

The Multidimensional Concept of Well-Being in the Italian Regions: a Measurement Proposal

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Abstract

This paper aims at developing the concept of well-being in its multidimensional form, taking into consideration not only the economic, but also the social and environmental aspects that characterize our society. Over the years, GDP per capita was used to determine the level of well-being. Recently, however, the limit of this measurement has become more and more evident, so alternative methods have been developed. Why then do we measure well-being? Why do we believe it is necessary to search for a measurement of well-being that goes beyond the mere economic-income related aspect? This paper provides an overview of the main topics related to these issues. In this context, a measure of well-being in the Italian Regions is proposed.

Keywords: Well-being, multidimensional index, Italian regions, standardization, GDP

JEL classification: I32, C14, O15

Introduction

The assessment and measurement of the level of well-being in a society have been on the radar of researchers, economists, international organisations and institutions for many years. National and international studies to identify clear and universally applicable paradigms abound in

the literature, contributions to which are not only provided by economists, but also by sociologists, ecologists and psychologists.

For decades, the commonly held opinion was that this kind of research was useful for third world economies, now known as developing economies, which did not have the levels of income and consumption that guaranteed a sufficient level of well-being. It was believed that the Western world, with its long-established high standards of living and easy access to a wide range of services in all aspects of life (health, education, social security, etc.), had no need for this kind of research. This is the reason why researchers and economists have focused on strictly economic dimensions, such as production, consumption, income per capita. Thus, the increase in well-being and social progress was strictly linked to the growth in GDP per capita (Kuznets, 1934). However, the political and economic events of the Seventies and Eighties have called this paradigm into question, highlighting the increasing inequality in the access to both resources and services even in high-income countries (Cobb and Daly 1989). An increase in GDP would result in an increase in the happiness of individuals only in the short term, while in the long term happiness would start to decrease (Easterlin, 1974; Cheli, 2013).

At the same time, there has been increasing awareness of the consequences of overexploiting natural resources and of the environmental damage caused by pollution. Consequently, sustainability issues have been raised alongside equity issues (Lara, 2010; Lastrucci e Pinilla, 2014; Costanza et al., 2009).

All this played a part in discrediting the usefulness of GDP per capita as a measure of well-being and provided the basis for a different approach to research, which would look beyond the mere monetary value and evaluate different aspects of the quality of life (Stiglitz et al., 2010).

Well-being is therefore linked to equity and sustainability (Castoldi 2008). It is possible to conclude that this term is linked to several aspects that are also different from each other. These elements can be seen as fundamental dimensions and as goals that are to be achieved within a nation, therefore closely interrelated and mutually influencing each other. By combining the above considerations, one can say that the progress of a society is evident when there is an improvement of “fair and sustainable well-being” within it (Hall et al., 2010). That is, progress is made when well-being improves over time. It is therefore necessary to

evaluate the well-being of a society to consider the possible development paths to create sustainability (Ivaldi et al., 2016a).

Defining and narrowing the concept of well-being is not a simple and easy task because of the several aspects linked to it. Indeed, the term has increasingly taken on a multidimensional form over the years. Measuring well-being in its multidimensional form can be difficult and complicated, since in these calculations the different aspects of the concept must be taken into account. Nonetheless, estimating that value can be useful for those who have to make political and economic decisions and need a wider range of information to be analysed (Chiappero Martinetti and von Jacobi, 2012). The use of indicators can facilitate political decision-making because, by aggregating aspects with different meaning, size, and unit of measurement, they allow the estimation of well-being in its multidimensional form (Dasgupta and Weale, 1992; Dasgupta, 2000, Grasso, 2002).

Most scholars identify two ways to use these indicators (Chiappero Martinetti and von Jacobi, 2012; Chiappero Martinetti et. Al. 2007; Grasso, 2002): by aggregating all variables to consider the level of well-being through a composite index, or by considering the variables individually while maintaining a set or dashboard of indicators. There is no unambiguous and shared view on how to organize the indicators, because both methods have positive and negative aspects. The shift from one-dimensional indices to multidimensional indices has created several problems, such as the number and type of variables to be considered, the availability of statistical sources, the experimentation of approaches that allow measurements by using combined quantitative and qualitative indicators and also the assignment of weights to values when deciding to aggregate the data (Chiappero Martinetti and Accolla, 2011).

These indicators summarize in a single value a multiplicity of factors that relate to different contexts, thus providing a clearer and broader view of the subject of the analysis and allowing easy interpretation to make policy decisions; facilitating comparison and analysis between countries; reducing the set of indicators; allowing to evaluate the progress of countries on certain issues; providing greater communication with the general public, strong in their communicative capacity (Nardo et al., 2005).

Indicators are widely used by international institutes to measure phenomena of an economic, social and environmental nature, but their use implies a number of issues that can not be ignored. Some issues

regard, for example, the availability of data, the choice of the most representative indicators, and the need to define the ways in which values can become comparable and aggregate (Mazziotta and Pareto, 2012). If the construction process is not transparent and statistical principles are not defined, indicators may be used improperly to support, for instance, the desired policies. In addition, the indicators and weights to be applied must be clear. Aggregation can lead to loss of information by increasing the difficulty of identifying appropriate corrective actions. If some dimensions are not considered because they are difficult to measure, inadequate policies may be adopted (Ivaldi et al 2016b).

The construction of a multidimensional index for the measurement of well-being in Italy

The Equitable and Sustainable Well-Being (BES) is a set of indicators developed in 2010 as a joint initiative by CNEL (National Council for Economy and Work) and ISTAT (National Institute of Statistics). The aim was to create a common framework for measuring the progress and well-being of Italian society on the basis of a multidimensional approach that combined GDP with other indicators such as economic, social and environmental sustainability (Cnel-Istat 2012).

