LONG-TERM CHANGE OF HAPPINESS IN NATIONS
Two Times More Rise than Decline since the 1970s

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In: Sheldon, K. & Lucas, R. (Eds.) Stability of Happiness: Theories and Evidence on Whether Happiness Can Change, Elsevier, 2014, ISBN: 978-0-12-411478-4, Chapter 9, pp. 167-200

ABSTRACT
Several theories of happiness hold that happiness will not change in the long run. This claim was tested using the time trend data available in the World Database of Happiness. Series of responses on identical survey questions on happiness were selected with intervals of at least 10 years between them, altogether 199 time series in 67 nations and 1,531 data points. Average happiness in a nation rose in 133 of these series and declined in 66. The ratio of 2.0 is statistically significant. The average yearly rise in happiness on a scale 0–10 is +0.016. At this growth rate, happiness will rise by about 1 point on this scale in 70 years.

Keywords: happiness, life satisfaction, social progress, trend analysis, research synthesis

1 INTRODUCTION

1.1 Pursuit of Greater Happiness

Achieving happiness is a major goal in present day Western society. Individually, people try to shape their lives in such a way that they can enjoy themselves. Politically, there is support for policies that aim at greater happiness for everybody. It is widely believed that we can get happier than we are, and there is also consensus that we should not acquiesce to current unhappiness.

The belief that we *can* get happier is rooted in the enlightened view of man. Rather than a helpless being expelled from Paradise, man is seen as autonomous and able to improve his condition through the use of reason. This view was at the core of the 19th century Utopian movement and is still at the ideological basis of the 21th century welfare states. Planned social reform guided by scientific research is expected to result in a better society with happier citizens.

The conviction that we *should* try to improve happiness is also rooted in Enlightened thought. The notion that happiness is to be preferred above unhappiness can be found in the ancient Greek moral philosophy, such as in Epicurism. In the 18th century, it crystallized into the Utilitarian doctrine that the moral value of all action depends on the degree to which it contributes to the "greatest happiness for the greatest number" (Bentham, 1789). Although few accept happiness as the only and ultimate goal in life, it is generally agreed that happiness is a worthwhile goal.

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Happiness ranks high in public opinion surveys on value priorities. See, for example, Harding (1985, p. 231 and Diener and Oishi (2004).

This ideology is not unchallenged, however. It is argued that happiness is not the most valuable goal, and it is claimed that we cannot get happier even if we would want to. In this chapter, I focus on that latter objection.

1.2 Claim That Greater Happiness Is Not Attainable

The objection that we cannot raise happiness rests on two lines of thought. The first is that we are unable to create better living conditions. The second denunciation is that even a successful improvement in living conditions would help little because happiness tends to remain at the same level.

Life Not Getting Better

Enlightened progress optimism has been disputed on several grounds. One is the idea of a misfit between recent societal development and human nature. Critics of modernization see growing loneliness and alienation and assume that life was better in the good old days (e.g., Easterbrook, 2003). A related view holds that we are unable to create a more livable society and that attempts at social engineering have brought us out of the frying pan into the fire. In this view, happiness is declining rather than rising, and this is seen to manifest in soaring rates of suicide and depression. The idea that life was better in the past is also rooted in public opinion (Hagerty, 2003).

Happiness Not Responsive

Next, there are psychological theories which hold that an improvement in living conditions will not result in greater satisfaction with life.

Comparison theory.

One such theory is that our assessment of happiness results from a comparison of life-as-it-is with standards of how-life-should-be, and that happiness is therefore "relative." Any improvement in living conditions would soon result in a rise in our standards of comparison and would therefore leave us as (un)happy as before. In this theory, the pursuit of happiness will lead us on to a *hedonic treadmill* (Brickman & Campbell, 1971).

This theory also predicts that average happiness in nations will tend to the neutral—that is, around 5 on a scale of 0 to 10. Because we compare what we have with what compatriots have, there will always be people who do better or worse, irrespective of the level of living in the country.

Trait theory.

The other theory is that happiness is a fixed "trait" rather than a variable "state." Improvements of external living conditions will therefore not result in greater happiness, our evaluation of life being largely determined by an internal disposition to enjoy it or not. This theory has several variants.

One is *set point theory,* which holds that humans are hard-wired to maintain a similar degree of happiness—that is, a level 7 or 8 on scale of 0 to 10. In this view, happiness is maintained homeostatically and is, as such, comparable to body temperature. Cummins (1995) is a proponent of this view.

Another variant holds that there are inborn differences in our aptness to be happy or not. In this view, happiness is a *temperamental disposition*, possibly based in the neuro-physiological structure of pleasure centers in the brain. Some people are apt

to feel cheerful and hence be positive about their life, even in difficult conditions, whereas others are prone to depression and hence judge their lives negatively even in favorable situations. See, for example, Lykken (1999).

Another variation is that happiness is an *acquired disposition*. Some people will develop a positive attitude toward life, whereas others will become sour. In this vein, Lieberman (1970, p. 74) wrote "…at some point in life, before even the age of 18, an individual becomes geared to a certain stable level of satisfaction, which—within a rather broad range of environmental circumstances—he maintains throughout life."

Sociologists taking this perspective see the happiness of individuals as a reflection of collective *national character*. The outlook on life implied in common values and beliefs is seen to pervade individual perceptions and evaluations. Because collective outlook is largely an invariant matter, individual judgments geared by it are also seen to be rather static.

Easterlin Paradox

All these theories about unresponsive happiness figure in explanations for the Easterlin Paradox, which holds that average happiness in nations has not risen during the past decade in spite of impressive economic growth (Easterlin 1974, 1995, 2005; Easterlin, Aggelescu-McVey, Switek, Sawangfa, & Smith-Zweig, 2010).

1.3 Earlier Research

The idea of unresponsive happiness dates from the 1970s, when data about happiness in nations were scarce. Evidence for this theory crumbled when more data became available.

Comparisons of happiness across contemporary nations reveal large differences, such as an average, on a scale of 0 to 10, of 8.3 in Denmark and only 2.7 in Togo. See Veenhoven (2013a) for an overview of average happiness in 146 nations over the years 2000–2009. Most of the averages are far beyond the neutral 5 predicted by comparison theory, and about half of the scores are outside the range of between 7 to 8 predicted by set point theory.

