International Well-Being Index (WBI)
Data Bank for Comparing 29 nations

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This data compilation and the resulting measures are a part of a research project comparing welfare states and welfare outcomes in modern societies. It was undertaken at the Social Research Centre of the University of Iceland, which is a partner to a Nordic Center of Excellence in Welfare Research, devoted to reassessing the Nordic Welfare Model in an international and intra-Nordic comparison (www.reassess.no).

The goal is to create a multi-dimensional sociological measure of the well-being of modern nations, which allows further understanding of how well different nations and welfare states are succeeding in providing good qualities of life for their members. The focus of the present Well-Being Index is thus on welfare outcomes rather than welfare inputs, which can be taken to refer to welfare efforts or generosity (expenditures), welfare rights or welfare regime characteristics. Most comparative studies of welfare states have focused primarily on such welfare inputs. Comparing welfare inputs and well-being outcomes is of great importance for assessing the value and successes of differing national ways of pursuing progress in modern societies.

The index is based on 9 dimensions (sub-indices) and 69 variables. In what follows we outline briefly the structure of the index, methodology, data sources, inter-correlations of the 9 well-being dimensions, correlates of the Well-Being Index to other well-being indices and to other factors of general importance for well-being which are not included in the index itself.

Design of the Well-Being Index

The design of the Well-Being Index is shown in figure 1. It is composed of 9 dimensions which collectively are based on 69 variables (the list of the variables and data sources is here: http://ts.hi.is/gagnagrunnur/29nations.php). The figure shows the number of variables that shape the outcome in each dimension. From these measures, normalized onto a unitary scale from 0 to 1, we derive sub-index scores, the average of which forms the total Well-Being Index. There is no weighting of variables or dimensions.

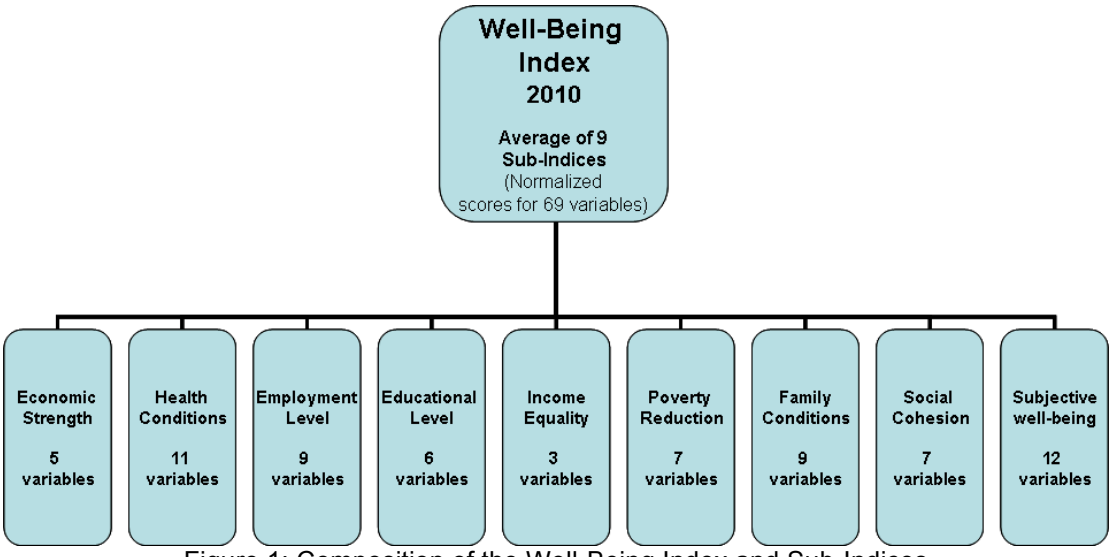

Figure 1: Composition of the Well-Being Index and Sub-Indices

The methodology is similar to that of UN's Human Development Index, except our index has many more dimensions and variables. The HDI core measure is based on 3 dimensions and

4 variables. When aiming for a broader design of such an index, with much greater number of variables to base it on, one has to limit the index to fewer nations due to lack of comparable data. The HDI covers a very large number of nations with few and rather limited measures of quality of life. We have more broadly based measures but for fewer nations. Thus we deal only with selected modern nations. At this stage 29 nations are fully covered by the WBI index and sub-indices. The majority of the measures are aggregate measures of objective aspects but a significant number of variables are derived from survey-based micro-data on subjective factors.

Relationships Between the 9 Dimensions and the Total WB-Index

In general the sub-indices correlate strongly to the total index (from .64 to .92), with education having the lowest coefficient. Social cohesion, family conditions and subjective factors have the strongest association to the overall outcome (.89-.92). Employment level, income equality and poverty reduction are lower but at similar levels (.78-.81). There is on the whole considerable consistency between the dimensions, with significant variations though.

