ISQOLS Conference: Measures and goals for the progress of societies

Satellite meeting

Measuring subjective well-being: an opportunity for National Statistical Offices?

Florence, 23-24 July 2009

Selection of relevant indicators for measuring subjective well-being in the European Union

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Selection of relevant indicators for measuring subjective well-being in the European Union

1. Background of the study

At the beyond GDP conference[1], Mr Barroso, president of the European Commission said "*in this rapidly changing, globalising world of the 21st century, we find ourselves with a sea of data, but, in some cases, lacking the tools we need to take swift, well-informed and effective decisions that promote the well-being of individuals, of societies, of the planet itself*". Following him, Mr Almunia, European Commissioner for Economic and Monetary policy added that the "*time is ripe to take the measurement of well-being one step further*".

At this point in time, Eurostat had already launched a call for tenders and was preparing to begin a feasibility study on the measurement of well-being. This study aims to assess the feasibility of developing and implementing a "policy relevant" well-being indicator (set) for the European Union (EU).

The results should be published at the end of 2009 after having been submitted to the steering committee composed of experts from various services of the European Commission.

The main purpose of this paper is to give an overview of the approach which has been adopted within this study. It does not identify the statistical variables which have been proposed to measure objective and subjective drivers of well-being as, at the time of writing of this paper in early July 2009, this work remains to be finalised and approved by the steering committee.

It has been considered in the study that subjective and objective indicators of well-being are complementary to each other: one cannot tell the complete well-being story without the other. Both have been considered as drivers to the human well-being outcome approach as inspired by Ruut Veenhoven[2]. So even if the measure of subjective well-being benefits from a special attention in this paper, it is be treated together with objective well-being and the outcomes of well-being.

Sustainable development is a fundamental and overarching objective of the European Union. It is made operational through the EU Sustainable Development Strategy (SDS). Well-being is a key concept in the SDS: the renewed EU SDS, adopted by the European Council in June 2006, states that sustainable development '*aims at the continuous improvement of the quality of life and well-being on Earth for present and future generations*'. This global objective is multidimensional, as there are numerous determinants of human well-being. It is clear from the extensive literature on well-being, but also from the sustainable development strategy itself, that the multidimensional content of well-being follows the interdisciplinary approach of sustainable development.

However, both concepts can (and must) be treated methodologically separately from each other. Indeed, well-being is centred on the (individual) human capabilities to be or achieve something, whereas sustainable development covers all aspects of (intertwined) economic,

[1] Brussels, November 2007 – see http://www.beyond-gdp.eu/

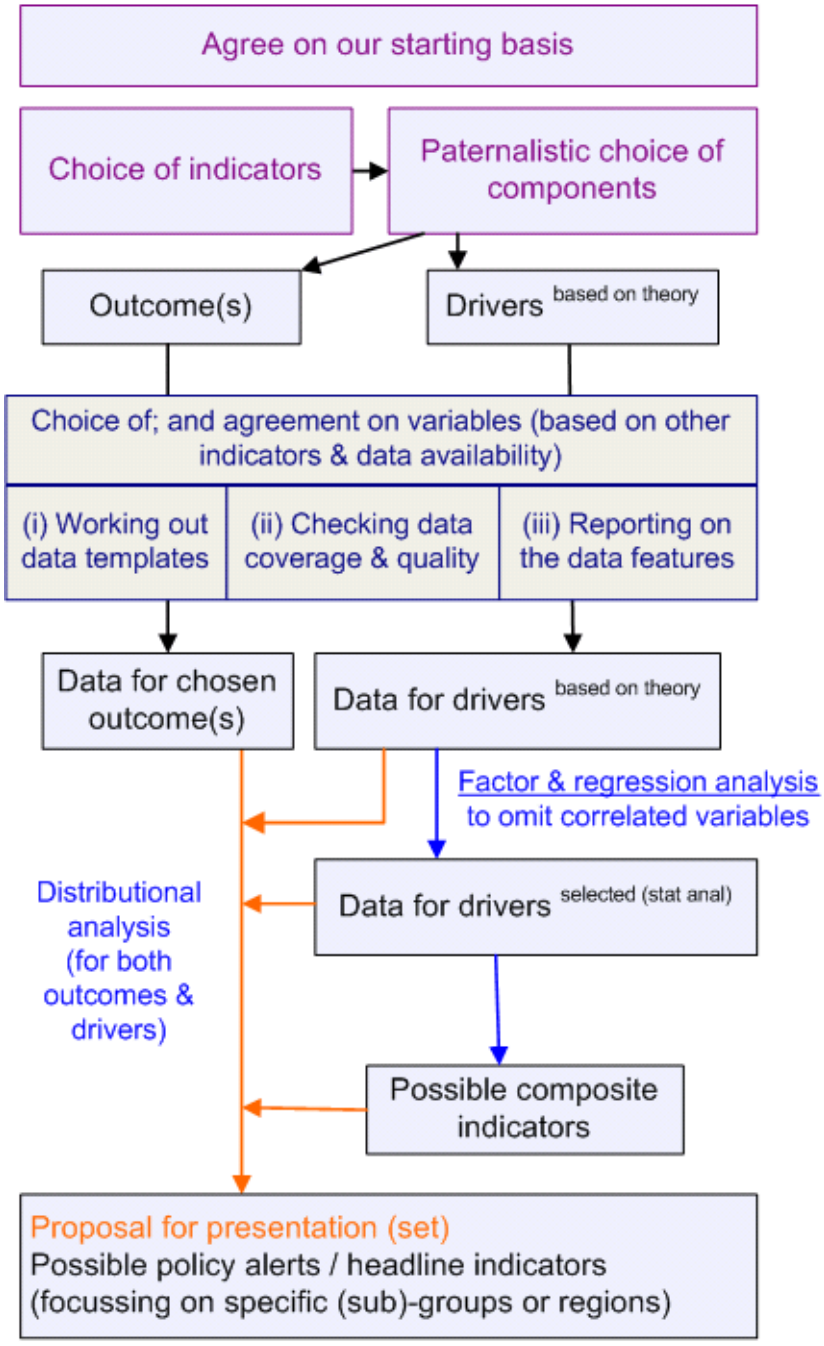
[2] See e.g. Veenhoven, Ruut (1996): Happy life expectancy. A comprehensive measure of quality-of-life in nations, Social Indicators research, vol 39, pp 1-58.

social and environmental development. Well-being thus forms, a part of the global picture of sustainable development; and so do the policies that aim to improve well-being.