Correlational analysis reveals strong associations between average happiness and several nation characteristics, such as economic development, freedom of the press, and rule of law. Abundant data on that topic are gathered in the findings report "Happiness and Conditions in the Nation" of the World Database of Happiness (Veenhoven, 2013b. This contradicts the idea that happiness is unresponsive to living conditions in the country.

Comparison of happiness over time has further shown that average happiness has risen in some countries and declined in others. An example of gradually rising happiness is Denmark, where the average on a scale 0–10 rose from 7.6 in 1973 to 8.3 in 2012. Examples of declining happiness are found in Russia after the ruble crisis of the late 1990s and in Greece since the economic recession of 2010. These illustrative time trends are presented in Figure 1. More such trend data are available in the "Trend Report of Average Happiness" generated from the World Database of Happiness (Veenhoven, 2013c. These data leave no doubt that happiness can change and that happiness is responsive to changes in living conditions within an individual's country.

1.4 Research Questions

So the question is not *whether* average happiness in nations can change, but *how often* has it changed and to what *degree?* Answering these questions is a first step to identifying the societal conditions that are most crucial to happiness and to feeding the political process with this information.

1.5 Happiness

The answers to the preceding questions depend on the precise concept of happiness used. Some things called happiness are more static than others. "Eudaimonic" happiness is, for instance, likely to be more stable than "hedonic" happiness, because the former concept denotes a set of personality traits, whereas the latter refers to a variable state of appreciation of life.

Concept

In this chapter, I focus on the latter kind of happiness—hedonic happiness. Happiness is defined *as the degree to which an individual evaluates the overall quality of his or her life as a whole positively*. This definition is delineated in more detail in Veenhoven (1984, ch. 2). This concept is in line with the Utilitarian notion of happiness as the "sum of pleasures and pains." A synonym is "life satisfaction."

Measures

Happiness as defined here can be measured using questions. Various claims to the contrary have been disproven empirically. (Research reviewed in Veenhoven, 1984, ch 3.) Although happiness is measurable in principle, not all the questions and scales that are used to measure this kind of happiness are valid. Elsewhere, I have reviewed current indicators and distinguished between those that are acceptable and those that are not (Veenhoven, 1984, ch 4). In this chapter, I consider only data based on indicators that are deemed acceptable. As a consequence, several well-known studies on this matter have been left out. The studies on which this chapter is based were located using of the World Database of Happiness (Veenhoven 2013).

Long-term change

The above-mentioned theories of stable happiness do allow for short-term fluctuations. Comparison theory assumes that meeting aspirations will boost happiness temporarily until this advancement is neutralized by rising aspirations. Likewise, trait theories hold that happiness may vary somewhat with ups and downs in life: a trait happy person will be relatively happy in the year of marriage and unhappy in the year the couple divorce, but in the long run this person will oscillate around the same happiness level. Although such individual variations will balance out in the population of a nation, collective happenings may still affect the average—for instance, an economic recession or threat of war. For this reason, I consider only long-term changes in average happiness in nations, that is, for periods of at least 10 years.

2 DATA

The data on average happiness in nations were taken from the World Database of Happiness (Veenhoven, 2013). This is a "findings archive" on happiness in the sense of subjective enjoyment of one's life as a whole.

2.1 World Database of Happiness

The archive contains research findings yielded with measures that fit this concept of happiness as life satisfaction. All acceptable indicators are included in the collection "Measures of Happiness" (Veenhoven, 2013e).

Most measures are single survey questions, such as the famous item "Taking all together, how happy would you say you are these days; are you very happy, pretty happy, or not too happy?" This is just one of many acceptable measures of happiness. Survey questions have used different keywords, such as "satisfaction with life," and different response options, such as numerical scales. Next to these single questions, there are also multiple questions, some of which constitute a "balance scale."

This diversity of the measures of happiness used in the many surveys makes it difficult to compare scores and, in particular, to assess change in average happiness over time. The different measures of happiness have therefore been sorted into "equivalent" kinds—that is, questions that address happiness using the same keyword and a rating scale of the same length.

Research findings yielded using these acceptable measures of happiness are described in standard excerpts using standard terminology. Two kinds of findings are distinguished: distributional findings and correlational findings. Distributional findings denote how happy people are in a particular population and are often summarized in a measure of central tendency, typically the mean. Correlational findings are about things that go together with more or less happiness and summarized using measures of association, such as Pearson's correlation coefficient.

Distributional findings are sorted into findings among special publics, such as senior citizens, and findings in the general population. The findings on happiness in the general public are further subdivided by the kinds of areas from which samples were drawn, such as regions, cities, and nations. These latter findings are gathered in the collection of "Happiness in Nations" (Veenhoven, 2013d), which we used for this research.

2.2 Collection Happiness in Nations

To date (September 2013), the collection "Happiness in Nations" contains 6,539 findings on average happiness in 167 nations over the years 1946–2012. These findings are sorted in three levels: (1) by nation, (2) within nations by kind of measure used, and (3) within measures of the same kind by year.

An example of a "nation page" is presented in Appendix A. This is the case of Argentina for which 35 distributional findings are available. These findings are sorted in blocks of equivalent survey questions. The first block consists of seven findings yielded by a survey question on how "happy" one is, the answers to which are rated on a four-step verbal response scale. The measure codes link to the precise text of that specific question, and detailed information about the investigation can be found behind the "i" icon.

Findings are sorted by year within each block, and this first block consists of the years 1981, 1991, 1995, 1999, 2002, 2005, and 2008. Looking at the blocks in Appendix A, we see no clear trend in the responses to the question on 'happiness' (measure type 111c) between 1981 and 2008, but a gradual change to the better in the responses to questions about ''life satisfaction' (measure type 121C and 122F) and the 'Cantril ladder' (measure type 31D).

Identical Questions

Within these blocks of equivalent questions, there are still small differences in the wording of the lead question and/or response options. These variations are marked by the last symbol in the measure code. There are also variations in the time frame addressed in the question, and these are marked with the third letter code, where "c" stands for "current," "g" stands for in "general," and "u" is used for "unclear." These minor variations in the wording of questions can result in small differences in the mean scores and could, as such, overshadow the small changes in actual happiness over time. Together with Floris Vergunst I selected a set of time series based on identical questions—that is, questions with the same measure code.[2]

In the above-mentioned case of seven questions on how "happy" one is in Argentina, this meant that we considered only the five findings based on the question variant "a." Because the series of answers to question variant "f" covered only 6 years, they were left out.