Economic strength, based on measures of real affluence, competitiveness and economic growth, has a correlation of .75 to the WBI. That sub-index has the lowest association to the distributive variables of income equality and poverty reduction, but also relatively low association to health condition, family condition and education. This may point to a significant divergence between the national affluence level and distributive outcomes for the lower and middle earnings groups in some of the societies. Educational level introduces the greatest diversity into the index, with low correlations to health condition, poverty reduction and income equality (.27-.38). The indication may be that education contributes to overall well-being more in the long-run than in the short-run.

Table 1
Correlation matrix for the index dimensions

	Total Well Being	Economic strength	Total Non-Economic factors	Health condition	Employment level	Educational level	Income equality	Poverty reduction	Family conditions	Social Cohesion	Subjective factors
Total Well Being	**1,00**										
Economic strength	**0,75**	1,00									
Total Non-Economic	**1,00**	0,68	1,00								
Health condition	**0,71**	0,52	0,70	1,00							
Employment level	**0,81**	0,68	0,80	0,66	1,00						
Educational level	**0,64**	0,57	0,62	0,27	0,50	1,00					
Income equality	**0,79**	0,39	0,81	0,43	0,40	0,38	1,00				
Poverty reduction	**0,78**	0,33	0,81	0,43	0,42	0,27	0,93	1,00			
Family conditions	**0,91**	0,56	0,92	0,59	0,72	0,54	0,77	0,77	1,00		
Social Cohesion	**0,92**	0,73	0,91	0,74	0,83	0,47	0,59	0,64	0,81	1,00	
Subjective factors	**0,89**	0,72	0,87	0,69	0,79	0,58	0,51	0,54	0,74	0,89	1,00

Health condition has the greatest association to social cohesion, subjective factors and to employment level. Employment level, much like the economic dimension, has its lowest correlation to income equality and poverty reduction and the strongest relationship to social cohesion and subjective factors. Income equality and poverty reduction are rather strongly interrelated (.93) and both are also closely related to family conditions (.77). Family conditions have the lowest association to education, economic strength and health.

Social cohesion is most closely related to subjective factors, employment level, family conditions and then to economic strength. Along with family conditions and social cohesion the subjective factors have most consistently higher correlations to most of the other sub-indices. The weakest associations to the subjective factors are from income equality, poverty reduction and educational level.

Reliability and Validity

Most of the variables we use are well known and well tested as measures and the sources are also well known and respected. That provides reliability. Most of the variables come from OECD reports or OECD data banks, many are from Gallup International's World Poll and a

few come from World Economic Forum. In assessing the reliability and validity of the index we have further used data from International World Values Survey and the European Social Survey, Legatum Prosperity Index, Jonathan Bradshaw's international index of child well-being and indices of extreme poverty in Europe, Ruut Veenhoven's indices of happiness and happy life years, to mention only a few. In assessing the validity of the index we have also used data from various academic researchers and from Eurofoundation's Quality of Life Survey amongst the EU member countries, undertaken in 2007.

On the whole our Well-Being Index has a strong correlation to many well known other indices of quality of life or well-being (Pearson correlation are mainly in the range of .7-.9; see correlation tables on the WBI web site). In figure 2 we show one indication of validity of our index by correlating it to a measure from Eurofoundation's 2007 Quality of Life Survey. The measure is respondents' aggregated answers to the statement "On the whole, my life is close to how I would like it to be" (% who say they "strongly agree" or "agree").

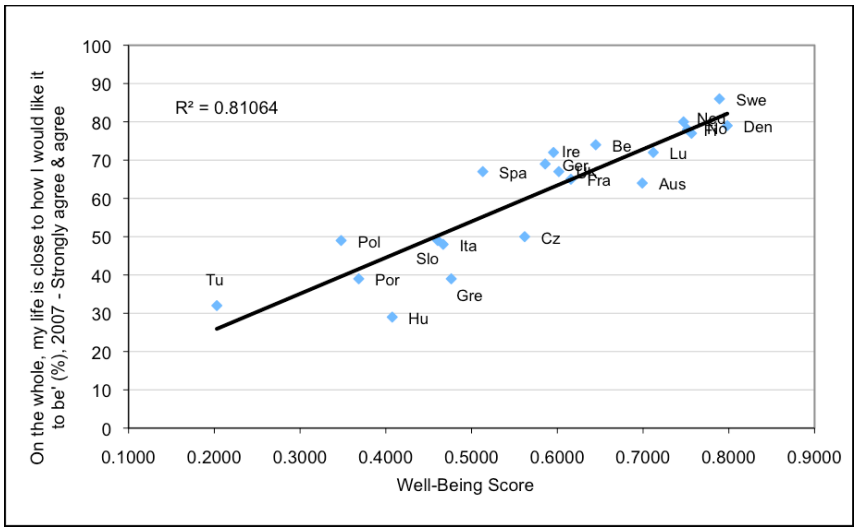

Figure 2: Relationship between the WBI and Eurofound's 2007 Quality of Life Survey results to the question "On the whole, my life is close to how I would like it to be" (% agree).