It should be clear as well that the study was limited to the measure of well-being for the humans of today. Even if optimisms/pessimism of humans in the future contributes to the well-being of today, this study does not intend to find a way to measure "sustainable well-being".

2. Pathway for the study

The following scheme summarises the approach which was adopted for the study



2.1 Step 1 – review of existing approaches and selection of indicators for further testing

Given the abundance of the approaches to measure well-being, the contractor was asked to start by a review of the existing literature and indicators.

The study started by reviewing current approaches in measuring well-being via:

- **A screening of 50 indicators commonly used or quoted in the literature** (Annex-1),
- Extractions and analysis of data coming from 20 databases on the Web (Annex-2),
- A study of an extended bibliography on the subject (Annex-3).

Then first level elimination criteria were applied to the 50 indicators (see table below):

Selection criterion	Description
'Under construction'	Approach is still under development, at a too early stage for carrying out the concrete feasibility study the project aims at
Out-dated	Based on "old model" that has been improved upon already.
Approach unavailable	Details on approach / methodology (⇔ data) are not publicly available
'Only' a database*	Is only a database of potential items, and makes no attempt to structure them into some measurement of well-being or components of well-being
Relevance	Approach should be based on a conceptual model that either *focuses* on well-being (or a suitable synonym), or includes well-being as a substantial and isolatable component.
	The indicator should be useful for WB-measurement in the EU *(excluding indicators mainly focusing on well-being and welfare developing countries)*
Data unavailable	The data are not available or publicly available (+ no/partial adapted version possible)

24 approaches passed successfully this phase and were taken up for the 2nd phase.

The 2nd phase screening process was a structured analysis of the different indicators. Based on an extensive literature-review these indicators were screened for:

- Their relevance in terms of content: which components are covered (from the highest level of domains/needs to the intermediate level and the variables used),
- The underlying data: geographical scope, availability of time series, identification of the parent institution, the type of data (subjective or objective),
- inter-country comparability, both in terms of the components and the underlying data,
- The methodology: what is the normalisation and aggregation methodology used? Does it seem to be sound and robust?
- Policy relevance: the indicator's sensitivity to changes and its communication value.

11 indicators satisfied these criteria and were then taken up for the 3rd phase.

They were then submitted to the members of the steering committee for discussion at a workshop.

It became then clear that the objectives of the study had to concentrate on the monitoring of well-being in such a way that it enables policy makers in the European Union to detect the most important policy issues of well-being. Therefore it was considered that:

- both the 'status' (outcome(s)) and the drivers of well-being had to be included in the well-being indicator(set),
- mainly drivers that can be influenced by policy had to be taken up in the indicator(set),
- the indicator(set) could include both an easily communicable headline indicator(s), and a set of more policy-relevant measures.

At the end of this step, 6 indicators we retained. They were classified into 3 categories:

(i) outcome : "Life Satisfaction" and "Happy Life Years",
(ii) objective drivers: the 2 "Rahman indicators",
(iii) subjective drivers: "Psychological needs" and "European Quality of Life Survey".

2.2 Step 2 – Structuring the categories and building bridges

The capabilities theory[3] was used as a framework to structure the components of the objective approach. The table below makes the link between the components used in Rahman (category "objective drivers") and the 8 dimensions of the capabilities theory.

Rahman's components	**Adapted Rahman (based on capabilities approach)**
Material well-being	1. Standard of living
Health	2. Health and longevity
(n.a.)	3. Basic rights (on health & income)*
Personal safety	4. Safety
	5. Education
Quality of the environment	6. Environment
Work and productive activity	7. Productive and valued activities
Relationship with family and friends	8. Quantity, accessibility & time for/of social interactions
Feeling part of the community	
(n.a.)	9. Basic rights (on social/societal level)*
Emotional well-being	*Will not be considered*

** The division of the 'basic rights' component has been done in order to better match these objective components with the ones of the subjective approach*

[3] Martha Nussbaum, Van Ootegem

The adapted subjective indicator set is based on the Psychological needs scale approach adapted by the addition of 'lower' needs, as identified using Maslow's hierarchy of needs.

Psychological needs scale	**Subjective Adaptation – list of components (based on Maslow's hierarchy of needs)**
(n.a.)	A. Physiological needs (food, water, health, shelter; and the financial means for this) - present
(n.a.)	B. Safety / security (factors guaranteeing physiological needs in the future): trust, education, social security, job security,…
Autonomy	C. Self-Actualisation ➔ doing professional/ individual activities (self actualisation) + autonomy / freedom (including time division for these activities)
Relatedness	D. Belonging ➔ loving (relatedness / belonging) + doing social/societal activities (individual interactions & societal participation) (including time division for these activities)
Competence	E. Self-Esteem

This broadening and interpretation of the components of the objective and subjective approaches has been done to be able to match the two approaches. A conceptual 'bridge' between the two approaches was considered necessary to have a fully complementary objective and subjective variable set – one focusing on capacity-related general drivers of well-being; and one looking into individual values and perceptions (what do you need to be happy, according to / within your lifestyle?). This common framework is presented below.

