ECONOMIC GROWTH AND HAPPINESS IN NATIONS BETWEEN 1946-2019

The Demise of the Easterlin Paradox

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Abstract

The Easterlin Paradox held initially that income adds to happiness at the micro-level of individuals but not at the macro-level of nations. That claim has been mitigated over the years, first that economic *growth* does not add to average happiness in nations and the last version holding that economic growth does not add to happiness in the *long-run* (Easterlin and O'Connor 2022). We checked that last claim in an analysis of 118-time series on average happiness in 48 nations that involve at least 10 data points over at least 20 years. We found a considerable correlation between the change in GDP per capita in nations and the change in average happiness. r = +0.28. On average, a yearly 1% economic growth was followed by a 0.0035 gain in average happiness in a nation. Differences with the study of Easterlin and O'Connor are discussed.

Keywords: happiness, economic growth, trend analysis.

1. INTRODUCTION

One of the great debates in happiness economics is whether economic growth adds to average happiness in nations. A landmark study on that subject was Easterlin's (1974) *Does economic growth improve the human lot? Some empirical evidence*. In this study, Easterlin noted that there is a strong positive correlation between income and happiness at the micro-level of individuals but claimed that no such relation exists at the macro-level of nations.

This empirical claim has been mitigated over the years. Initially, Easterlin asserted that the

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happiness *level* does not differ between poor and rich nations. When that assertion appeared to be untenable, Easterlin maintained that economic *growth* is not followed by a *rise* in average happiness in nations. That empirical claim appeared not fully tenable either, with economic recessions being typically attended by a decrease in happiness. In the latest defense of the 'Paradox', Easterlin & O'Connor (2022) limit the claim to *long-term change* of average happiness in nations, referring back to the exemplary case of the USA, where happiness had not changed between 1946- 1970 despite impressive economic growth during that period.

This reduced claim has been challenged on two grounds. One objection is that the absence of a rise in average happiness following economic growth does not necessarily mean that economic growth does not add to happiness, since average happiness can be reduced for other reasons which veil an otherwise positive effect of economic growth. In this vein, Fischer (2008) argued that American happiness may have been lowered because of declining family life. The other objection is that the case of the USA may be an exception to the rule that economic growth typically adds to average happiness in a nation.

This question of the most common effect of economic growth on happiness has instigated a lot of research, fueled by the increasing availability of trend data on happiness in nations. In that discussion, Easterlin maintained that there was typically no relation between the growth of the economy and the rise of average happiness in nations, while his critics argued that there was. The ongoing discussion has resulted in some 200 publications which are listed here. The main points in the technical discussion with Veenhoven are:

- Veenhoven (1991) argues that economic growth was followed by a rise in average happiness in most nations, more so in poor countries than in rich countries. The Paradox describes an exception rather than the rule.
- Easterlin (1974) updated this article with his article titled "Will Raising the Incomes of All Increase the Happiness of All" in 1995 and emphasized in this article that the paradox continues. Although there is a positive relation between the growth of the economy and the rise of happiness in nations, the correlation is not statistically significant.
- Hagerty & Veenhoven (2003) object that this does not warrant the conclusion that there is no effect. While Easterlin drew on data from only 11 countries from 1972 to 1987, all from developed OECD countries, Hagerty and Veenhoven presented data from gathered 21 countries in three upper, middle, and low-income categories over the period 1958-

1996 and found that a 1% increase in national income had increased happiness by 0.008 points on a 0-10 scale.