The Equitable and Sustainable Well-Being is based on the analysis of a number of indicators, disaggregated both at a geographical and social group level in order to determine the existence and distribution of significant inequalities. Most of the selected indicators can be disaggregated up to a regional level. The BES takes into account both objective indicators and subjective ones, the latter gathering the perceptions and opinions of citizens. These allow to collect complementary information on aspects and events that shape well-being and that could not otherwise be obtained. However, some particularly critical indicators, such as the indicator on average wealth per capita, have been selected to close the information gap, despite not being available at a regional level (ISTAT 2015).

Hereinafter are listed the 12 dimensions, for a total of 128 indicators selected by the CNEL-ISTAT Committee (Table 1)

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Table 1.

Dimensions
used in the index

Dimension	Definition
HEALTH	An essential dimension of individual well-being that affects all aspects of people's lives and in all its different phases, modifying living conditions and influencing the behaviours, social relationships, opportunities and prospects of individuals and often their own families.
EDUCATION AND TRAINING	Training paths play a key role in providing individuals with the knowledge, skills and expertise they need to actively participate in the life of a society and the country's economy. In addition, higher levels of expertise can have positive effects on people's well-being, health, social participation and personal satisfaction.
WORK AND WORK-LIFE BALANCE	Work is the basic activity of material support and the realization of individual aspirations. Full and good employment is one of the main parameters of economic stability, social cohesion and quality of life. The aim of this domain is to measure both labour market participation and quality of work, qualifying the different segments of employment in relation to job stability, income, skills, work-life balance, occupational safety, employee participation in the life of the enterprise / body / administration, subjective satisfaction towards work.
ECONOMIC WELL-BEING	It is the means through which an individual manages to have and sustain a certain standard of living. An analysis of economic well-being refers to income, wealth and consumption, but also to some dimensions of material well-being that allow to acquire these tools (housing conditions, ownership of durable goods, etc.).
SOCIAL RELATIONSHIPS	Relationships with others and the social network in which they are placed not only affect the psycho-physical well-being of the individual but represent a form of "investment" that can strengthen the effects of human and social capital.
POLITICS AND INSTITUTIONS	The quality of the political decision-making process is essential for trust in the institutions and for the good functioning of democracy. Openness and transparency improve public services and reduce the risks of fraud, corruption and mismanagement of public funds. A cohesive society exists only if citizens have confidence

Continue of
Table 1.

Dimensions
used in the index

		in their institutions and public administration. The opportunity to participate in decision-making is a key element in quality of life.
SECURITY		Being a victim of a crime can result in an economic loss, physical damage, and / or psychological damage due to the trauma. The most important impact of crime on people's well-being is the sense of vulnerability that it determines. The fear of being a victim of criminal acts can greatly affect personal freedoms, quality of life and the development of the territories.
SUBJECTIVE WELL-BEING		This domain is meant to measure the perceived well-being of people by collecting subjective opinions about their own lives. This subjective information provides additional - and at the same time somewhat inconsistent - information to that provided by objective data.
LANDSCAPE AND CULTURAL HERITAGE		The landscape, the richness and the quality of the artistic, archaeological and architectural heritage have a special significance in the Italian case. The right to beauty and the protection of the landscape are not "just another" activity for the Republic, but one of its peculiar, public and inalienable missions. Article 9 of the Constitution states: "The Republic promotes the development of culture and scientific and technical research. It protects the landscape and the historical and artistic heritage of the nation."
ENVIRONMENT		Considered as our natural capital that influences human well-being in multiple domains either directly through resources or indirectly through the services. It strongly affects the well-being of citizens, the resources that feed production and the economy, the pleasure that contact with nature gives.
RESEARCH AND INNOVATION		These make a fundamental contribution to sustainable and durable development, all the more important in an economy such as the Italian one, which shows a heavy delay in a context that looks forward to the challenges of economic, demographic and social change.
QUALITY OF SERVICES		Well-being analysis requires an assessment of the infrastructure and services being re-evaluated in the light of their effectiveness, degree of use, accessibility measures and the quality of the service generated.

Source: 2015 BES Report

In turn these dimensions are determined by sub-dimensions called “Indicators” that allow to define, outline, and quantify the measurement. There are 130 indicators within the BES. Both objective and subjective indicators of well-being are used. Their combination allows to delineate a complete picture of aspects related to the quality of life of individuals. In particular, it would be difficult to identify in other ways the perceptions and evaluations of people on certain aspects.

The BES Report, unlike the GDP, does not return a synthetic index, that is, the aggregation of dimensions, but leaves the data of the set available and accessible. However, while the report may be more complete for an in-depth analysis of individual dimensions, on the other hand, it can create excessive difficulty in understanding and analysing data. In this paper, 3 indicators at the regional Italian level have been selected for each of the 12 dimensions of the BES, which can be both objective and subjective, and significant for identifying the dimensions (Table 2). Most data refers to the year 2014, while in other cases information from previous years is used, as there is no further and up-to-date documentation available. The choice of scale is designed to analyse and understand the level of well-being within the national territory and possibly to understand the main issues.

Table 2.
Index
variables

Domain	Variable	Description of the variable	Measurement
Health	Life expectancy at birth	Life expectancy expresses the average number of years that a child born in a given calendar year can expect to live.	Average number of years
	Healthy life expectancy at birth	It expresses the average number of years that a child born in a given calendar year can expect to live in good health, using the prevalence of individuals who respond positively (“good” or “very good”) to the question of perceived health.	Average number of years

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Table 2.