QoL / WB OUTCOME(S)
Happiness & satisfaction
Health & life expectancy

	POSSIBLE WB DRIVERS		
	Basic (Maslow) & psychological (Deci & Ryan) needs	Rahman & capabilities approach	
A	Physiological needs (food, water, health, shelter; and the financial means for this) - present	Standard of living	1
		Health & longevity	2
		Basic rights on health & income	3
B	Safety / security (factors guaranteeing physiological needs in the future): trust, education, social security, job security,…	Safety	4
		Education	5
		Physical environment	6
C	Doing professional/individual activities (self actualisation) + autonomy / freedom (including time division for these activities)	Productive and valued activities	7
D	Loving (relatedness / belonging) + doing social/societal activities (individual interactions & societal participation) (including time division for these activities)	Social interactions: quantity, accessibility & time	8
		Basic rights at social/societal level (discrimination etc)	9
E	Competence / self esteem	-	10

2.3 Step 3 – first selection of variables

The selection of the variables for the 3 categories and related components used as basis:

- the database screening exercise of step 1,
- additional EU (mostly Eurostat) data sources,
- when gaps appeared within the well-being components, the screened well-being literature (that may lead to recommendations for future data gathering).

Only variables with an interesting conceptual value and that could serve to make operational the different well-being components have been retained.

At the end, 176 unique variables were selected, the largest set of variables coming from the Eurostat website or the SILC[4] database in Eurostat.

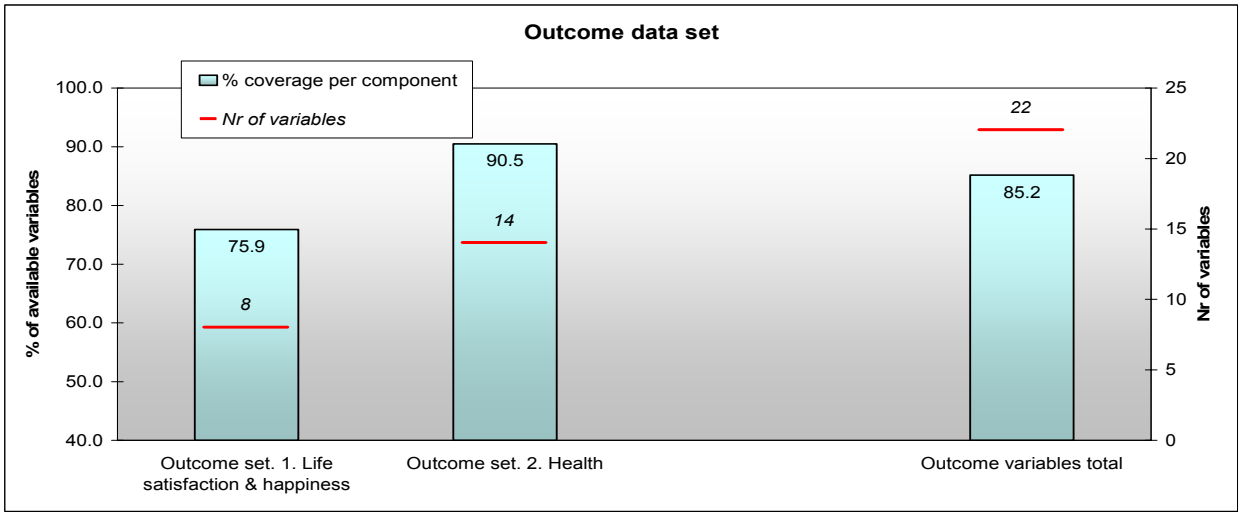
Considering that 50 variables were included simultaneously in different categories[5], in total, 222 variables were taken into account for the next steps. 117 linked to the subjective category, 83 to the objective and 22 to the outcomes.

2.4 Step 4 – Preparation of the data analysis

This step prepared the field for the statistical analysis to check for duplications (redundancies) and correlations.

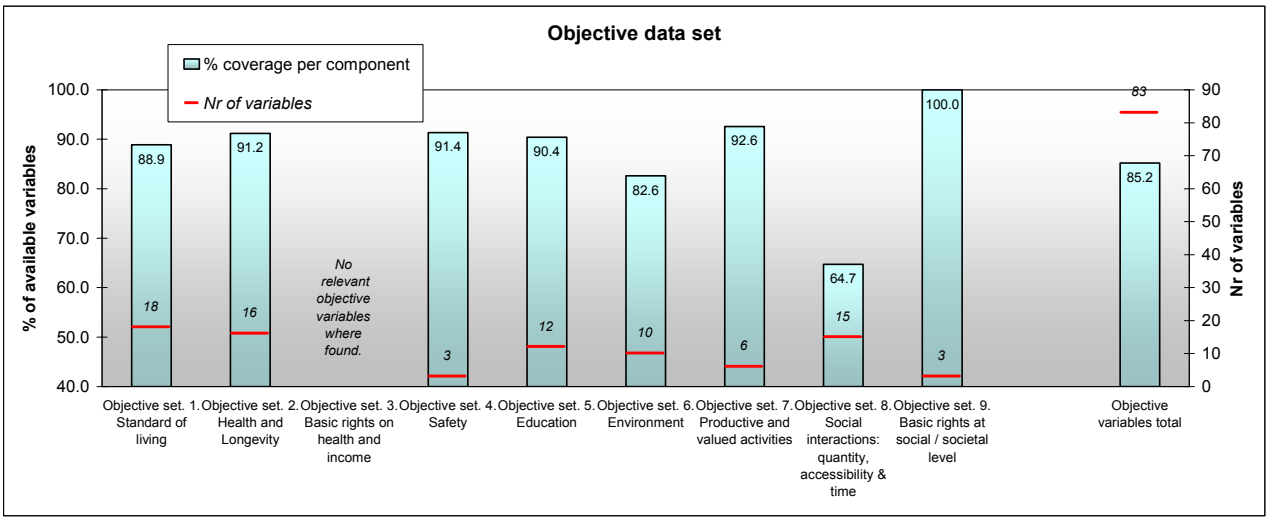
Looking to the data availability, it was decided to use 2006 data to make the analysis. For that year, only 17% of the data was missing.

