODEL OF THE SCANDINAVIAN AND ANGLO-SAXON COUNTRIES SEEMS TO BE THE ONE THAT INTEGRATES THE SOCIAL ASPECTS OF WELFARE, DEMOCRACY AND EDUCATION IN THE MOST BALANCED AND SUSTAINABLE WAY

MEDITERRANEAN COUNTRIES SUCH AS GREECE, ITALY AND SPAIN ARE IN DIFFICULTY IN RELATION TO THESE ASPECTS OF WELL-BEING

After calculating the summary indicator for "educational well-being," for "social well-being" and for "political well-being," it is possible to calculate the *Social and Interpersonal Sub-index*, shown in the figure below.
As can be seen in the chart above, Denmark once again ranks in first place (as in the *Lifestyle Sub-index*) with a score of 8.0, followed by the two Anglo-Saxon countries: the United States, with a score of 6.6, and the UK, with a score of 6.5.
In fourth place is another Scandinavian country, Sweden, with 6.1. Germany and Japan rank fifth and sixth. France ranks in seventh place, with a score of less than 5. Spain, Italy and Greece close the ranking of the Social and Interpersonal Sub-index, taking the last three places.
Overall, the findings that emerged show how the economic and social model of the Scandinavian and Anglo-Saxon countries seems to be the one that integrates the dimensions regarding education, welfare, the sphere of society, democracy and individual liberty in a way that is the most balanced and sustainable.
In contrast, Mediterranean countries such as Greece, Italy and Spain are in difficulty in relation to these aspects of well-being.

Figure 5.23. Ranking relative to the Social and Interpersonal Sub-index

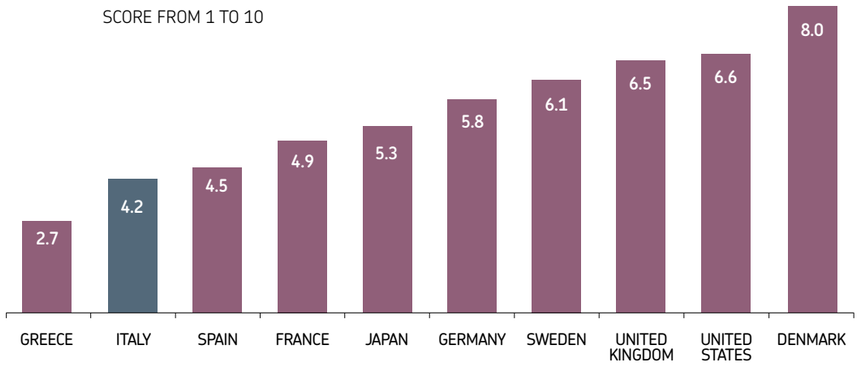
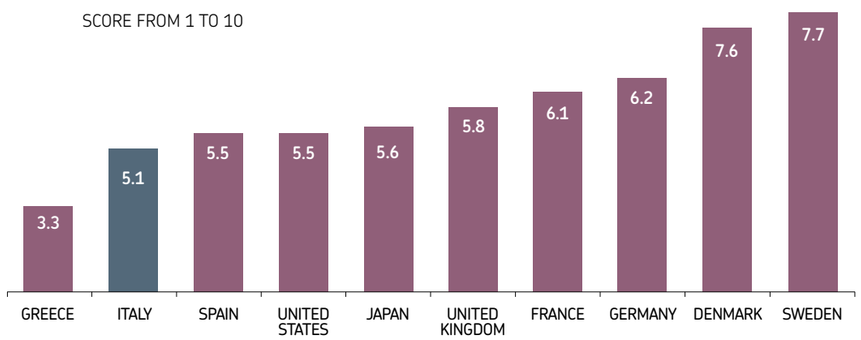


Figure 5.24. Ranking the BCFN Sustainability Index of Well-being



Source: The European House-Ambrosetti, 2011.

5.3 THE BCFN SUSTAINABILITY INDEX OF WELL-BEING: MAIN FINDINGS

As mentioned before, the BCFN Sustainability Index of Well-being is a tool of comparative analysis developed for making a comparison on an international basis of the level of sustainability of the well-being (broadly speaking) that the inhabitants of each nation "enjoy."
By combining the scores calculated for the 10 countries in the three sub-indices through a weighted average of the countries listed above, the BCFN Sustainability Index of Well-being is obtained; it is represented in Figure 5.24.
The ranking of the BCFN Sustainability Index, which yields the final result of the comparison between the ten selected countries with regard to the seven dimensions of "well-being," is led by Sweden, with 7.7 points, closely followed by another Scandinavian country, Denmark, with a total of 7.6 points. Then come France and Germany, with quite similar scores of just slightly over 6.1 points. Italy ranks second to the last, with 5.1 points, even though the absolute level of distance from the countries that occupy the third and fourth positions consists of about 1 point. Greece is in the last place with 3.3 points, a substantial distance from the other countries used for the comparison.