Transformation to a Common 0–10 Numerical Scale

We used the transformed means, provided in the World Database of Happiness, for reasons of comparability. These transformed means are expressed on a common numerical scale ranging from 0 (low) to 10 (high). Scores on numerical response scales, shorter than this, are linearly stretched to give a range of 0–10. Scores on scales with verbal response options are transformed using a procedure first described by Thurstone (1927), in which experts rate the numerical value of response options. This procedure is described in more detail in Veenhoven (1993, ch. 7, "How the data are homogenized").

Series

On this basis, several series of responses to identical questions on happiness in the same nation over time were constructed. We limited our analysis to series that covered a minimum of 10 years. We also limited the analysis to data gathered using probability samples. If the same question was used in several surveys in the same year in the same country, we used the average response to that question. We did not require that a series contain more than two data points, although most series had more. This resulted in 199 time series for average happiness in 67 nations, which together gave 1,531 data points. The data matrix is presented in Appendix 9-2. This work was done in the context of a test of the Easterlin Paradox (Veenhoven & Vergunst, 2014).

From the data discussed above, we selected series that involved at least 30 data points over at least 20 years and that were sufficiently dense for a meaningful test of significance to be performed.

3 METHOD

The question is whether average happiness has typically remained at the same level in nations, or has it risen in most nations?

[2] We made an exception for the two variants of the question on life satisfaction used in the Latino Barometro—that is, the questions coded O-SLU-g-sq-v-4-b and O-SLu-g-sq-v-4-c, which differ slightly in the wording of the answer options. In this case, we could use the first data yielded by the Happiness Scale Interval Study (Veenhoven, 2009b) in which native speakers rated the degree of happiness denoted by the answer categories in intervals on a scale of 0 to 10. This enabled us to transform the observed frequency distributions to a mean on a common scale.

One way to answer this question is to consider the effect size and pick a minimum, such as over a 10-year period, a 0.1 point change in happiness. In this case, our conclusions are limited to the series studied here.

Another way is to generalize beyond the observations, and in this context, it is common practice to infer the probability that the change observed in the sample is positive, while there is actually no correlation in the population from which this sample is drawn. In this context, a 95% probability is usually deemed "significant."

Although routinely performed, this test for significance involves making strong assumptions that do not fully apply in this case. One such assumption is that the 199 series provide a random sample of all possible time series in the 67 nations. Another dubious assumption is that the 67 nations provide a random sample of all nations in the world.

Still other points to keep in mind are that significance depends very much on the sample size, small effects are significant in big samples, and big effects are insignificant in small samples. In the time series at hand, the number of data points is typically too small for a meaningful test. Significance also depends on the dispersion in the observations and on choices made by the investigator, with respect to the null hypothesis, one-sided or two-sided testing, and the probability level. All this makes tests for significance precarious.

In our view, the descriptive approach is the most informative in this case. The number of series at hand is large and covers all we will ever be able to obtain for this period. The interpretation is straightforward; we can easily see in Appendix 9-2 where the Easterlin Paradox applies—coefficient 0—and where not—all the positive coefficients.

Still, I realize that many readers are accustomed to significance testing and some are willing to buy into the above-mentioned perils, even when acknowledged. We therefore did some significance tests. I tested whether the observed positive change in happiness was more common than negative change and whether the average change coefficient was significantly different from zero.

We also considered some sufficiently dense time series separately and assessed whether, in each of these cases, the linear change coefficient differed significantly from zero. In this case, the test informs us about the probability that the observed trend in this series mirrors the trend in the general population—in other words, of the probability that another sample of surveys in the same country over the same years would yield the same results.

3.1 Change in All 199 Series

We regressed happiness against year in all the 199 time series. The resulting regression coefficients were used to indicate the yearly change in happiness in the period covered by the series. Because happiness is expressed on a scale of 0–10, a regression coefficient of 0.01 means a rise of 0.1 point per year, which amounts to a 1-point gain in happiness over 10 years. These yearly coefficients were used in the following ways.

Ratio of Rise or Decline

We first counted the number of series in which happiness had gone up and the number in which happiness had gone down. On that basis, I assessed the ratio: a ratio greater than 1 indicates that increasing happiness is more common than decline; a ratio of 1, that rising and declining happiness are equally frequent; and a ratio smaller than 1,

that a decline in happiness is the most common. The theory of stable happiness predicts a ratio of 1. Deviation from that level was tested for significance.

Average Change Coefficient
The above bipartitions provide a view on the relative frequency of rise and decline in happiness, but do so at the cost of loss of variation. To use the available variance more fully, I computed the average change over all 199 series and assessed whether that average coefficient was positive or negative. I next tested whether the difference from zero was statistically significant.

Grouping by Country
Using the change coefficients in the series, we computed the average change coefficients for each of the 67 nations. Where only one series was available, I took the change coefficient observed in that one, and when more series were available, I computed the average change score.

These change scores in nations were analyzed in the same way as the change scores in the series. First, a ratio of rise or decline in happiness was obtained; then the average change scores were computed and we assessed the statistical significance of these scores.

3.2 Significance 18 Dense Series

Following standard practice in the World Database of Happiness, we selected time series of at least 30 data points over a period of at least 20 years. Together, 18 such series are available: one for each of the 10 EU nations where the Eurobarometer surveys started in the 1970s; one for Japan since 1958; and three for the USA, where different series were started in the 1950s. A coefficient of linear change was computed for each of these series, and the statistical significance of that coefficient was tested at the 55 level.

4 RESULTS: More Advance than Decline in All Series

4.1 Ratio of Rise and Decline

Of the 199 series, 66% showed a rise in happiness and 34% a decline, which resulted in a ratio of 1.9. Likewise, happiness rose in 64% of the 67 nations and declined in 36%, which is a ratio of 1.6. See Table 1. This is clearly more than the ratio of about 1 predicted by the theory of stable happiness.

4.2 Average Change Coefficients

The average yearly rise in happiness observed in the 199 series is +0.016. The average rise in the 67 nations was +0.012.