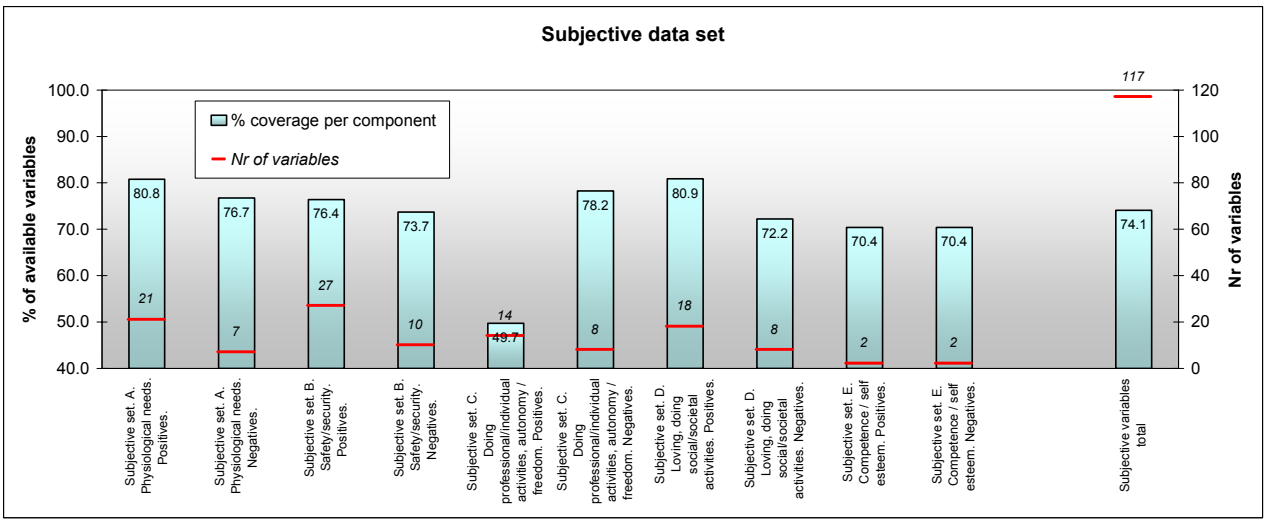
The following three figures depict data availability (height of column, scale on left axis) and the number of variables (red line, scale on right axis) separately per category (outcome, objective and subjective) and for each component within the category.



[4] SILC: Survey on Income and Living Conditions

[5] e.g. "life expectancy" linked to the "health and life expectancy" component of the outcome category and to the "health and longevity" component of the objective category





Data availability per category varies. While both the outcome and the objective approach have a data availability rate of roughly 85%, the subjective approach only reaches up to 74%. The lower data availability for the latter approach is further problematic since it contains most variables altogether (117).

Within the approach of objectively measured well-being, the most alarming component is "Social interactions: quantity, accessibility & time", where only 65% of the data for the 15 variables in that component are available. No variables were found for component "Basic rights on health and income".

In order to improve this data availability score, 6 EU countries having less than 70% data availability have not been taken into account for the next data analysis steps. Among the 6 countries, Bulgaria and Romania who only joined the EU in 2007 could be found.

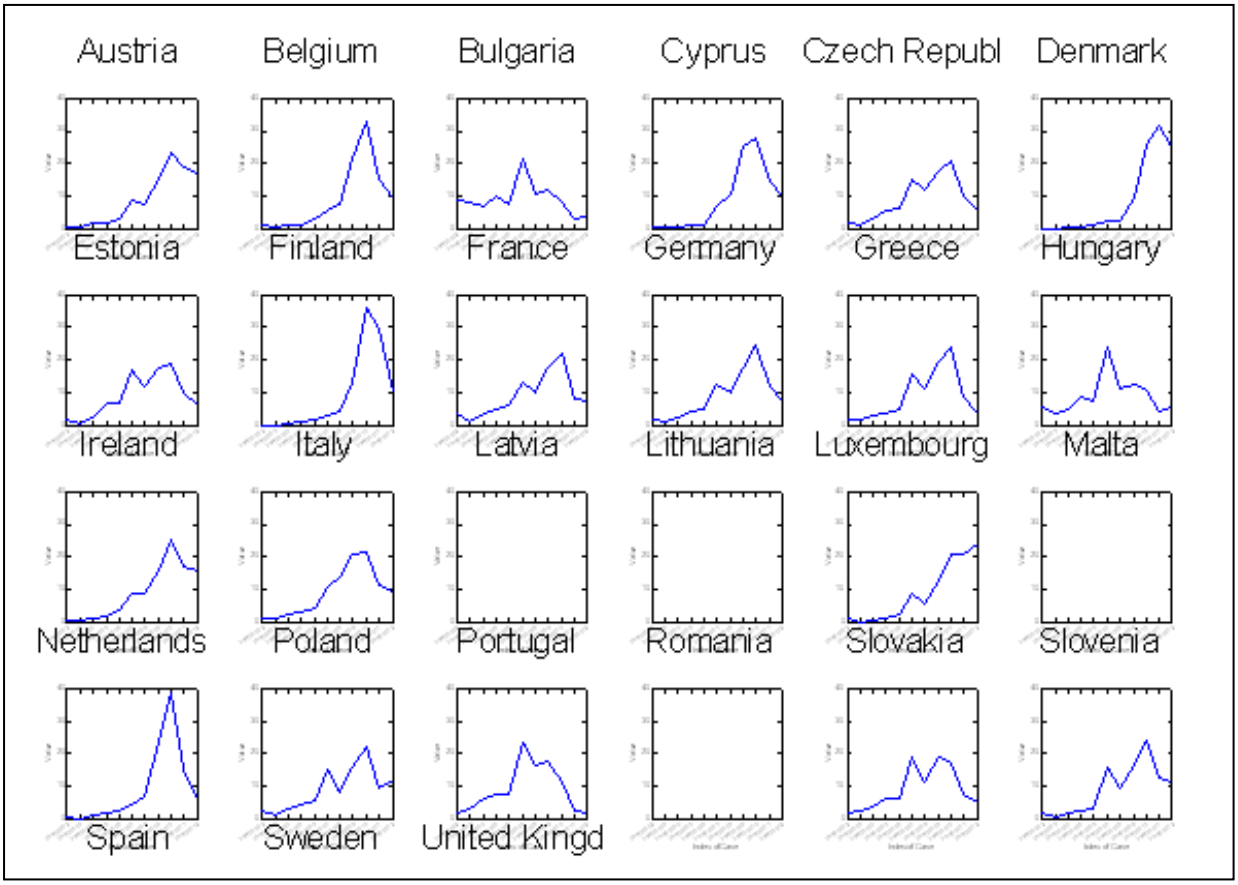
By omitting these 6 countries from the statistical examination it was expected that better overall explanatory results would be obtained from the analysis. Especially, as both Bulgaria and Romania were in general European outliers that behaved radically different to most other EU countries. This indicated a further reason for excluding them from the statistical analysis.