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variables

	Physical Component Summary (Pcs)	The synthesis of points scored by each 14-year-old and older individual responding to the 12 questions of the Short Form Health Survey (SF12) allows to build a Physical Component Summary-Pcs.	Standardised average scores
Education and training	People with at least a High school certificate	Percentage of people aged 25-64 who have completed at least High School (no less than ISCED 3a, 3b or 3c) on the total of people aged 25-64.	Percentages
	People with at least a Academic degree	Percentage of people aged 30-34 who gained an Academic degree (ISCED 5 or 6) on the total of people aged 30-34.	Percentages
	Early drop-out from education and training system	Percentage of people aged 18-24 who have only gained a junior high school certificate and are not enrolled in a training program on the total number of people aged 18-24	Percentages
Work and work-life balance	Employment rate 20-64 years old	Percentage of people aged 20-64 in employment out of the total population of 20-64 year olds.	Percentages
	Non-attendance rate in employment	Percentage of unemployed people aged 15-74 + potential workers aged 15-74 who have not looked for work in the past 4 weeks but are available to work out of the total workforce aged 15-74.	Percentages

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Continue of Table 2. Index variables		Job satisfaction	Average satisfaction for the following aspects of the job (scale from 0 to 10): salary, number of work hours, type of schedule, workplace relationships, job stability, home-work distance, interest for the job.	Percentages
	Economic Well-being	Average disposable annual income adjusted per capita	Relationship between the adjusted disposable household income (i.e. inclusive of the value of services in kind provided by public and non-profit institutions) and the total number of residents (in euros).	Per capita value in euros
		Index of material deprivation	Percentage of people living in families with at least 4 out of 9 problems considered on the total resident population. The problems considered are: i) unable to bear unexpected expenses of 800 euros; ii) unable to afford one week of vacation a year away from home; iii) having arrears for mortgages, rent, bills or other debts such as, for example, instalments; iv) unable to afford an adequate meal every two days, i.e. with meat or fish proteins (or vegetarian equivalent); v) unable to adequately heat the home; unable to afford: vi) a washing machine; vii) a colour TV; viii) a telephone; ix) a car.	Percentages

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	Subjective assessment of economic difficulty	Share of people in households who answer the question "Taking into account all available income, how can your family get to the end of the month?" with the option "With great difficulty".	Percentages
Social Relations	People to count on	Percentage of people aged 14 and over who have relatives, friends or neighbours on whom to count on the total of people aged 14 and over.	Percentages
	Social participation	People aged 14 and over who have had at least one social participation activity over the last 12 months on the total number of people aged 14 and over. The activities considered are: participation in meetings of associations (cultural / recreational, ecological, civil rights, peace); participation in meetings of trade unions or professional groups; participation in political party meetings and / or volunteering for a party; payment of a monthly or regular fee for a club / sports club.	Percentages
	General trust	Percentage of people aged 14 and over who believe that most people are trustworthy out of the total of people aged 14 and over.	Percentages
	Politics and Institutions	Electoral participation Percentage of people who voted in the last elections of the European Parliament	Percentages

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Table 2.

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			out of the total of those entitled to vote.	
	Trust in local institutions		Average level of trust in regional, provincial and municipal government (on a scale from 0 to 10) expressed by people aged 14 and over.	Average value on a scale from 0 to 10
	Trust in other types of institutions		Average level of trust in law enforcement and firefighters (on a scale from 0 to 10) expressed by people aged 14 and over.	Average value on a scale from 0 to 10
Security	Rates of home burglary		Number of home burglaries on the total of households per 1,000.	Values per 1,000 households
	Rates of robberies		Number of robberies per 1,000 residents.	Values per 1,000 households
	Security perception when walking alone in the dark		Percentage of people aged 14 and over who feel safe walking alone in the dark in the area they live on the total of people aged 14 and over.	Percentages
Subjective Well-being	Satisfaction with one's own life		Percentage of people aged 14 and over who expressed a satisfaction score for their life between 8 and 10 on the total of people aged 14 and over.	Percentages
	Satisfaction for leisure time		Percentage of people aged 14 and over who declared to be very satisfied or fairly satisfied for their leisure time out of the total of people aged 14 and over.	Percentages
	Positive Assessment of Future Prospects		Percentage of people aged 14 and over who feel that their personal situation will improve over the next 5	Percentages

Continue of
Table 2.

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variables

			years out of the total of people aged 14 and over.	
Landscape and Cultural heritage	Consistency of the historic urban fabric		Number of inhabited buildings built before 1919 and in good or very good condition per 100 buildings built before 1919 and taken from the previous census	Number of buildings per 100 buildings built before 1919
		Disapproval for the landscape of the place of residency	Percentage of people declaring that the landscape of their place of residency is suffering from a marked deterioration out of the total of people aged 14 and over.	Value per 100 people aged 14 and over in the same area
		Concern over the deterioration of the landscape	Percentage of people that include the deterioration of the landscape caused by the excessive construction of buildings among the 5 most worrying environmental issues out of the total of people aged 14 and over.	Percentages
	Environment	Satisfaction with the environmental situation	Percentage of people aged 14 and over who are satisfied or very satisfied with the environmental situation (air, water, noise) in the area where they live out of the total of people aged 14 and over.	Percentages
		Energy from renewable sources	Percentage of electricity consumption covered by renewable sources out of the total gross domestic consumption.	Percentage values of gross domestic consumption
		Separate collection of urban waste	Percentage of urban waste separately collected on the total of municipal waste collected.	Percentages

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Continue of Table 2. Index variables	Research and Innovation	Amount of research	Percentage of spending in Research and Innovation in relation to GDP.	Percentages
		Inclination to patenting	Total number of patent applications submitted to the European Patent Office (Epo) per million inhabitants.	Values per million inhabitants
		Rate of product/service innovation of the national production system	Percentage of companies that have introduced product-service innovations over a three-year period out of the total of companies with at least 10 employees.	Values per 100 companies with at least 10 employees
	Quality of Services	Difficulty of access to some services	Percentage of households reporting a great deal of difficulty reaching three or more essential services (pharmacies, A&E, post office, police, carabinieri, municipal offices, kindergarten, primary school, junior high school, grocery stores, markets, supermarkets) out of the total of households.	Triple moving average
		Irregularities in water distribution	Percentage of households reporting irregularities in the delivery of water out of the total of households.	Triple moving average
		Waiting time to register	People aged 18 and over who went to the registry and waited more than 20 minutes in line.	Percentage value per 100 people with the same characteristics

Source: 2015 BES Report, ISTAT database

The sub-dimensions considered to analyse the concept of well-being are recorded with different units of measurement, since each one captures a particular, objective or subjective aspect of well-being. In order to

aggregate data and build a single indicator, it is necessary to proceed with a transformation function by creating a base that allows the processing and aggregation of the data. In the literature, with regard to the transformation of values, different modes are proposed. In this paper, we use the standardization method to convert the indicators into a common zero scale and standard deviation 1 (Nardo et al., 2005).