These numbers may seem small at first sight but result in a considerable improvement in happiness in the long term. At this growth rate, average happiness will rise 1 point on a 0–10 scale in 70 years. Given that the actual range on this scale is between 2.5 and 8.5 (Veenhoven, 2013a), a 1-point rise equals a gain of 17%.

4.3 Similar across Time Spans

In his latest paper, Easterlin et al. (2010) argued that happiness rises only in the short term. The data show otherwise. We can see from Table 2 that the average change in

happiness does not differ very much between the short and the long term and that the rise is slightly stronger in the long term.

4.4 Significant in Most of the Dense Series

The changes in happiness observed in series consisting of 30 or more data points over at least 20 years are presented in Table 3. The last column presents the change in points on a 0–10 scale. The bold printed changes are significantly different from zero. As one can see, the changes range between a gain of more than half a point in the case of Italy and a similar loss in the case of Portugal. The observed change is significantly different from zero in 11 of these cases and insignificant in 6 cases.

Happiness has remained almost stable in the case of West Germany, which is at least partly due to the influx of many unhappy East Germans after reunification in 1990. In the other cases, statistical insignificance does not denote that happiness has not changed. Happiness has gone up and down in Belgium and Greece, and these bumps are not reflected in the coefficient of linear change. Inspection of trend plots shows greater variation in yearly scores for Japan and the USA, probably due to smaller sample sizes and slight differences in the wording of questions and their place in the questionnaire. As noted previously, significance depends also on the dispersion of observations.

5 DISCUSSION

The data presented here leave us with no doubt that happiness in nations *can* change; average happiness *has* changed in most countries for which we have data since the 1970s, and typically to the positive. This begs the question of why so many came to believe that happiness is immutable. Another question is how well the observed change in average happiness fits with trends in other aspects of human thriving.

5.1 Why the Belief in Stable Happiness in Nations

One answer to this question about change in happiness lies in *data availability*. This theory emerged in the 1970s when the differences across countries were more apparent than the change within countries over time. Time series were scarce in those days and too short to capture the small increments in happiness. The view on change in happiness was also blurred by imperfections in the first available time series. The most prominent series is a series of responses to a question on happiness rated on a three-step scale in the USA, which has shown no rise since the first assessment made in 1945. Yet this series started in the euphoric time of a war won, and the wording of the questions differed slightly until 1972. Identical questions used since 1973 do show a slight rise in average happiness, as shown in Table 9-3. Likewise, changes in the wording of survey questions in Japan have veiled a trend to the positive since 1958, as shown by Suzuki (2009).

Another reason for the belief that happiness is immutable lies in *data analysis* and, in particular, in the interpretation of tests of significance of changes in happiness. Absence of significance is taken as proof of stability, instead of being seen as a lack of statistical power. Remember the earlier “Method” section, in which I argued that most of the time data series on happiness do not meet the requirements for a meaningful significance test.

A third reason lies in the *theory of happiness*. Happiness is commonly seen to result from a cognitive comparison between what one *wants* and what one has, and in

that view a hedonic treadmill is plausible. The theory that happiness depends on the gratification of *needs* in the first place has less appeal, in particular among sociologists, although it fits better with the facts (Veenhoven, 2008). Likewise, psychologists tend to focus on stable *traits* rather than on variable *states*, and for this reason the stability of happiness is more prominent in their perspective.

Still another reason lies in *ideology*. The belief that happiness does not rise in spite of economic growth fits well with several strands of social criticism, such as criticism of capitalism, globalization, mass consumption, and environmental degradation. Activists spread this belief to promote their cause, actively using all the media available.

5.2 Related Trends in Living Conditions

Material living conditions have improved in most countries since the 1970s, and this gain is reflected in rising GNP per capita. Contrary to the earlier mentioned Easterlin Paradox, there is a clear relation with happiness. The greatest rise in happiness is observed in the countries where the economy has grown the most: $r = +0.22$ (Veenhoven & Vergunst, 2014). The recent economic recession has caused a considerable drop in average happiness in the most affected European countries: Greece, Spain, and Portugal.

There are also strong indications of lessening social inequality in developed nations. Although income differences have grown, differences in happiness have lessened, and inequality in happiness among citizens reflects the total effects of inequalities in all life domains. Inequality of happiness can be measured using the standard deviation. This appears in a comparison of standard deviations of happiness over time (Kalmijn & Veenhoven, 2005). Standard deviations of happiness have shrunk in most nations since the 1970s, partly due to a reduction in the percentage of very unhappy people (Veenhoven, 2005a). So the rise in average happiness is typically accompanied with a reduction in differences among citizens.

5.3 Related Trends in Human Flourishing

Human flourishing is reflected in good health and finally in longevity. Life expectancy has also increased in most countries over the period considered here, and together with the observed rise in average happiness, this has resulted in a spectacular rise in "Happy Life Years" (Veenhoven, 2005b), which is paralleled by a similar rise in years lived in good health. Life is getting better, and the rise of average happiness in nations is just one indicator of that development.

6 CONCLUSION

Average happiness in nations has changed in most nations over the past decade and in most cases for the positive. Stable happiness in nations is the exception rather than the rule.

REFERENCES

Bentham, J. (1789)
An Introduction to the Principles of Morals and Legislation
London, UK.

Brickman, P., & Campbell, D.T. (1971)
Hedonic relativism and planning the good society.
In M.H. Appley (Ed.), 'Adaptation Level Theory' (pp. 287–302). New York: Academic Press.

Cummins, R.J. (1995)
On the trait of the gold standard for subjective well-being.
Social Indicators Research, 35, 179–200.

Diener, E. & Oishi, S. (2004)
Are Scandinavians happier than Asians? Issues in comparing nations on subjective well-being
In: Columbus, F. (Ed.) "Asian Economic and Political Issues", 20: 1 – 25

Easterbrook, G. (2003)
The Progress Paradox: How Life Get Better While People Feel Worse.
New York: Random House.

Easterlin, R.A. (1974)
Does economic growth improve the human lot?
In P.A David & W.R. Melvin (Eds.), "Nations and Households in Economic Growth" (pp. 89–125). New York: Academic Press.

Easterlin, R.A. (1995)
Will raising the incomes of all increase the happiness of all?
Journal of Economic Behavior and Organization, 27*,* 35–47.