The total population of the 21 countries selected for the analysis amounts to about 91% of the total EU27 population.

A method was chosen to convert non metric data into metric proxies. This particularly applies for subjective variables data which are primarily of non-metric character. Some of these non-metric data are on a nominal scale (yes/no) but most of them are in ordinal scales as frequency distributed data with between 3 and 11 classes.

Although it was initially thought that a standard method of transformation applicable to all variables would have been feasible, the visual check clearly indicated that each “non metric variable” had to be transformed individually by identifying clear cut-off points and presenting a given number of the uppermost (positive) or lowermost (negative) extremes as ratios of the total. The cut-off point was aimed at combining the country wise distinctiveness in the data distribution so as to minimise loss off information.

The example below illustrates the frequency distribution per country of the replies to the question from the European Social Survey: “all things considered, how satisfied are you with your life as a whole nowadays?”. The possible answers could go from 0 (extremely dissatisfied) to 10 (extremely satisfied).



Three different sources of data were listed to measure the overall life satisfaction: the European Social survey, the European Values survey and the Eurobarometer. These sources had different scales (four item scale for the Eurobarometer between "Not at all satisfied" and "Very satisfied" then 10 items for the European Values Survey and 11 items for the European Social survey).

The cut-off selection was guided by the Eurobarometer (4 item scale). After visualisation of the frequency distribution per country, it was decided to measure the % of respondents who had answered "Very satisfied". This was translated into the uppermost 3 classes for the two other surveys (covering the people whose satisfaction level was on the 25% upper level of the scale).

The normalisation of all data sets to a format suitable for multivariate analysis was done by means of re-scaling all data with the country wise z-score (standard scores) distribution without introducing any kind of weighting.

In order to identify correlations between variables linked to the same components (e.g. the 12 variables linked to the education component of the objective approach) and therefore to eliminate variables strongly correlated (duplicates), the following techniques have been evaluated on a test case:

- Pearson correlation matrices and scatter plots matrices,
- Factor analysis and factor loadings plot,
- Cluster analysis.

It is important to note that the restrictions (to 21 countries) and transformations applied to the data were aimed only to the analysis steps. The presentation step that will come after should cover all countries and use non normalised data whenever possible.

2.5 Step 5 – Components analysis – correlation between variables

After the normalisation of the data sets performed in the previous step, the primary focus of this step was to identify those variables within each component that are key to measuring that component thematically and are meaningful in terms of covering it. The main work has been a statistical examination on the internal behaviour of all variables within each separate component respectively with the aid of suitable statistical analysis techniques explained in the step before.

More specifically, correlation matrices for the variables in each component (including separating positives and negatives in the subjective approach) have been produced. These correlation matrices led to a preliminary identification of redundancies. This basic correlation analysis has also facilitated the interpretation of the results of more advanced statistical techniques. In a situation where indications of redundancy have emerged, a more thorough examination on a case by case level of pairs of variables that appear to be interlinked has been performed separately.

It has been considered that a minimum value of 0.6-0.7 (and in some cases also 0.5) for the correlation coefficient could be deemed as being statistically defensible.
Common sense has been used as well to exclude statistical correlations that may be the result of randomness alone (this may happen in particular for cases with a lack of data for many countries and the number of observations for any specific variable was less than 10).

As a result of this work, core variables have been chosen in each component for the next step of analysis. All together, 72 variables divided over objective drivers, subjective drivers and outcomes of well-being have been retained for the next analysis step.

2.6 Step 6 – Driver-outcome analysis

The objective of the analysis in this step has been to establish a statistical linkage between well-being outcome and the well-being drivers based on the 72 short-listed core variables. The starting point was again the overall theoretical approach where each component (in the objective and in the subjective approach) is important in itself for predicting the well-being outcome. It was then aimed to single out the one or those well-being driver variables for each component that seem to have the largest prediction power on well-being outcome.

This exercise has been performed using linear regression as the primary method of establishing a statistical relationship between drivers and outcome of well-being. However, linear regression can be satisfactorily performed only on data where the independent variables (in this case the well-being drivers) are not correlated with each other. Thus, in most cases, it has been necessary to examine each driver variable in the same component separately from the others (simple regression) rather than jointly for the entire component (multiple regressions).