Each variable under consideration has been standardized to determine the z-scores. They are obtained by subtracting from the observed data the average of the Regions for that variable and by correlating this difference to the average squared deviation of the Regions. The values thus determined are aggregated using the sum of the variables analysed (Nardo et al 2005; Mazziotta and Pareto, 2012).

In the first phase we proceed with the standardization of the observed data for the individual variables that form the dimensions.

$$Z_i = \frac{x_i - \mu x_i}{\sigma x_i} \quad (1)$$

The Z_i correspond to the respective z-scores of the Region relative to the data of the variable.

Data aggregation can be associated with problems in the attribution of weights that apply to variables. In this paper, we have not used “weights” as suggested by the main scholars for both dimensions and indicators. This is to avoid taking subjective evaluations in the calculation of the overall index and since it is believed that the variables analysed have the same weight in the determination of well-being (Nardo et al 2005, Decanq and Lugo, 2010).

Next, the additive model was applied to determine region-wide dimension values. This was determined by the sum of the z-scores for the variables of each region.

$$D_i = \sum_i^N Z_i \quad (2)$$

Once all 12 dimensions were determined, we continued with a new standardization of the dimensions because the sum of standardized variables does not in turn generate a standardized value.

$$W_j = \frac{D_j - \mu D_j}{\sigma D_j} \quad (3)$$

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Finally, the additive model was applied again to determine the final value of the composite index at the regional level.

$$I = \sum_i^M W_j \quad (4)$$

Results

Domain: Health

Fig. 1. Results in Health domain.



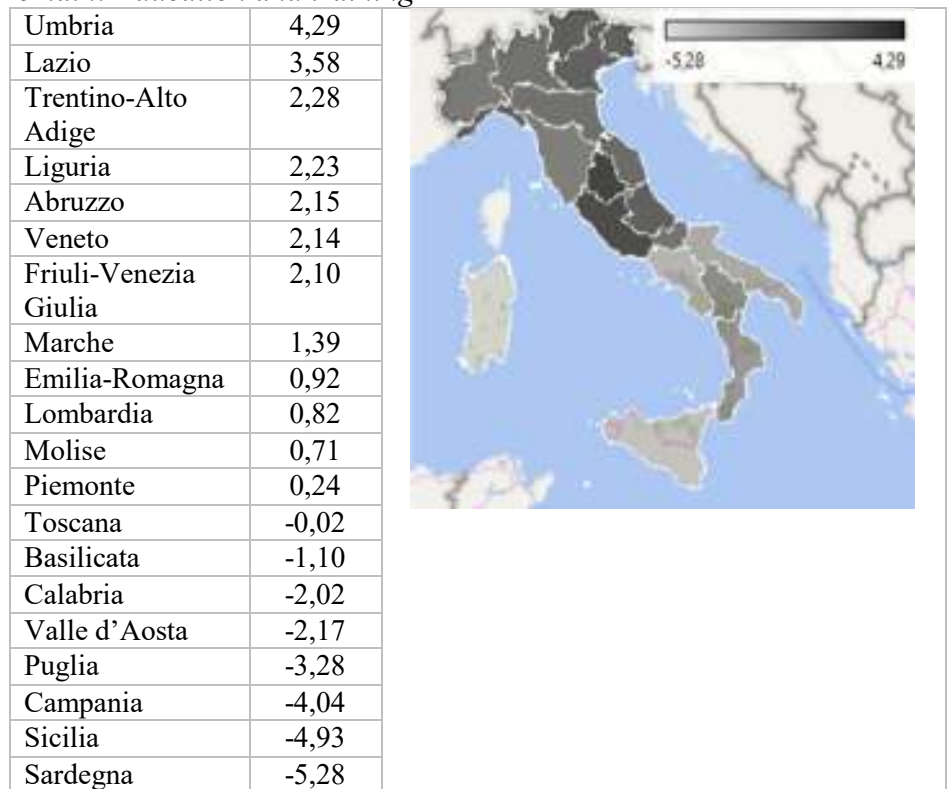
For the health dimension, Trentino-Alto Adige shows very good results. Its situation is favourable in all three indicators: the value for the variable “Life expectancy at birth” is 83.2 years, well above the average of 82.19. It records a further positive value for the second variable “Healthy life expectancy” with a value of 65.5, higher than the average of 58.09. It ranks second in “Physical State Index” with 51.8, preceded by Toscana

with 51.9. On the opposite side of the ranking there are Calabria and Campania with very negative values for those variables, and they are therefore representative of low levels of well-being compared to other Italian regions.

The general trend is for the Northern and Central regions to enjoy good positions, while some of the Southern Regions show more critical situations.

Domain: Education and training

Fig. 2. Results in Education and training domain.



With respect to the Education dimension, the results are very positive for Umbria and Lazio, while they are negative for most of the regions of Southern Italy, particularly Sardinia, Sicilia and Campania. The high values for Umbria are determined by the fact that it records high ranking in all the indicators without, however, ever excelling. Lazio, on the other hand, is the best region in both the first and second variables.

The first position may be related to the fact that Umbria has always recorded higher values than the national average for Education, while the

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position of Lazio may be influenced by the presence of the Capital city and the consequent large attendance.

Domain: Work and work-life balance

Fig. 3. Results in Work and work-life balance domain.