Easterlin, R.A. (2005)
Feeding the illusion of growth and happiness: A reply to Hagerty and Veenhoven.
Social Indicators Research, 74, 429–443.

Easterlin, R.A., Aggelescu-McVey, L., Switek, M., Sawangfa, O, & Smith-Zweig, J. (2010)
The happiness-income paradox revisited.
Proceedings of the National Academy of Science of the United States of America, 107(52), 22463–22468.

Hagerty, M.R. (2003)
Was life better in the " Good Old Days"? Inter temporal, judgments of life satisfaction.
Journal of Happiness Studies, 4, 115–139.

Harding, S.D. (1985)
Values and the Nature of Psychological Well-Being,
in Abrams, M. Gerard, D. Timms, N. (Eds.): "Values and Social Change in Britain", McMillan, 1985, London, UK, 227 - 252

Kalmijn, W.M., & Veenhoven, R. (2005)
Measuring inequality of happiness in nations: In search for proper statistics.
Journal of Happiness Studies, 6, 357–396.

Lieberman, L.R. (1970)
Life satisfaction in the young and the old.
Psychological Reports, 27*,* 75–79.

Lykken, D.T. (1999)
Happiness: What Studies on Twins Show Us about Nature, Nurture and the Happiness Set-Point.
New York: Golden Books.

Suzuki, K. (2009)
Are they frigid to the economic development? Reconsideration of the economic effect on subjective well-being in Japan.
Social Indicators Research, 92*,* 81–89.

Thurstone, L.L. (1927)
Psychophysical analysis.
American Journal of Psychology, 38*,* 368–389

Veenhoven, R. (1984)
Conditions of happiness,
Reidel (now Springer), Dordrecht, Netherlands

Veenhoven, R. (1993)
How the data are homogenized.
Chapter 7 in: R. Veenhoven "Happiness in Nations: Subjective Appreciation of Life in 56 Nations 1946–1992"
Netherlands: RISBO, Erasmus University Rotterdam.
Available at http://worlddatabaseofhappiness.eur.nl/hap_nat/introtexts/intronat7.pdf

Veenhoven, R. (2005a)
Return of inequality in modern society? Test by trend in dispersion of life-satisfaction across time and nations.
Journal of Happiness Studies, 6*,* 457–487.

Veenhoven, R. (2005b)
Apparent quality of life: How long and happy people live.
Social Indicators Research, *71,* 61–86.

Veenhoven, R. (2008)
Sociological theories of subjective wellbeing.
In M. Eid & R.J. Larsen (Eds.), "The Science of Well-Being*"* (pp. 44– 61). New York: Guilford Press.

Veenhoven, R. (2009b)
International scale interval study: Improving the comparability of responses to survey questions about happiness.
In: V. Moller & D. Huschka (Eds.), *Quality of Life and the Millennium Challenge: Advances in Quality-of-Life Studies, Theory and Research,* Social Indicators Research Series (vol. 35, pp. 45–58), Springer, Dordrecht, Netherlands.

Veenhoven, R. (2013)
World Database of Happiness: Archive of Research Findings on Subjective Enjoyment of Life.
Erasmus University Rotterdam, Netherlands
Available at http://worlddatabaseofhappiness.eur.nl

Veenhoven, R. (2013a)
Average happiness in 146 nations 2000-2009
World Database of Happiness, Erasmus University Rotterdam
Available at
http://worlddatabaseofhappiness.eur.nl/hap_nat/findingreports/RankReport_AverageHappiness.pdf

Veenhoven, R. (2013b)
Findings on happiness and conditions in one's nation
World Database of Happiness, Erasmus University Rotterdam, Netherlands
Available at http://worlddatabaseofhappiness.eur.nl/hap_cor/top_sub.php?code=N4

Veenhoven, R. (2013c)
Trend average happiness in nations 1946-2010
World Database of Happiness. Erasmus University Rotterdam, Netherlands.
Available at:
http://worlddatabaseofhappiness.eur.nl/hap_nat/findingreports/TrendReport_AverageHappiness.pdf

Veenhoven, R. (2013d)
Happiness in Nations
World Database of Happiness. Erasmus University Rotterdam, Netherlands
Available at http://worlddatabaseofhappiness.eur.nl/hap_nat/nat_fp. htm

Veenhoven, R. (2013e)
Measures of Happiness
World Database of Happiness. Erasmus University Rotterdam, Netherlands.
Available at: http://worlddatabaseofhappiness.eur.nl/hap_quer/hqi_fp.php

Veenhoven, R., & Hagerty, M.R. (2005)
Rising happiness in nations 1946–2004: A reply to Easterlin
Social Indicators Research, *79,* 421–436.

Veenhoven, R., & Vergunst, E.F. (2014)
The Easterlin Illusion: Economic growth does go ith greater happiness
International Journal of Happiness and Development (2) in press

Table 1
Change of average happiness in 67 nations
Frequency of rise versus decline over periods of at least 10 years

Pattern of change	***Series***		***Nations***	
	N	*%*	*N*	*%*
Rise	133	66%	42	62%
Decline	66	34%	25	38%
Total	199	100%	67	100%
Ratio rise-decline	**1.94**		**1.64**	

Source: Veenhoven (2013d)

Table 2
Change of average happiness in nations
Average yearly change in points on scale 0–10, split-up by length of period

Period	***Series***		***Nations***	
	N	*b*	*N*	*b*
Short term	114	+0.017	31	+0.010
Medium term	67	+0.013	27	+0.009
Long term	18	+0.020	9	+0.030
Total	**199**	**+0.016**	**67**	**+0.012**

Source: Veenhoven (2013d)

Table 3
Change of average happiness in 14 nations
Time series of at least 30 observations over at least 20 years