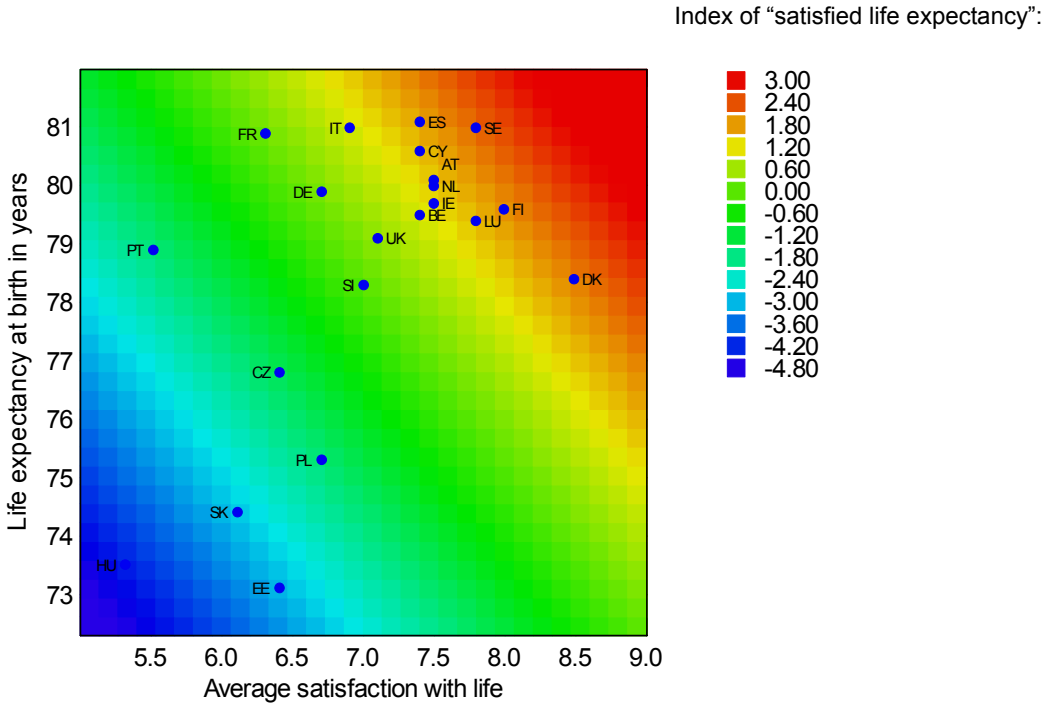
For the purpose of the regression analysis, it has been necessary to single out only one dependent variable. It was therefore decided to combine in a single outcome variable, some of the elements of life satisfaction and some of the elements of a long healthy life. This was inspired by the Ruut Veenhoven index of "happy life expectancy" calculated as life expectancy at birth (in years) times degree of happiness (adjusted to a scale of 0-1).

Then the "overall life satisfaction" has been taken into account instead of "degree of happiness", because it has been considered that "overall life satisfaction" appears to be the wider concept of the two (it seems to cover also happiness whereas happiness may not cover necessarily satisfaction with life[6]).

Then it appeared that if the overall satisfaction with life (adjusted to a scale 0-1) would have been used directly, it would have accounted for as much as three quarters of the single outcome variable and life expectancy only for a quarter. This is due to the fact that the ratio between the maximum over the minimum value was 1.8 for overall satisfaction with life and only 1.1 for life expectancy at birth.

Based upon the scatter plot that depicts the 2 variables (life expectancy at birth and overall satisfaction with life), the composite indicator has been created by first giving both variables a separate z-score based on their distribution among the selected 21 case countries. These z-scores have then been summarised (score + score) into a composite dependent variable on well-being, which entails that both variables weigh exactly equally in the final outcome index. The relationship between the input data (once more, x- and y-axes as in above) and the final score (in colours) is depicted in the mosaic plot below:

[6] In theory, one could be very happy (e.g. in love) and still be dissatisfied with life on the whole, whereas it is more difficult to conceive a situation where one would be very satisfied with life in general but at the same time be unhappy.



At the end a comparison was made between the Ruut Venhoven method (with happiness replaced by satisfaction) and the score depicted in the mosaic plot above. This revealed only minor differences between the two indices linked to countries which had relatively high or poor performances vis-à-vis average life expectancy which is not as much taken into account in the “Veenhoven” method.

The main drawback of this method is that it is not able to reflect actual changes in either of the two input variables and hence a comparison between for instance two years could not be made. This method has the drawback that it is relative. Hence, e.g. an increase in the index value for a particular country could equally well be the product of a fall in the index for other countries as it could reflect actual improvement in that first country. This is clearly a weakness.

Due to the equal weight of the two input variables, this index of "satisfied life expectancy" was nevertheless used in this step of the statistical analysis. For the data presentation step, the Veenhoven method (but again substituting happiness with life satisfaction) should nevertheless be reused.

The process of selection of well-being driver variables for each component that seem to have the largest prediction power on well-being outcome led to the following preliminary results:

- 5 variables have been proposed for measuring 5 out of 8 components of the objective drivers (investigations are still being made to find a relevant variable for the environment component),
- 7 “positive variables” and 5 “negative variables” have been proposed for measuring the 5 subjective drivers of well-being.

There are several components for which it was not possible to identify, throughout the whole process, variables that explain the country wise variation in well-being. In addition, a few components were conceptually covered only partially. For example in the subjective safety

component, no variable was found for personal physical safety that shows a statistically significant relationship to the well-being outcome.

Especially for the subjective variables, there appeared to be a fundamental difference between the 15 old and the 12 new Member States of the EU (except Malta, Cyprus and Slovenia). This entails different needs for well-being than in the old Member States where for larger proportions of the population the basic needs are fulfilled.

By and large, the subjective variables were on average able to explain some 10 % more of the variation in the country wise well-being outcome than did the objective variables (with "environment component" still to be finalised). This disparity was particularly strong in variables related to the labour market or to social interaction. This is an interesting finding since the outcome variable that was built for this part of the study gave equal weight to the subjective (overall life satisfaction) and the objective (life expectancy) elements.

2.7. Summary of the previous steps and forthcoming steps

A first set of variables that is able to portray a picture of well-being in the EU on the country level has been identified. The set proposed is still incomplete (data gaps) and imperfect in several ways, but represents a first comprehensive attempt.
In short, the following tasks were completed:

1. Literature review, upon which a theoretical/conceptual framework including evaluation criteria for measuring country-wise well-being in the EU was obtained;
2. Based upon that framework, screening of available data and data compilation;
3. Statistical analysis to determine within the theoretical framework and with the data at hand, the drivers of well-being.