- Easterlin (2005) retorts that the evidence for increased happiness is still unclear. He argued that the gain in happiness was insignificant for 15 of 21 countries in the study of Hagerty and Veenhoven and that this was the case for 6 out of 7 countries outside Europe that do not support the claims of Hagerty and Veenhoven. Easterlin argues that if countries with very similar growth rates were grouped in their analysis, quite different trends in happiness would be found.
- Veenhoven and Hagerty (2006) present additional data showing that the increase in happiness in developing countries is much greater than the increase observed in the US and EU-8.
- In a series of papers with co-authors (Easterlin & Angelescu 2009, Easterlin & Sawangfa 2010, Macunovich & Easterlin 2010 and Easterlin, McVey, Switek, Sawangfa, and Zweig (2010) Easterlin provided further data to support the paradox based on an analysis of 54 countries. He admits that economic growth tends to raise average happiness in the short-run but does not see evidence for a long-term effect.
- Veenhoven and Vergunst (2014) analyzed a bigger dataset, covering 67 nations and involving 199 time-series ranging from 10 to 40 years. They observed a positive effect of economic growth on average happiness in nations, both in the short- and long-run. A 1% economic growth was followed by a 0.0034 increase in average happiness next year. They contend that this effect is small, but not meaningless; it implies that a common annual growth rate of 5% annual growth in the economy will result in a one-point gain of happiness on the 0-10 scale (10%) in 60 years. V&V further argued that a test for statistical significance makes no sense in this case since the data do not provide an a-select sample of all nations in the world ever.
- Easterlin (2017) retested his paradox using data from the World Values Survey and the European Values Survey in 45 countries (21 developed, 16 underdeveloped, and eight transitional countries) and concluded that a higher long-term growth rate of GDP was not accompanied by a statistically significant higher rise of happiness.
- Easterlin and O'Connor (2022) presented another test of the long-term effect based on 54 countries for an average of 28 years. They observed a positive effect of economic growth on happiness, but deemed that too small, arguing that hat it takes a thousand years for a 1% economic growth to increase happiness by one percentage point.

In this paper, we add to that discussion based on the latest available data on the change in average happiness in nations up to 2019.

2. METHOD

2.1 Happiness

Concept: Like Easterlin, we take happiness as life satisfaction. A more detailed definition is given in Veenhoven (1984). Unlike Easterlin, we distinguish between overall happiness and two components of happiness; an affective component (how well one feels most of the time) and a cognitive component (the degree to which one perceives to get from life what one wants). This conceptual difference is explained in more detail here.

Measures: Since happiness is something, we have in our minds, it can be measured using questioning. Not all questions ever used for measuring happiness fit the concept adequately. We limit to questions that have passed a test for face validity, which is described here.

Data source: We use the World Database of Happiness, which is a *finding-archive* on happiness as defined above. The archive consists of electronic finding pages on which a research finding is described in a standard format and terminology. Each finding page has a unique internet address to which links can be made in review papers. An example of a findings page is given here. To date (August 2023), the archive holds some 50.000 such finding pages. The technique of a findings archive is described in Veenhoven, Buijt and Burger (2022).

Time Series on Average Happiness in Nations: Finding pages are sorted in several ways, one of which is a sorting of responses to valid questions on happiness in representative samples of the general population in nations by 1) comparable measures of happiness and with these measure types by 2) nation and 3) the year of observation. An example of such sorting of responses to questions on happiness in the USA is given here.

As noted above, we consider change over time in responses to 'comparable' measures of happiness. Ideally, that would require that we restrict to *identical* questions. Since that would severely limit the number of data points we consider *equivalent* questions, that is, questions on the same happiness variant with responses rated on a scale of the same length. Detail on

the selection of equivalent questions and the subsequent transformation of average scores to a common 0-10 numerical scale is given here. We will use time series on responses to identical questions on happiness as a robustness check.

Since the focus of this paper is on long-term change in happiness following economic growth or decline, we limit it to a time-series of at least 20 years. To avoid bias due to incidental ups and downs, we further limit to a time-series of at least 10 data points. Today we can afford such limitations better than in the past since ever more data on average happiness in nations have become available.

2.2 Economic growth

Concept: Economic growth is the increase in the production of goods and services in an economy.

Measurement: Economic growth is quantified as the increase in the market value of produced goods and services in a percentage of the Gross Domestic Product. To correct for differences in population size across countries, growth is expressed as % change per capita. This change is usually expressed in the % annual GDP growth, which metric is the most widely available Market value is commonly expressed in constant local currency but can also be expressed in what that money can buy, so-called Purchasing Power Parities, also referred to as *real* GDP. This metric requires additional information on the buying power of money in countries and is available from the year 1990. Several more indicators of economic growth in nations are available on the World Bank online database, section Economy and Growth.