Trentino-Alto Adige	6,12
Valle d'Aosta	3,96
Veneto	2,75
Lombardia	2,12
Emilia-Romagna	2,09
Friuli-Venezia Giulia	2,02
Toscana	1,42
Piemonte	1,34
Marche	1,04
Umbria	0,73
Liguria	0,47
Lazio	-0,57
Abruzzo	-0,59
Molise	-1,60
Sardegna	-1,95
Puglia	-2,94
Basilicata	-2,95
Calabria	-4,29
Sicilia	-4,56
Campania	-4,64



Analysing the values of the dimension Work and work-life balance, there are differences between North, Central and South Italy. Trentino-Alto Adige, Valle d'Aosta and Veneto are particularly well placed in the ranking, followed by the other regions of the North and Central Italy. The Southern Regions close the line.

By combining the values for employment and lack of participation with job satisfaction, it can be noticed that low rates in South Italy match the job satisfaction, as the latter variable, albeit slightly, is lower than in the Northern Regions.

This may also be linked to the fact that there are greater job opportunities in the North, and this allows people to partially choose the work they are doing, thus creating a higher level of satisfaction.

All this, however, increases regional differences.

Fig. 4. Results in Economic well-being domain.

Domain: Economic well-being

Trentino-Alto Adige	7,62
Veneto	3,11
Piemonte	2,45
Emilia-Romagna	1,72
Toscana	1,54
Lombardia	1,40
Friuli-Venezia Giulia	1,22
Umbria	1,01
Valle d'Aosta	0,29
Lazio	0,16
Liguria	0,01
Marche	-0,10
Molise	-0,51
Abruzzo	-1,49
Basilicata	-2,17
Sardegna	-2,64
Calabria	-2,88
Puglia	-3,31
Campania	-3,68
Sicilia	-3,75



From a first analysis of the Economic Well-being dimension, one can notice the high differences that exist between North and South Italy. Trentino-Alto Adige is the first in the ranking followed by Veneto and Piemonte. The South records the lowest levels.

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Fig. 5. Results in Social relationships domain.

Domain: Social relationships

Trentino-Alto Adige	7,34
Valle d'Aosta	2,63
Emilia-Romagna	2,30
Toscana	1,97
Friuli-Venezia Giulia	1,81
Lazio	1,54
Piemonte	1,19
Veneto	0,94
Lombardia	0,86
Liguria	0,62
Sardegna	0,50
Marche	-1,07
Basilicata	-1,10
Molise	-1,68
Umbria	-1,77
Abruzzo	-1,94
Calabria	-2,17
Campania	-2,92
Sicilia	-4,08
Puglia	-4,97



For the Social Relations dimension, we notice a division between North and South Italy. Trentino-Alto Adige gets the highest index, followed by the Valle d'Aosta. At the bottom, the regions with a bad index are Sicilia and Puglia.

Fig. 6. Results in Politics and institutions domain.

Domain: Politics and institutions

Emilia-Romagna	3,37
Trentino-Alto Adige	3,32
Toscana	2,96
Liguria	2,94
Friuli-Venezia Giulia	2,52
Piemonte	2,02
Lombardia	1,33
Veneto	0,93
Umbria	0,92
Valle d'Aosta	0,61
Marche	0,30
Abruzzo	-0,25
Lazio	-0,80
Puglia	-1,49
Molise	-1,71
Campania	-2,23
Sardegna	-2,29
Sicilia	-3,26
Basilicata	-4,16
Calabria	-5,05



The Politics and Institutions dimension records values that show differences between North and South Italy.

Unlike other dimensions, the region with the highest index is Emilia Romagna followed by Trentino-Alto Adige and Tuscany.

Fig. 7. Results in Security domain.

Domain: Security

Valle d'Aosta	6,84
Basilicata	4,34
Sardegna	1,87
Molise	1,43
Marche	1,40
Trentino-Alto Adige	0,67
Friuli-Venezia Giulia	0,41
Calabria	0,40
Sicilia	-0,80
Abruzzo	-0,82
Toscana	-0,82
Campania	-0,99
Liguria	-1,15
Veneto	-1,20
Lazio	-1,39
Piemonte	-1,68
Emilia-Romagna	-1,69
Umbria	-1,86
Puglia	-2,44
Lombardia	-2,53



The Security dimension, unlike the previous variables, does not show any major differences between North and South Italy as there is a high degree of alternation between them.

Valle d'Aosta ranks first, followed by Basilicata and Sardegna. The lowest values are recorded by Lombardia, Puglia and Umbria.

The result of the aggregation of sub-dimensions shows that paradoxically most of the southern regions seem safer than the Northern and Central regions.

Fig. 8. Results in Subjective well-being domain.

Domain: Subjective well-being

Trentino-Alto Adige	5,06
Emilia-Romagna	2,86
Lombardia	2,41
Valle d'Aosta	2,28
Veneto	1,95
Sardegna	1,39
Lazio	0,88
Piemonte	0,53
Friuli-Venezia Giulia	0,44
Liguria	0,28
Umbria	0,14
Molise	0,12
Toscana	-0,41
Marche	-1,07
Abruzzo	-1,36
Calabria	-1,42
Basilicata	-1,81
Puglia	-3,50
Sicilia	-4,21
Campania	-4,58



The Subjective well-being dimension shows higher values for the North - with the exception of Sardegna and Lazio - compared to the regions of southern Italy.

This dimension considers the subjective and perceptual aspects of the individual, and its use allows to create a more complete analysis thanks to data that would otherwise be difficult to obtain.

Fig. 9. Results in Landscape and cultural heritage domain.

Domain: Landscape and cultural heritage



The dimension of Landscape and cultural heritage highlights a clear distinction between Northern and Central regions. The former are placed at the top of the ranking followed by the regions of South Italy. In particular, Trentino-Alto Adige ranks first, followed by Umbria, Valle d'Aosta, Friuli Venezia Giulia and Toscana.

In the last places there are Campania, Sicilia, Calabria, Puglia and Basilicata.

Fig. 10. Results in Environment domain.