THE BCFN SUSTAINABILITY INDEX IS LED BY SWEDEN

ITALY RANKS SECOND TO THE LAST, WITH 5.1 POINTS

With reference to the analysis conducted for the calculation of the BCFN Current Well-being Index and that of the sustainability of well-being, what seems to emerge as significant from this analysis is not so much the individuation of the relative position of each country in the final ranking. Rather, this index also takes into account historical, social and economic characteristics of each nation, since it represents the existence of a more or less balanced situation between the different dimensions of sustainability and well-being identified and analyzed and, therefore, offers the possibility of identifying specific areas for improvement in the different fields in order to increase the overall well-being of people.

6. CONCLUSIONS

6. CONCLUSIONS

THE INCLUSION OF TWO INDICATORS WITHIN THE 2011 BCFN INDEX IS THE MAIN IMPROVEMENT WITH RESPECT TO THE 2010 INDEX

This study is the continuation of the work conducted in 2010, which aimed to lay the foundation for building a multidimensional indicator of the well-being of individuals.
The two current and sustainable well-being domains included in the 2011 BCFN Index represent a major improvement in comparison to the 2010 Index.
This Index has been further fine-tuned by including additional elements and factors that are able to capture non-market activities and subjective well-being indicators.
It is important to emphasize that these indicators are not so much designed to obtain a ranking of the countries included in the model, but rather, to analyze the balance of the different dimensions of well-being and its sustainability and then to indicate possible policy actions to improve both.
In this connection, there is a crucial need to guide the policies of the countries and the macro regions of the world toward sustainability in a broader dimension. And this is only possible by using indicators that are able to capture relevant information to measure events through a multidimensional approach.
Thus, this paper is the continuation of our work, based on our specific perspective and expertise in the fields of food, nutrition, research and knowledge. We will continue to involve professionals, experts and talented researchers and will accept any contributions. In particular, we want to emphasize the relevance of the themes related to nutrition and its impact on social well-being, health and the environment.

NOTES

CHAPTER 1

1. OECD, *Factbook 2010*.

CHAPTER 2

1. The GDP is the sum of the value of the market for all goods and services produced in a country over a certain period of time, generally one year. The *per capita* GDP allows for comparisons over time in different countries, regions or in other sub-national areas. Generally, it is the first indicator used to diagnose the economic and social situation and for comparative analyses of different contexts. Its growth rate is the main indicator to evaluate the performance of a country or a region over time.

CHAPTER 4

1. BCFN, *Food For Culture*, 2009.

2. Kokkinos, A., *Eating Quickly Is Associated with Overeating*, in "Journal of Clinical Endocrinology & Metabolism" (JCEM), 2009.

3. The International Agency for Research on Cancer has shown that overweight and obesity increase the risk of colorectal cancer.

4. OECD, *Factbook 2010*.

5. Like the previous indicator, this one, too, should have used the mean rather than the average value. However, the data for all the countries considered is not available.

6. An international measure to calculate the overall weight of the goods transported by the number of kilometers travelled on the national road system.

7. Because there is no reliable data for all the countries investigated, the average number of books read or sold has not been included among the KPIs in this area.

8. The ISCED standard was created by UNESCO in the early '70s as a statistical instrument to evaluate education, both on a domestic and on an international level. Approved in Geneva in 1975 during the International Conference on Education, the ISCED was then signed by the UNESCO general conference following the adoption of the recommendation on the standardization of statistics in the field of education (Paris, 1978). The experience and the use of this instrument over time have shown that the ISCED criteria need to be reviewed in order to more easily carry out comparative analyses of the different educational levels in the world and to represent the changes in the global educational systems in a more realistic way. In November 1997, a new standard called "ISCED 97" was adopted to cover two variables: the level and the field of education. Level 5 refers to the first stage of higher education, Level 6 to the higher education curricula for obtaining a PhD (Research degree in Italy).

9. A third indicator, the *Freedom in the World Index* – published by Freedom House every year since 1972, which evaluates the level of civil liberties and political rights – has been excluded from this analysis. In fact, it is related to 193 countries in the world, including third world countries and developing countries, where civil rights and political rights are less protected than in industrialized countries. For this reason, the 10 countries included in our analysis have more or less the same score in the *Freedom in the World Index*, even though there are some differences.

CHAPTER 5

1. For example infarction, hypertension, thrombosis, aneurism, stroke, etc.

2. 2007.

3. Most cases (85-95%) suffer from type 2 diabetes mellitus or non insulin-dependent diabetes.

4. Doll, R. and R. Peto, *The Causes of Cancer*, Oxford Medical Publications, Oxford, UK, 1981.

5. Ness, A.R. and J.W. Powles, *Fruit and Vegetables, and Cardiovascular Disease: A Review*, in "International Journal of Epidemiology," 26, pp. 1-13, 1997.

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9. The *Economist Intelligence Unit Index of Democracy* measures the quality of democracy every year in 167 countries in the world. It is built on the basis of five elements: the election process and pluralism, civil liberties, governance, political and cultural participation.

10. The *Corruption Perception Index* has been calculated every year since 1995 by the Transparency International Agency, which ranks different countries on the basis of the perception by their citizens of the corruption level in the government and in the political system. Corruption is the abuse of power to obtain a private profit.

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