Nation	***Question***	***Years***	***Data points***	***Change in average happiness on scale 0–10***		
				Average yearly change		*Total change in points*
				Change coefficient	*95% significance interval*	
Belgium	O-SLL-u-sq-v-4-b	1973–2012	70	–.007	–.016 to +.002	–0.27
Denmark	O-SLL-u-sq-v-4-b	1973–2012	69	**+.015**	+.011 to +.018	**+0.59**
France	O-SLL-u-sq-v-4-b	1973–2012	69	**+.016**	+.011 to +.021	**+ 0.62**
Germany (West)	O-SLL-u-sq-v-4-b	1973–2009	65	+.000	-.007 to +.007	0.00
Greece	O-SLL-u-sq-v-4-b	1981–2012	58	**–.021**	–.036 to -.006	**–0.67**
Ireland	O-SLL-u-sq-v-4-b	1973–2012	69	+.002	–.006 to +.009	+ 0.08
Italy	O-SLL-u-sq-v-4–b	1973–2012	69	**+.012**	+.004 to +.020	**+ 0.47**
Japan	O-SLu-c-sq-v-4-e	1964–2013	49	**+.004**	+.000 to +.008	**+.20**
Luxembourg	O-SLL-u-sq-v-4-b	1973–2012	69	**+.009**	+.005 to +.014	**+ 0.35**
Netherlands	O-SLL-u-sq-v-4-b	1973–2012	69	**+.008**	+.003 to +.012	**+ 0.31**
	O-HP-u-sq-v-5-a	1977–2011	57	–.001	–.003 to +.000	–0.06
Portugal	O-SLL-u-sq-v-4-b	1985–2012	49	**–.035**	–.048 to –.021	**– 0.98**
Spain	O-SLL-u-sq-v-4-b	1985–2012	49	+.011	–.011 to +.016	+ 0.31
UK	O-SLL-u-sq-v-4-b	1973–2012	68	**+.008**	+.005 to +.012	**+ 0.31**
USA	O-HL-c-sq-v-3-aa	1974–2008	62	+.009	+.002 to +.016	**+0.29**
	O-SLP-g-sq-v-2b	1973–2008	45	+.011	+.005 to +.017	**+0.35**
	O-BW-c-sq-l-11a	1959–2007	60	+.013	+.006 to +.020	**+0.62**

Source: Veenhoven (2013c)

Appendix A

Example of a Presentation of Findings on Average Happiness in Nations Distributional findings on happiness in Argentina (AR)

Measure type: 111C 4-step verbal: Happiness
Taking all things together, would you say you are:
- very happy
- quite happy
- not very happy
- not at all happy
very = 4 … not at all = 1

Details	Measure code	Year	On original range 1–4		On range 0–10	
			Mean	SD	Mean	SD
	O-HL-u-sq-v-4-a	1981	2.95	0.65	6.80	1.88
	O-HL-u-sq-v-4-a	1991	3.07	0.82	7.00	2.27
	O-HL-u-sq-v-4-a	1995	3.09	0.73	7.13	2.01
	O-HL-u-sq-v-4-a	1999	3.13	0.75	7.20	2.08
	O-HL-g-sq-v-4-f	2002	2.60	0.92	5.11	2.64
	O-HL-u-sq-v-4-a	2005	3.20	0.67	7.45	1.78
	O-HL-g-sq-v-4-f	2008	3.03	0.72	6.37	2.03
Average			3.01	0.75	6.72	2.10

Measure type: 121C 4-step verbal: Life Satisfaction
How satisfied are you with the life you lead?
- very satisfied
- fairly satisfied
- not very satisfied
- not at all satisfied
very = 4 … not at all = 1

Details	Measure code	Year	On original range 1–4		On range 0–10	
			Mean	SD	Mean	SD
	O-SLu-g-sq-v-4-b	1997	2.14	0.96	6.41	2.01
	O-SLu-g-sq-v-4-b	2000	2.21	1.01	6.52	2.02
	O-SLu-g-sq-v-4-c	2001	2.81	0.86	5.99	2.34
	O-SLu-g-sq-v-4-c	2003	2.91	0.77	6.27	2.13
	O-SLu-g-sq-v-4-c	2004	2.92	0.83	6.30	2.29
	O-SLu-g-sq-v-4-c	2005	2.92	0.84	6.30	2.31
	O-SLu-g-sq-v-4-c	2006	3.02	0.74	6.57	2.05

	O-SLu-g-sq-v-4-c	2007	2.85	0.75	6.11	2.04
	O-SLu-g-sq-v-4-dc	2008	3.01	0.77	6.82	2.00
	O-SLu-g-sq-v-4-c	2010				
	O-SLu-g-sq-v-4-da	2010	2.94	0.89	6.64	2.31
Average			2.77	0.84	6.39	2.15

Measure type: 122F 10-step numeral: Life Satisfaction
All things considered, how satisfied are you with your life as a whole now?
10 satisfied
.
.
1 dissatisfied

Details	Measure code	Year	On original range 1–10		On range 0–10	
			Mean	SD	Mean	SD
	O-SLW-c-sq-n-10-aa	1981	6.80	2.10	6.44	2.34
	O-SLW-c-sq-n-10-aa	1990	7.25	2.03	6.95	2.25
	O-SLW-c-sq-n-10-aa	1995	6.92	2.32	6.58	2.58
	O-SLW-c-sq-n-10-a	1999	7.33	2.26	7.03	2.51
	O-SLW-c-sq-n-10-a	2006	7.79	1.91	7.54	2.12
Average			7.22	2.12	6.91	2.36

Measure type: 122G 11-step numeral: Life Satisfaction
All things considered, how satisfied or dissatisfied are you with your life as a whole these days?
10 very satisfied
.
.
0 not satisfied

Details	Measure code	Year	On original range 0–10		On range 0–10	
			Mean	SD	Mean	SD
	O-SLW-c-sq-n-11-a	2007	7.14	1.82	7.14	1.82
Average			7.14	1.82	7.14	1.82

Measure type: 222 10-item Affect Balance Scale (Bradburn)
During the past few weeks did you ever feel (yes/no)
- particularly excited or interested in something?
- so restless that you couldn't sit long in a chair?
- proud because someone complimented you on something you had done?
- very lonely or remote from other people?
- pleased about having accomplished something?

- bored?
- on top of the world?
- depressed?
- that things were going your way?
- upset because someone criticized you?