Domain: Environment

Trentino-Alto Adige	5,34
Valle d'Aosta	5,20
Friuli-Venezia Giulia	1,75
Veneto	1,51
Marche	0,95
Umbria	0,83
Emilia-Romagna	0,65
Toscana	0,30
Piemonte	0,15
Sardegna	0,12
Lombardia	0,01
Molise	-0,46
Abruzzo	-0,47
Basilicata	-0,88
Liguria	-1,25
Lazio	-2,37
Campania	-2,38
Calabria	-2,77
Puglia	-2,86
Sicilia	-3,38



The Environment dimension shows differences already mentioned between North and South. Trentino-Alto Adige, Valle d'Aosta, Friuli Venezia Giulia and Veneto occupy the first places. Sardegna is well positioned between Piemonte and Lombardia. Liguria and Lazio, on the other hand, have fairly negative values compared to their average performance in other dimensions. At the bottom of the ranking there are Sicilia, Puglia, Calabria and Campania.

Fig. 11. Results in Research and Innovation domain.

Domain: Research and Innovation

Friuli-Venezia Giulia	5,02
Piemonte	3,96
Emilia-Romagna	3,72
Veneto	3,13
Lombardia	2,66
Toscana	1,79
Trentino-Alto Adige	1,40
Lazio	1,13
Liguria	0,37
Umbria	-0,77
Marche	-1,19
Campania	-1,23
Puglia	-1,34
Abruzzo	-1,39
Basilicata	-2,01
Sicilia	-2,27
Sardegna	-2,55
Molise	-3,19
Calabria	-3,47
Valle d'Aosta	-3,79



For the Research and Innovation dimension, the territorial differences between North and South Italy are very marked, with the exception of the unusual placement of some regions. In fact, Friuli-Venezia Giulia dominates the ranking, followed by Piemonte and Emilia-Romagna.

The Northern Regions are followed by those of the Centre and finally by those of the South.

The position of Valle d'Aosta is unusual, as it ranks last. In addition, Trentino-Alto Adige, that generally obtains excellent positions in the various domains, in this dimension records a value, still positive, but lower than the other Italian regions.

Fig. 12. Results in Service quality domain.

Domain: Service quality

Trentino-Alto Adige	6,74
Valle d'Aosta	4,89
Lombardia	3,19
Veneto	1,32
Friuli-Venezia Giulia	1,16
Piemonte	0,84
Molise	0,45
Liguria	0,04
Marche	0,03
Umbria	-0,24
Emilia-Romagna	-0,24
Toscana	-0,43
Abruzzo	-1,21
Sardegna	-1,62
Basilicata	-2,15
Lazio	-2,32
Campania	-2,37
Puglia	-2,55
Sicilia	-2,58
Calabria	-2,94



The Quality of Services dimension shows significant differences between the regions of the North and South Italy, but for a few exceptions.

In particular, Trentino-Alto Adige, Valle d'Aosta and Lombardia are well positioned. Regions with major problems in this dimension are Calabria, Sicilia, Puglia.

Fig. 13.
Multidimensional
index of well-
being.

Multidimensional index of well-being

Trentino-Alto Adige	22,04
Valle d'Aosta	9,90
Friuli-Venezia Giulia	8,54
Emilia-Romagna	7,41
Veneto	7,29
Lombardia	6,25
Toscana	4,96
Piemonte	4,84
Umbria	2,78
Liguria	2,50
Marche	1,90
Lazio	-1,23
Molise	-3,37
Abruzzo	-3,41
Sardegna	-6,38
Basilicata	-7,31
Puglia	-12,99
Calabria	-13,53
Campania	-14,41
Sicilia	-15,80



Once the twelve dimensions are determined, the composite index of well-being is obtained through the aggregation of these.

The index allows to sum up the level of well-being of the Italian regions in a single figure. By observing the rankings we can see great inequalities. The Northern Regions dominate, followed by the Regions of the Centre and finally the Regions of South Italy.

The index shows that, for the variables analysed, the Region with the highest level of well-being is Trentino-Alto Adige, that shows positive and very high values for all the dimensions examined. It is followed by Valle d'Aosta and Friuli Venezia Giulia, both recording fairly high index values.

Generally, the Northern and Central regions, excluding Lazio, have a positive index, which means levels of well-being higher than the average. These regions, for most of the dimensions previously analysed, have positive values. Only Trentino-Alto Adige and Emilia-Romagna have

only positive values. The other regions have deficiencies in some dimensions.

Analyses such as this would help to identify the main deficiencies within the territory. Valle d'Aosta, for example, records positive values in most dimensions, but is lacking in comparison to the other Northern Regions in Education and Research.

One must surely consider the region's historical culture which can make it more or less likely to carry out certain types of activity.

Another example is Lombardia, which ranks third to last among the Northern Regions. It records positive values for all dimensions except for Security. This is probably due to the high density of urban centres that facilitates the development of criminal activities.

The Central Regions record the average values of the rankings. Compared to the North they have lower levels of well-being with regard to the dimensions analysed. With reference to this group, Lazio is the last, with negative values in seven dimensions out of twelve.

The regions of South Italy rank last, with negative values for almost all dimensions. This indicates that within the same national territory there are regions with much lower levels of well-being. In particular, Sicilia and Campania record negative values for all dimensions.

Relationship between the new index of well-being and the regional GDP per capita

Below are table 3 containing the value of the aggregate index and, on the right, the value of the regional GDP per capita. Both dimensions are shown in descending order.

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Table 3.

Index of well-being and GDP per capita

REGION	INDEX OF WELL-BEING	REGIONAL GDP PER CAPITA	REGION
Trentino-Alto Adige	22,04	37.027,99	Valle d'Aosta
Valle d'Aosta	9,90	36.863,04	Trentino Alto Adige
Friuli-Venezia Giulia	8,54	35.044,17	Lombardia
Emilia-Romagna	7,41	32.486,87	Emilia-Romagna
Veneto	7,29	31.673,17	Lazio
Lombardia	6,25	30.033,54	Veneto
Toscana	4,96	29.026,11	Liguria
Piemonte	4,84	28.926,40	Toscana
Umbria	2,78	27.855,75	Friuli-Venezia Giulia
Liguria	2,50	27.763,00	Piemonte
Marche	1,90	25.247,45	Marche
Lazio	-1,23	23.915,55	Umbria
Molise	-3,37	23.121,62	Abruzzo
Abruzzo	-3,41	20.325,63	Molise
Sardegna	-6,38	19.791,28	Sardegna
Basilicata	-7,31	18.740,14	Basilicata
Puglia	-12,99	17.031,30	Sicilia
Calabria	-13,53	16.919,35	Puglia
Campania	-14,41	16.821,61	Campania
Sicilia	-15,80	16.176,80	Calabria

Pearson's correlation coefficient can be used to evaluate whether the index follows the same trend of or diverges from the GDP per capita. It allows to evaluate whether there is a linear relationship between the variables being analysed.