Time series on economic growth in nations: We used the World Bank (2023) online database for data on GPD growth per capita from the year 1960 on. We took the annual percentage growth rate of GDP per capita based on constant local currency, data on growth of real GDP being available only from 1990. All our complementary time series on happiness start after 1960 except the USA where average happiness was measured since 1946. Data on the economic growth of the USA between 1946 and 1961 were obtained from the website Country Economy (2023). Our classification of nations by income group was also obtained from the World Bank website.

2.3 Data set

Data on both happiness and economic growth in nations by year were entered in the Datafile Trends in Nations (Veenhoven, 2023), which we use in this paper. This data file is free and available at https://worlddatabaseofhappiness.eur.nl/wp-content/uploads/TrendsInNations-2023e.xlsx

2.4 Analysis

We first computed time trends on happiness and economic growth in nations and next assessed the correspondence between these trends**.** On that basis, we further sorted the time-series in which the Easterlin Paradox had applied and which it had not. Following Veenhoven & Vergunst (2014) we expressed that in a ratio. Subsequently, we computed the average correlation between economic growth and the change in average happiness within nations. We next considered the correlation across nations, inspecting whether greater economic growth had been followed by a greater rise in average happiness in nations. Finally, we calculated the average increase of happiness following 1% economic growth in nations, which we expressed in a regression coefficient.

3. RESULTS

The trend data are presented in Table 1. The average length of the time series was 36 years. Some countries have a series on more than one happiness question. The average yearly rise of happiness was 0.009 on a scale of 0-10, which equals an average rise of about 0,01%. The economy grew in all the nations considered here, we found no cases of economic decline over a period of 20 years or more. The average yearly economic growth was 2,2%. Since both happiness and the economy have grown there must be a positive correlation.

3.1 The Paradox fails

Economic growth in a nation is typically followed by a rise in the average happiness of the people who live in that country. This appears in the following quantifications:

3.1.1 More cases of rising happiness following economic growth than not

In Table 4 we present combinations of change in happiness and economic growth in 118 time-series as observed in 48 nations. Since the economy had grown in all these countries

over periods of 20 years and more, the difference is only in the change of happiness, which we classified as positive (concordant with economic growth) or negative (discordant with economic growth. We used the + and – signs in column 4 of Table 1 to denote growth or decline in happiness, irrespective of the size of these changes. The number of concordant cases is 67, the number of discordant cases is 25, and the ratio is 2.64 (See Table 3). So, economic growth in nations was more often followed by a rise in average happiness than not.

3.1.2 Positive correlation within time series in nations

Over-time correlations between economic growth and happiness are presented in column 4 of Tables 1 and 2, with the average correlation presented at the bottom of that column. In the case of time-series on equivalent questions (Table 1) the average correlation is +.098. The spread around that average is considerable, SD = 0,026. For time-series of identical questions, the over-time correlation was 0.048.

3.1.3 Greater rise of happiness following greater economic growth

Consequently, we found a positive correlation between economic growth and the rise of average happiness across nations, which was +.28 when all 118 time-series in 48 nations were considered and +.17 when we restricted to the 27 time-series on identical measures of happiness in 22 nations. See Table 4.

3.1.4 0.035% rise in happiness following 1% economic growth in a year

This positive association is visualized in Figure 1. The slope of the regression line (unstandardized regression coefficient) is +0.0035, which denotes that on average a 1% growth in the economy was followed by a 0.035% gain in happiness, which corresponds to 0,0035 points on the 0-10 happiness scale.

Note that several nations appear in different places in Figure 1. In these cases, multiple time-series on happiness were available, differing in happiness question used and period covered, which related somewhat differently with economic growth. In Figure 1 we see no cases of a positive correlation on one time-series in a nation and a negative correlation in another.

3.2 Where the paradox applied and where it did not

In Figure 1 we can also see that there was much difference in the effect of economic growth on average happiness in nations. The Easterlin Paradox applied the nations close to the

horizontal line in Figure 1, among which India, Japan, Netherlands, South Africa, Sweden, and the USA. In these countries, happiness did not change despite economic growth.

In the upper part of Figure 1 are the cases where economic growth was followed by a rise in average happiness, most so in Russia (RU), Romania (RO), and Spain (ES). These cases contradict Easterlin's prediction of a non-relationship, and they constitute the majority of cases as quantified above in Section 3.1.1. The case of China (CN) stands out with exceptional economic growth, which was followed by a slight increase in average happiness, lower than in most other countries considered here.