Details	Measure code	Year	On original range -5–5		On range 0–10	
			Mean	SD	Mean	SD
	A-BB-cm-mq-v-2-a	1991	1.26	1.93	6.26	1.93
Average			1.26	1.93	6.26	1.93

Measure type: 235 More days like yesterday
Do you want more days like yesterday?
- yes
- no
% yes

Details	Measure code	Year	On original range 0–100		On range 0–10	
			Mean	SD	Mean	SD
	A-AOL-yd-sq-v-2-a	2008	76.00			
Average			76.00			

Measure type: 236 14-item Yesterday's Affect Balance
Did you feel yesterday… (yes/no)?
- well rested
- worried
- proud
- depressed
...etc.
Computation: % positive affect minus % negative affect

Details	Measure code	Year	On original range -100–100		On range 0–10	
			Mean	SD	Mean	SD
	A-AB-yd-mq-v-2-b	2008	47.00			
Average			47.00			

Measure type: 31D 11-step numeral: Best-Worst Possible Life
Suppose the top of the ladder represents the best possible life for you and the bottom of the ladder the worst possible life.
Where on this ladder do you feel you personally stand at the present time?
10
.
.
0

Details	Measure code	Year	On original range 0–10		On range 0–10	
			Mean	SD	Mean	SD
	C-BW-c-sq-l-11-c	2002	5.99	2.40	5.99	2.40
	C-BW-c-sq-l-11-c	2006	6.27	2.01	6.27	2.01
	C-BW-c-sq-l-11-c	2007	6.69	1.87	6.69	1.87
	C-BW-c-sq-l-11-c	2008	6.20	1.80	6.20	1.80
	C-BW-c-sq-l-11-c	2008	6.00		6.00	
	C-BW-c-sq-l-11-c	2010	6.30	1.80	6.30	1.80
	C-BW-c-sq-l-11-c	2011	6.80		6.80	
Average			6.32	1.97	6.32	1.97

Measure type: 411B 3-step: Feel Happy
Do you feel...?
- happy
- fairly happy
- unhappy

Details	Measure code	Year	On original range 1–3		On range 0–10	
			Mean	SD	Mean	SD
	M-FH-u-sq-v-3-k	2011	2.61	0.60	6.23	1.22
Average			2.61	0.60	6.23	1.22

[a] Source: Veenhoven (2013d)

Appendix B
Data Matrix

2002-2011	Argentina						0,078	10-20
1981-2005	Argentina		0,026					21-40
1981-2006	Argentina				0,039			21-40
1975-2008	Australia						0,011	21-40
1981-2005	Australia		-0,005					21-40
1981-2005	Australia					-0,001		21-40
1975-2011	Australia							21-40
1995-2011	Austria			-0,027				10-20
1990-1999	Austria				0,187			10-20
1990-2006	Austria		-0,029					10-20
1990-2000	Belarus		0,072					10-20
1990-2000	Belarus				-0,09			10-20
1981-1999	Belgium				0,011			10-20
1989-2008	Belgium					-0,032		10-20
1975-1986	Belgium	-0,054						10-20
1973-2011	Belgium			-0,008				21-40
1981-2006	Belgium		0,016					21-40
2002-2011	Bolivia						0,046	10-20
1997-2007	Bolivia			-0,05				10-20
1990-2006	Brasil		0,054					10-20
1990-2006	Brasil				0,022			10-20
1960-2011	Brasil						0,046	> 40
2001-2011	Bulgaria			0,05				10-20
2002-2011	Bulgaria						0,021	10-20
1990-2006	Bulgaria		0,029					10-20
1990-2006	Bulgaria				0,019			10-20
1968-1977	Canada			-0,009				10-20
1981-2000	Canada		0,01					10-20
1982-2000	Canada				-0,004			10-20

Period	Country	OHL3	OHL4	OHL5	OSL2	OSL3	OSL4	OSL5	OSL7	OSL10	OSL11	CBW	Term
1997-2010	Chile						0,009						10-20
1990-2005	Chile		0,017										10-20
1990-2005	Chile									-0,025			10-20
1990-2007	China		0,002										10-20
1997-2011	China											-0,005	10-20
1990-2009	China									-0,019			10-20
1990-2010	Costa Rica						-0,041						21-40
1995-2007	Croatia									0,019			10-20
1962-2011	Croatia											0,018	> 40
2001-2011	Cyprus						0,033						10-20
2001-2011	Czech										0,026		10-20
1990-2006	Czech		0,047										10-20
1981-1999	Denmark									0,003			10-20
1975-1986	Denmark	-0,026											10-20
1972-2006	Denmark		0,019										21-40
1973-2011	Denmark						0,014						21-40
1962-2011	Dom. Republic											0,081	> 40
1997-2007	Ecuador						-0,05						10-20
1960-2011	Egypt											-0,012	> 40
1991-2010	El Salvador						-0,04						10-20
1997-2006	England								-0,006				10-20
1975-1986	England	0,023											10-20
1973-2011	England						0,008						21-40
1975-2011	England											0,002	21-40
1981-2006	England		-0,002										21-40
1981-2006	England									-0,003			21-40
1990-1999	Estonia									-0,038			10-20
2001-2011	Estonia						0,091						10-20
1990-2006	Estonia		0,051										10-20
1956-2011	Finland						0,01						> 40
1972-2006	Finland		0,01										21-40
1981-2005	Finland										0		21-40
1975-1986	France	-0,003											10-20

Period	Country	OHL3	OHL4	OHL5	OSL2	OSL3	OSL4	OSL5	OSL7	OSL10	OSL11	CBW	Term
1973-2011	France						0,016						21-40
1975-2011	France											0,032	21-40
1981-2006	France		0,017										21-40
1981-2006	France									0,011			21-40
1991-2009	Germany	0,009											10-20
1997-2006	Germany		0,001										10-20
1990-2010	Germany						0,001						21-40
1981-2011	Greece						-0,012						21-40
2002-2011	Guatemala											-0,15	10-20
1997-2009	Guatemala						0,05						10-20
1997-2007	Honduras						0,005						10-20
2002-2011	Honduras											-0,12	10-20
1981-1999	Hungary									-0,076			10-20
2001-2011	Hungary						-0,065						10-20
1981-2006	Hungary		-0,006										21-40
1981-1999	Iceland	0,004											10-20
1981-1999	Iceland									-0,003			10-20
1990-2006	India		0,027										10-20
1962-2011	India											0,044	> 40
1975-2007	India										0,064		21-40
1981-1999	Ireland									0,028			10-20
1975-1986	Ireland	0,06											10-20
1981-2006	Ireland		-0,006										21-40
1973-2011	Ireland						0,002						21-40
1961-2011	Israel											0,04	> 40
1975-1986	Italy	0,053											10-20
1973-2011	Italy						0,019						21-40
1975-2011	Italy											0,027	21-40
1975-2009	Italy										0,011		21-40
1981-2006	Italy		0,024										21-40
1981-2005	Italy									0,008			21-40
1988-2005	Japan							-0,01					10-20
1964-2011	Japan						0,007						> 40