The last task consisted, by and large of the following steps:

a) Identification of data coverage and gaps;
b) Variable clustering/grouping, reducing the long list of variables into a short list based on correlations and clustering;
c) Selection of a well-being outcome variable for statistical analysis to follow;
d) Checking statistically for the explanatory power of well-being driving variables vis-à-vis well-being outcome;
e) Selection of variables best explaining well-being outcome.

The next steps to be carried out by the end of year 2009 will be:

1. A presentation of the end result of the variable selection process for all EU countries with country profiles represented graphically by means of spider diagrams (each diagrams will depict the well-being outcome as well as objective and subjective well-being driver variables),
2. A submission of the preliminary results to the members of the steering committee for feedback and approval (a meeting of the steering committee should be held in October 2009 to conclude this step),
3. An updated version of the documents should follow,
4. Then further recommendations to make the indicators of well-being operational should conclude this study (this may include recommendations for new or updated data collection).

3. First conclusions of the study

The following conclusions are very preliminary; they still need to be further developed and approved by the steering committee. The final conclusions should be available in Dec 2009.

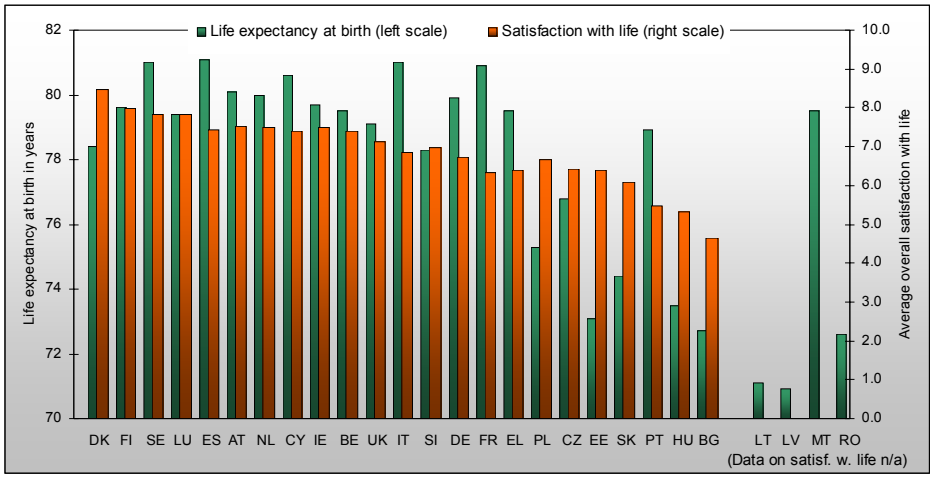
Within the sphere of well-being, the outcome of well-being is – or at least should be – the utmost goal for policy. This goal however is in a direct sense unreachable in itself. There is no policy that as such directly affects e.g. the citizen's overall satisfaction with life. Health policy, on the other hand can (and has) influenced concrete issues such as life expectancy. The ultimate goals of life satisfaction is influenced by numerous driving forces that all shape the outcome in terms of citizen's well-being. It is these driving forces that we have tried to "measure" in this project through the identification of the relevant components based on the large literature (in the conceptual framework) and through the operationalisation of these components into variables (by means of concrete data gathering and statistical analysis).

The well-being outcome consisting of two main aspects namely "life satisfaction & happiness" on the one hand and "health" on the other hand, is captured statistically by means of two rather simple variables that we believe are able to reflect well the rather complex pattern of human well-being outcome.

Overall satisfaction with life (survey based) acts as a good proxy for subjective well-being outcome. In a broad sense it could be conceived as covering all or at least most domains of a life well worth living. In policy terms, satisfaction with life is of course problematic, as it most likely contains many aspects that are impossible to affect by policy.

Regarding well-being in terms of "health", we opted for one of the simplest and most readily available indicators, namely that of life expectancy. This variable is able to reflect a multitude of aspects related to human health and is also powerful in terms of communication value. These two variables are – for those EU countries where data exist – presented in the figure below, where the green columns (and the left axis scale) refer to life expectancy and the orange columns (as well as the right axis scale) correspondingly to overall satisfaction with life. The countries are ranked according to the summarised score of these two variables (see below). Data on satisfaction with life are missing for Latvia, Lithuania, Malta and Romania.

Overall satisfaction with life and life expectancy at birth, 2006



Sources: European Social Survey: overall satisfaction with life (average on a scale of 0-10, where 0=extremely dissatisfied and 10=extremely satisfied), 2006, (CZ, EL, LU: 2004; IT: 2002); Eurostat: life expectancy at birth in years, 2006 (UK: 2005; IT: 2004)