As seen from the figure the correlation is very high (R^2=0.81; r=.9). The data here only covers the European Union member countries whereas our index also covers North America (USA and Canada) and some Asian nations as well (Australia, New Zealand, Japan and South Korea). Our index has a .79 correlation to the Human Development Index for 2005, it has a .89 correlation to the recent OECD ranking of its Headline Social Indicators and the correlation of WBI to Jonathan Bradshaw's index of Child Well-Being is .85. On the whole we can state that our index has a strong correlation (0.7-0.9) to other well known measures of well-being or quality of life, but still adds its own contribution, which emanates from its specific composition.

The time frame for the measures is also of importance. Most of the variables in our index relate to the period of 2005-2008, but in exceptional cases they cover averages for longer periods. Thus data on affluence levels (GDP per capita in US$ with purchasing power parities) are averages for 2000-2007 and in the 69 variables version we have also exceptionally included one measure of GDP pc for 1990-1999, recognizing that economic affluence is best measured on longer-term averages. In this case effects of the overheated economies, even extreme bubble economies, in the advent of the international economic crisis starting in 2007-8 are restricted in the overall measures. In other cases, such as in data from Gallup World Poll some variables refer to 2008 or 2009, thus reflecting some effects of the crisis on subjective attitudes and assessments. Given that many nations will be carrying burdens from the financial crisis for some time to come this may give a more realistic picture of the subjective outcome for the next few years than if the subjective data were only based on data from the pre-crisis period. Ireland and Iceland, two countries that experienced excessive bubble economies and that were particularly badly hit by the financial crisis, had for example lowered their level of life satisfaction already by 2006. Measures of life satisfaction in these

countries from 2008-9 are in fact higher or on similar level as in 2006, but that is though significantly lower than these nations were previously showing on that measure, such as in 2000 and in 1990. If we had used data on life satisfaction from the year 2000 we would thus be giving a distorted picture of life satisfaction amongst these nations at present and most likely in the immediate future. Such considerations may apply to other subjective variables and other nations too.

When data was missing for individual cases we used data from another time point close to the original one. When that was not possible we used regression technique to estimate the missing value, by relying on an estimate from another variable closely correlated to the variable with the missing value. Such estimates were however minimal in number.

Some Pros and Cons of Composite Well-Being Indicators

All composite indicators are vulnerable to criticisms of design and coverage. Indicators based on only a few dimensions and few measures are particularly susceptible to criticisms that the particular composition determines the outcomes. The strength of our index is the large number of dimensions and the large number of variables. The choices are in most cases sensitive to what we consider self-evident references to what can be taken as indicators of good qualities of life for the big majorities of nationals in the respective countries. Those choices can of course be questioned, for example from widely differing cultural perspectives. Including only a sample of more modern nations in our index reduces the strength of such criticisms. While more variables are a strength we cannot however claim to have anything like a “complete” or the “one correct measure” of the “good life”. No such claim is necessary for the undertaking to be useful as a contribution to knowledge, given that reliability and validity are reasonably fulfilled.

We designed two versions of the WBI index, one based on 37 variables and another one based on 69 variables, which is the basis for our overall ranking of nations and groups of nations. On the web site we compare the outcomes which are quite similar. The Pearson correlations for the two versions of the total score are .99 and the sub-indices range from 0.91-0.99. The top 6 and the bottom 5 countries are the same in the overall well-being measure in both cases and the changes of rank in the middle ranges are generally where the difference between countries were small and the consequent changes of rank are only minor. That comparison is a good lesson for caution in interpreting outcomes. Minor divergences in rank are of minor importance. The major patterns and their variations across different dimensions and groups of nations are what counts. Clustering of countries’ outcomes is thus also useful for analysing the patterns in the data.

We have made use of clustering techniques to base our grouping of nations’ outcomes into 6 groups or clusters. While some clusters are stronger and more unitary than others there are also marginal cases and deviations. But on the whole the groupings that we present on the web site are reasonably congruent and they also relate positively to previous typologies, such as Esping-Andersen’s welfare regimes or Castles’ families of nations varieties. In our forthcoming analytical work we pursue the pros and cons of such groupings further.

A more detailed account of the data, methods, reliability, validity and correlates of outcomes will be available in a forthcoming report analysing the well-being of modern nations, based on this and other data.