Period	Country	OHL3	OHL4	OHL5	OSL2	OSL3	OSL4	OSL5	OSL7	OSL10	OSL11	CBW	Term
1962-2011	Japan											0,023	> 40
1978-2002	Japan							-0,021					21-40
1975-2007	Japan										0,022		21-40
1981-2005	Japan		0,026										21-40
1981-2005	Japan									0,013			21-40
1981-2011	Korea											0,072	21-40
1981-2005	Korea		0,081										21-40
1981-2005	Korea									0,035			21-40
1980-2007	Korea										0,028		21-40
1981-2001	Korea								0,017				21-40
2001-2011	Latvia						0,018						10-20
1990-2006	Latvia		0,049										10-20
1990-1999	Latvia									-0,068			10-20
2001-2011	Lithuania						0,04						10-20
1990-2006	Lithuania		0,065										10-20
1990-1999	Lithuania									-0,03			10-20
1975-1986	Luxembourg	0,038											10-20
1975-2004	Luxembourg										0,009		21-40
1973-2011	Luxembourg						0,009						21-40
2001-2011	Malta						-0,011						10-20
1975-2011	Mexico											0,017	21-40
1975-2007	Mexico										0,23		21-40
1981-2005	Mexico		0,045										21-40
1981-2005	Mexico									0,017			21-40
1996-2006	Moldavia		0,023										10-20
1996-2006	Moldavia									0,189			10-20
1975-1986	Netherlands	0,015											10-20
1973-2011	Netherlands						0,007						21-40
1977-2011	Netherlands			-0,005									21-40
1981-2008	Netherlands		0,022										21-40
1981-2008	Netherlands									0,001			21-40
1974-2009	Netherlands							0,012					21-40
1997-2007	Nicaragua						-0,076						10-20

Period	Country	OHL3	OHL4	OHL5	OSL2	OSL3	OSL4	OSL5	OSL7	OSL10	OSL11	CBW	Term
1990-2000	Nigeria		0,16										10-20
1990-2000	Nigeria									0,026			10-20
1962-2011	Nigeria											0,01	> 40
1981-1996	Norway									-0,019			10-20
1972-2007	Norway		-0,018										21-40
1962-2011	Panama											0,042	> 40
1997-2007	Paraguay						-0,055						10-20
2002-2011	Peru											-0,009	10-20
1997-2007	Peru						-0,013						10-20
1996-2005	Peru		0,015										10-20
1991-2000	Poland	0,028											10-20
1990-2007	Poland		-0,011										10-20
1990-2007	Poland									0,028			10-20
2001-2011	Poland						0,066						10-20
1962-2011	Poland											0,027	> 40
1990-1999	Portugal									-0,011			10-20
1990-2006	Portugal		0,036										10-20
1985-2011	Portugal						-0,02						21-40
1990-2006	Romania		-0,003										10-20
1990-2005	Romania									-0,015			10-20
1990-2003	Romania							-0,018					10-20
2002-2011	Russia											0,09	10-20
1990-2005	Russia		0,046										10-20
1990-2005	Russia									0,056			10-20
1992-2005	Russia							0,128					10-20
1996-2006	Serbia						-0,034						10-20
1996-2006	Serbia						0,047						10-20
1990-1999	Slovakia									-0,015			10-20
2001-2011	Slovakia						0,116						10-20
2002-2011	Slovakia											0,061	10-20
1990-2006	Slovakia		0,07										10-20
2001-2011	Slovenia						-0,01						10-20
1990-2007	Slovenia									0,067			10-20

Period	Country	OHL3	OHL4	OHL5	OSL2	OSL3	OSL4	OSL5	OSL7	OSL10	OSL11	CBW	Term
1992-2006	Slovenia		0,111										10-20
1962-2011	Slovenia											0,014	> 40
2002-2011	South Africa											-0,038	10-20
1983-2002	South Africa			-0,044									10-20
1981-2007	South Africa		0,03										21-40
1981-2007	South Africa									0,015			21-40
1983-2004	South Africa							-0,075					21-40
1985-2011	Spain						0,007						21-40
1981-2007	Spain		0,015										21-40
1981-2007	Spain									0,023			21-40
1995-2011	Sweden						0,024						10-20
1972-2006	Sweden		0,001										21-40
1981-2006	Sweden									-0,015			21-40
1990-2007	Switzerland		0,007										10-20
1990-2007	Switzerland									-0,023			10-20
1995-2006	Taiwan		-0,038										10-20
1995-2006	Taiwan									0,002			10-20
2002-2011	Turkey											0,08	10-20
2001-2011	Turkey						0,067						10-20
1990-2007	Turkey									0,061			10-20
1990-2000	Turkey		-0,03										10-20
1996-2006	Ukraine		0,133										10-20
1996-2006	Ukraine									0,188			10-20
1997-2007	Uruguay						-0,092						10-20
1991-2004	USA						0,049						10-20
1991-2008	USA						0,074						10-20
1959-2011	USA											0,009	> 40
1957-2010	USA	0,001											> 40
1959-2007	USA										0,005		> 40
1946-2002	USA		-0,001										> 40
1946-1990	USA	-0,002											> 40
1981-2006	USA		0,006										21-40
1981-2006	USA									-0,016			21-40

Period	Country	OHL3	OHL4	OHL5	OSL2	OSL3	OSL4	OSL5	OSL7	OSL10	OSL11	CBW	Term
1975-2008	USA	0,008											21-40
1973-2008	USA				0,011								21-40
1968-2000	USA					-0,002							21-40
2002-2011	Venezuela											0,078	10-20
1997-2007	Venezuela						0,046						10-20

Source: Veenhoven & Vergunst 2014

Missing data GDP: Egypt 1959, Croatia 1961-1989, Poland 1961-1984, USA 1945-1959, Finland 1955-1959, Estonia 1989-1994, Czech 1989, Lithuania 1989, Moldavia 1989, Serbia 1995-1996, Belarus 1989.