The coefficient can assume a value between -1 and +1, where a value greater than 0 indicates that the variables are correlated positively, while a value lower than 0 indicates that the variables are correlated negatively.

The result shows a correlation coefficient of 0.906 between the index of well-being and the regional GDP per capita.

This value indicates that GDP is more than adequate as a measure for the approximation of well-being. However, a better understanding can be obtained by combining it with other aspects of the concept of well-being that are not considered by the economic dimensions studied in the measurement of GDP.

When considering the ranking of the Regions in the two tables, we may notice that the positions are quite similar for most territories, but for a few exceptions.

There are regions, such as Lombardia, with a different position in the two charts: in terms of GDP per capita it ranks third, while for the Health Index it is sixth.

There are also opposite situations, such as Friuli Venezia Giulia, that ranks ninth in GDP and third in the composite index.

It can be deduced that the level of well-being of a country is not always captured by measuring only income indicators. In fact, GDP being equal, better or worse situations of well-being can be detected.

This consideration has been expressed and verified by several scholars for a long time. Indeed, it had been advanced by Simon Kuznets himself (1934), as mentioned above.

GDP is not a bad measure of the level of well-being. However, to get a general picture of society, other dimensions need to be considered as well. Focusing solely on merely quantitative dimensions, such as aspects related to subjective well-being of individuals and environmental sustainability, should be avoided.

Discussion of the results

In this paper we tried to define the level of well-being among the Italian regions by using certain dimensions and indicators appropriately selected.

The result achieved is the well-known territorial difference in Italy between the North, the Centre and the South. It can be said that, within national borders, there are areas that travel at different speeds.

Data shows marked differences between North and South in particular. The Centre seems to tend to align with the former.

Higher levels of well-being are visible in the Northern Regions, followed by the Central Regions, and finally the lowest levels are recorded in the South.

This situation was already visible at the time of unification of Italy. It is in those years the Southern issue was outlined, that is, the state of economic and social backwardness found in the South compared to the North.

Over the years, various governments have tried to alleviate these shortcomings without ever having succeeded and they are still present.

If we consider Italy according to these three territorial stratifications, it can be said that, among the Northern Regions and even those of the Centre, well-being seems widespread. All Regions get excellent scores in the examined dimensions.

This may be the result of the fact that the North is the area where the main Italian companies and industries were created and developed. It is worth mentioning the industrial triangle formed by the cities of Milan-Turin-Genoa.

The geographic conditions of the territories facilitated this process. Most of the North can take advantage of the benefits of the Po Valley: large spaces allow to invest in industrial and transport infrastructure useful both for the movement of workers and for the transport of goods from a territory to another. The northern border with some of the major states of the European Union probably has also influenced the growth of the potential market, favouring the creation of companies in the North rather than in the South.

As regarding the Southern Regions, however, the values are far lower, and this signals lower levels of well-being within the same national territory. Over the years these territories have seen the transition from an agricultural system to an industrialized system. However, they do not seem to have reached the level of the North-Central Regions. It can be assumed that this depends on the low efficiency in the organization and use of the human and environmental resources available; on the fact that governments may not have obtained the expected results in terms of country's growth and development; and also due to an inefficiency in the management of European funding obtained by the Italian Government. This makes South Italy lagging behind the North.

Large migrations from the South to North Italy and abroad are also to be considered.

Moreover, the South is known for the presence of criminal organizations that have made the country's development difficult over the years.

When considering the dimension of Education, the Southern Regions record low values. This is a bad signal because, to create the conditions for development and reduce inequalities within a country, it is necessary to increase the culture of its citizens.

Further problems are related to the inadequacy of public infrastructure in the South compared to the North. This can be related to the low investments or to their mismanagement.

Therefore, it can be stated that the success of a nation in terms of growth, development and progress depends on how the territorial and financial resources are used.

Another consideration that can be made concerns the difference between the Regions with Special Statutes and the Regions with Ordinary Statutes. The table of the composite index shows that the first three positions are taken by Trentino-Alto Adige, Valle d'Aosta and Friuli Venezia Giulia. These are some of the regions with special statute, which have advantages and benefits over those with ordinary statutes. It can be assumed that this has helped them develop more efficient regional systems than other Italian regions over the years.

For Sardegna and Sicilia, however, the positions are lower. It can be assumed that this depends on a resource management problem as previously outlined.

Conclusions

This paper presents a general overview of the aspects that characterize the theme of well-being. We argued that its valuation through the use of economic indicators is no longer exhaustive.

In fact, an increase in production no longer coincides with an increase in the level of well-being of the population, since well-being does not depend exclusively on economic factors (Veenhoven 2002)

Over the years the development of alternatives to GDP that would somehow incorporate variables related to individuals and to society as a whole has now become a topic of debate also in the public domain, and not just among researchers and scholars.

The aim of this paper was to present the level of well-being among the Italian regions in its multidimensional form. By selecting appropriate variables it was possible to delineate it in the widest possible way.

The results show that there may be differences in levels of well-being within the same territory. In Italy, in particular, there are serious

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disparities between the North and the South, which confirm the historical divide that has characterized the peninsula for years.

The availability of such a large set of indicators and dimensions allows the creation of a comprehensive picture of the territorial reality being analysed. In addition, studying these values can lead to the identification of deficiencies or problems that, if identified and corrected, can improve the well-being of the community.