In the lower half of Figure 1 are countries where happiness declined despite economic growth, among which Venezuela (VE), Brazil (BR), and Paraguay (PY). These cases also defy Easterlin's prediction of a non-relationship.

We see no clear pattern in the characteristics of countries where economic growth added more or less to happiness. The cases at the top (Russia) and the bottom (Venezuela) of Figure 1 suggest that changes in average happiness in nations were strongly driven by idiosyncratic conditions which we will expand upon in Section 5.3. Still, the regression line denotes a typical positive relation between economic growth and happiness in nations.

4. ROBUSTNESS CHECKS

The trend in responses to identical questions on happiness

As noted above in Section 2, the trend of average happiness over time is best estimated using responses to identical questions. Limitation to identical questions reduces the number of observations considerably, but still produces the same positive correlation, as can be seen in Figure 2.

4.1 Consistency across measures of happiness

Similar across measures of overall happiness

Overall happiness has been measured using different questions such as how satisfied one is with one's life (ls), how much happiness one experiences in one's life (hl), and to what extent one thinks to be a happy person (hp). In Table 1 we see no systematic differences between these ratings of happiness

Difference between overall happiness and contentment

Next to the above-mentioned measures of overall happiness, Table 1 also reports observed correlations with a measure of the cognitive component of happiness, as measured with the question of how one rates one's present life between the best possible and worst possible life (bw). If social comparison reduces the effect of economic growth on happiness, the correlation with bw should be smaller than with hl, hp, and ls. On the bottom row of Table 1, column 6 we see that this is the case indeed. In Table 2 there is even a difference in the direction of the correlation, positive for overall happiness and negative for contentment. We expand on this finding in Section 5.1.1

4.2 Similarity with the earlier results of Veenhoven and Vergunst over the years 1946-2011

This study is an update of an earlier analysis by Veenhoven and Vergunst (2014) of the data that were available in the World Database of Happiness over the period 1946-2011 and involved 199 time-series ranging from 10 to more than 40 years in 67 nations covering together 1.531 data points. They found similar results.

Concordant/ Discordant ratio. Like us, V&V observed that there had been more cases of concordant change in the economy and happiness (change in the same direction) than discordant cases (economy up with happiness down or happiness up with economy down). The concordant/ discordant ratio was 2.1, which is similar to the ratio of 2,64 we found. Remember that the Easterlin Paradox predicts a ratio of 1.

Positive correlation. V&V found a correlation of +0.20 between economic growth in nations and subsequent rise of average happiness, which is in the same range as the +0. 28 correlation we found.

Yearly gain in happiness. In their data, V&V observed that a 1% economic growth had been followed by a yearly rise in average happiness of 0.0034. This corresponds with the +0.0035 we found.

This similarity in results exists despite the following technical differences 1) V&V considered a time series of at least 10 years, while in this paper we limit to a series of at least 20 years, which allowed more reliable estimates of the trends. 2) V&V is restricted to responses to

identical questions on happiness, while we focus in the first place on equivalent questions. We considered the trend on identical measures of happiness only as a robustness check, reported above in Section 3.1. 3. V&V included all the available differences in average happiness over time, accepting time-series with only two observations. We limited to time series with at least 10 data points, which allows more reliable estimates of the trends, be it at the loss of data points.

In sum

We confirmed the earlier findings of V&V using somewhat better methods and longer time series, which revealed somewhat stronger effects.

5. DISCUSSION

What do these findings tell us about the Easterlin paradox? Below we will argue that they defy them empirically and argue why the Paradox also fails theoretically.

5.1 Difference with Easterlin

Easterlin still maintains that economic growth does not add to greater happiness in nations in the long-run. Together with O'Connor he recently provided evidence for that claim using data from two international survey programs, the World Values Study and the Gallup World Poll, which together cover 67 nations. Their data cover 199 time-series, of which 67 over 20 years, on two questions on happiness, a question on life satisfaction used in the World Values Survey, and a question on how one rates one's life on a scale ranging from the best possible to the worst possible life, taken from the Gallup World Poll.