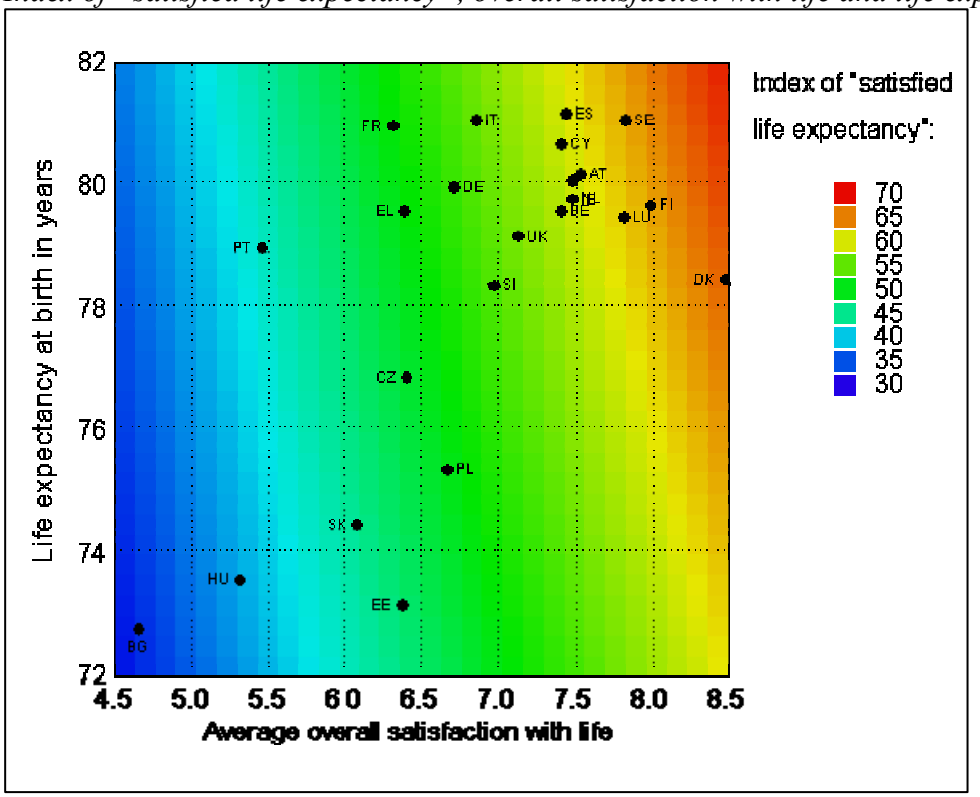
One of the most widely cited indicators on human well-being outcome – that of Ruut Veenhoven – utilises an index of Happy Life Expectancy. This method has the advantage that it introduces variables from both of our identified well-being outcome components and merges them into a single figure. This composite is created using life expectancy as well as overall happiness.

For our purposes we have used a variant of the "Veenhoven indicator". We have created a composite well-being outcome variable that utilises life expectancy at birth (in years) times overall satisfaction with life (adjusted to a scale of 0-1).

The method of calculating this index implies that, for the EU countries, the overall life satisfaction accounts for approximately three quarters of the composite's value whereas life expectancy only accounts for roughly a quarter. This is due to the much larger country wise variation in life satisfaction than is the case for life expectancy. For all EU countries where data exist, the ratio of the maximum over the minimum value is 1.8 for overall life satisfaction but only 1.1 for life expectancy at birth.

When the two variables above thus are merged into a single component of "satisfied life expectancy", the outcome may be depicted in the following graph with the actual input variables on the x- and y-axes respectively, where the mosaic colours indicate the value satisfied life expectancy index. When studying this graph, the relatively large statistical influence of life satisfaction becomes apparent.

Index of "satisfied life expectancy", overall satisfaction with life and life expectancy, 2006



Life expectancy at birth (in years) times overall satisfaction with life (for the index adjusted to a scale of 0-1). Data sources: ESS: overall satisfaction with life (average on a scale of 0-10, where 0=extremely dissatisfied and 10=extremely satisfied), 2006, (CZ, EL, LU: 2004; IT: 2002); Eurostat: life expectancy at birth in years, 2006 (UK: 2005; IT: 2004). Data for LV, LT, MT and RO missing.

Annex-1: List of indicators used as basis and selection for different levels of screening

Num	Indicator	2nd level	3rd level	Final
1	**Life Satisfaction (single question)**	**X**	**X**	**X**
2	Psychological well-being scale	X		
3	Orientations to Happiness Scale	X		
4	**Psychological Needs scale**	**X**	**X**	**X**
5	Positive and Negative Affect Schedule (PANAS)	X	X	
6	*Affectometer 2*			
7	*Satisfaction with Life Scale*			
8	*U-index*			
9	*Personal Well-being Index*			
10	CASP-19	X		
11	**European Quality of Life Survey**	**X**	**X**	**X**
12	Index of Individual Living Conditions	X		
13	*Gallup Well-Being Index*			
14	*European Social Survey*			
15	**Happy Life Years / Expectancy**	**X**	**X**	**X**
16	*Happy Planet Index*			
17	*Gross National Happiness*			
18	Advanced Quality of Life Index	X		
19	*European System of Social Indicators*			
20	*JFS sustainability indicators*			
21	*Index of Sustainable Economic Well-being*			
22	*Genuine Progress Indicator*			
23	OECD (nothing specific)	X		
24	*Adjusted Net Savings*			
25	*Wealth Estimates*			
26	Human Development Index	X	X	
27	*Human Poverty Index*			
28	*Human Suffering Index*			
29	*Physical Quality of Life Index*			
30	*General Index of Development*			
31	*Socioeconomic Development Index (SEDI)*			
32	*Level of Living Index*			
33	Index of Economic Well-Being	X		
34	*Canadian Index of Well-Being*			
35	Index of Human Well-Being	X	X	
36	Regional Quality of Development Index (QUARS)	X		
37	*Calvert-Henderson QoL indicators*			
38	Capabilities approach	X	X	
39	Swedish welfare index	X		
40	*Sustainable Society Index*			
41	World Happiness Index	X		
42	**Rahman (QOLI - PC)**	**X**	**X**	**X**
43	**Rahman (QOLI - BORDA)**	**X**	**X**	**X**
44	*Fulfillment of Hierarchical Needs Index (FNHI)*			
45	*Oxfam Well-Being Index*			
46	Index of Social Health	X		
47	New Zealand Economic Living Standard Index	X		
48	*OECD Social Indicator composite*			
49	Economist Quality of Life Index	X	X	
50	DEFRA Well-being Measures	X	X	

Annex-2: Databases which have been screened

- European Quality of Life Survey (n°11)
- European Social Survey (n°14)
- European System of Social Indicators (n°19)
- World Database of Happiness
- Eurobarometer
- World Value Survey
- UN statistics Division
- UN Human development report
- UN Common Database (UNCDB)
- WHOSIS and WHO core health indicators
- UNESCO Institute for Statistics
- OECD stat
- EUROSTAT
- CIA World factbook
- World Bank data
- ILO Statistics
- IEA
- Transparency international
- Economist Intelligence Unit
- Freedom House

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