With this analysis, however, the importance of GDP is not diminished. Pearson's correlation between GDP and the index of well-being is very high and this makes GDP a good estimate of well-being. This is to say that using a single economic indicator for choosing the policies to be adopted is no longer sufficient, since the analysis of this value does not provide a picture of the general situation where the strengths and weaknesses of the nation are highlighted.

This discussion highlights the need to consider other factors that increasingly characterize our societies in addition to economic measures, and to create useful and adequate indices to estimate their level and progress.

References

- Castoldi, R. (2008). *L'approccio alla capacità di Amartya Sen come percorso per lo sviluppo umano*. In Garibaldo F. et al. Concetti e strumenti per una responsabilità sociale dell'impresa: istruzioni per l'uso. Fondazione Istituto per il Lavoro, Bologna
- Cheli, B. (2013). Il "Paradosso della felicità": quando e perché la crescita economica non giova al benessere, *Statistica & Società*, 2(2), 6-9.
- Chiappero Martinetti, E., Grasso, M., & Pareglio, S. (2007). La qualità della vita nelle società avanzate: linee di ricerca per un modello basato sull'approccio delle capacità di Amartya Sen. *Economia e Politica Industriale*, 1, 53-73.
- Chiappero Martinetti, E., & Accolla, G. (2011). Multidimensionalità nelle analisi di benessere e problemi di comparazione. *Working Paper no.1*. Osservatorio Regionale sull'Esclusione Sociale.
- Chiappero Martinetti E., von Jacobi N. (2012). *Light and shade on multidimensional indexes: how methodological choices impact on empirical results*. In Maggino, F., & Nuvolati G. (eds.), *Quality of life in Italy: research and reflections*. Dordrecht: Springer.

-
- Cnel-Istat, (2012). La misurazione del Benessere Equo e sostenibile (BES). Report of the Comitato sugli indicatori di progresso e benessere. Cnel - Consiglio Nazionale dell'Economia e del Lavoro - Istituto nazionale di statistica Roma, 2013
- Cobb, J.J., & Daly, H. (1989). *For the common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*. Boston: Beacon Press.
- Costanza, R., Hart, M., Posner, S., & Talbert J. (2009). Beyond GDP: The Need for New Measures of Progress. *The Pardee Papers No. 4*. Boston University.
- Dasgupta, P., & Weale, M. (1992). On measuring the quality of life. *World Development*, **20** (1), 119-131.
- Dasgupta, P. (2000). Valuation and Evaluation: Measuring the Quality of Life and Evaluating Policy. Background Paper prepared for the World Bank's annual World Development Report, World Bank. November 1999.
- Decanq, K., & Lugo, M.A. (2013). Weights in Multidimensional Indices of Well-Being: An Overview. *Econometric Reviews*, **32**(1), 7-34
- Easterlin, R. A. (1974). *Does economic growth improve the human lot? Some empirical evidence*. In David, R., & Reder, R. (Eds.), *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*. New York: Academic Press.
- Grasso, M. (2002). Una misurazione del benessere nelle regioni italiane. *Politica Economica*, **VIII** (2), 261-292
- Hall, J., Giovannini, E., Morrone, A., & Ranuzzi, G. (2010). A Framework to measure the progress of Societies. *OECD Statistics Working Papers No. 34*, OECD.
- Istat (2015). Benessere Equo e Sostenibile, (2015) Istituto Italiano di Statistica ISBN 978-88-458-1876-9
- Ivaldi, E., Bonatti, G., & Soliani, R. (2016a). *The measurement of Well-Being in the Current Era*. [Hauppauge, New York](http://www.hauppauge.com/): Nova Publishers.
- Ivaldi, E., Bonatti, G., & Soliani, R. (2016b). The construction of a synthetic index comparing multidimensional well-being in the European Union. *Social Indicators Research*, **125**(2), 397-430.
- Lara, I.F. (2010). *Quale dibattito sul PIL?*. *Impresa e Stato*, **89**, 51-58.
- Lastrucci, V., & Pinilla, M.J.C. (2014). Il Prodotto Interno Lordo: critiche e alternative per misurare il benessere delle nazioni. Retrieved 3/2016 from <http://www.centrosaluteglobale.eu/site/il->

Bruzzi C., Delfiore N., Soliani R. 2017. The Multidimensional Concept of Well-Being in the Italian Regions: a Measurement Proposal. *Eastern European Business and Economics Journal* **3(2)**: 87-121.

prodotto-interno-lordo-critiche-e-alternative-per-la-misura-del-reale-benessere-delle-nazioni/

Kennedy Library (1968). Robert F. Kennedy Speeches: Remarks at the University of Kansas, March 18, 1968. Retrieved 3/2016 from <https://www.jfklibrary.org/Research/Research-Aids/Ready-Reference/RFK-Speeches/Remarks-of-Robert-F-Kennedy-at-the-University-of-Kansas-March-18-1968.aspx>

Kuznets, S. (1934). National Income 1929-1932 - Letter from The Acting Secretary of Commerce. A report to the U.S. Senate, 73rd Congress, 2nd Session. Washington: United States Government Printing Office.

Mazziotta, M., & Pareto, A. (2012). A non-compensatory approach for the measurement of the quality of life. In F. Maggino & G. Nuvolati (Eds.), *Quality of life in Italy. Social Indicator Research Series 48*:27–40 Dordrecht: Springer.

Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., & Giovannini, E. (2005). *Handbook on Constructing Composite Indicators: Methodology and User Guide*. Retrieved 3/2016 from <http://www.oecd.org/els/soc/handbookonconstructingcompositeindicatorsmethodologyanduserguide.htm>

Stiglitz, J., Sen, A.K., & Fitoussi, J.P. (2010). *La misura sbagliata delle nostre vite. Perché il PIL non basta più per valutare benessere e progresso sociale*. Milano: Rizzoli ETAS.

Veenhoven, R. (2002). Why Social Policy Needs Subjective Indicators. *Social Indicators Research*, **58**, 33-45