Their analysis was first reported in a working paper (Easterlin & O'Connor 2020) and a shortened version in a book chapter (2022). E&O concluded, "If the empirical analysis is confined to countries with trend estimates of happiness and income, there is no significant relation between the trend in income and happiness, The Paradox holds" (Working paper p. 9). We see the following similarities and differences in our analysis.

5.1.1 Similar result despite technical differences

E&O did not report a ratio of cases where the Easterlin applied or not (as we did in Section 3.1.1) and neither reported a correlation between economic growth and happiness (as we did

in Section 3.1.2). They reported the unstandardized regression coefficient (as we did in Section 3.1.3) which was +.0.005 (Table 2, column 2 of the working paper). Though this coefficient meets their demand of statistical significance, they ignored it in the working paper, seeking ways to denounce it as we will see below in Section 5.1.2. In the book chapter, they did not report the +0.005 coefficient at all.

Given this underexposed positive coefficient and looking at the figures presented in their book chapter, we infer that E&O also found a positive association between economic growth in nations and the rise of average happiness in their data. The 0.005 increase in happiness following 1% economic growth is even somewhat higher than the yearly increase in happiness of 0.0035 we reported above in Section 3.1. This correspondence exists despite the following technical differences.

Length of the time series: We considered time-series of at least 20 years, while Easterlin & O'Connor included a time-series of only 12 years, even though they mentioned 20 years as required for qualification as 'long-term'. The longer a time-series, the more reliable the estimates of the trend are.

Number of data points: We restricted to time-series of at least 10 data points, while E&O accepted cases with only 5 data points. The fewer cases in a time series, the less reliable the trend observed in that series.

The number of time series: We considered all the available findings on average happiness in nations as observed in various survey programs, among which the Eurobarometer, the European Social Survey, and the Latino-Barometro. In addition, we included findings obtained in the survey that were not part of a program. E&O was limited to findings obtained in only two survey programs, the World Values Survey and the Gallup World Poll, the latter covering less than the required 20 years. Together we considered the 118 time-series, while Easterlin & O'Connor covered 199 time series (but only 67 time series over 20 years). The lower the number of time series considered, the less reliable the estimate of the general trend.

The number of countries: Our analysis is based on trends in 43 nations. E&O covered 67 nations, be it at the cost of lower inclusion demands. The more countries involved, the better the estimate of the typical pattern. This advantage over our data may have compensated for the above-mentioned disadvantages of E&O's case selection to some extent.

Computation of change average happiness: Like us, Easterlin & O'Connor quantified change in happiness regressing average happiness over years taking the slope of the linear regression

as the % yearly change. Unlike us, E&O also computed adjusted change scores, that corrected for a) whether the question on happiness was preceded by a question on financial satisfaction and b) whether the response scale of the life satisfaction had the terms 'complete' at the end. Since our dataset covers more different questions on happiness, we could not perform similar corrections. The adjustments made by E&O hardly affected the trend anyway (Table B2 of their working paper).

Measure of economic growth. E&O measured economic growth as expressed in purchasing power, while we used economic growth in % GDP as expressed in constant local currency. Change in purchasing power is a better metric, but comparable data for that matter are only available from 1990 on, while 75 of our time-series started before that year.

In sum

Like us, Easterlin and O'Connor also found that economic growth in nations was attended by a rise in average happiness over the years 1946-2019. Using more rigorous techniques, we found a similar effect.

5.1.2 Different conclusion, in spite of similar results

Though E&O found a positive correlation between economic growth and the rise of happiness in nations, they still maintain that the 'Paradox holds' Working paper (p 9). They denounce the observed 0.005 (Table 2 column 2 of the working paper) adding two analyses which reduce the effect size to 0.001. How do they do that?

5.1.2.1 Selective omitting of cases

E&O wrote that the Paradox holds if "confined to countries with trend estimates". A close reading of their text reveals that this means the exclusion of "expansion only countries", that is, 13 nations in which the economy grew only during the (short) period considered, among which the East European transition countries. This yields a reduction of the 0.005 coefficient over all 67 nations to 0.001 in 55 selected nations.

Omitting countries that underwent fast economic growth is questionable, to say the least. We would rather see these cases as a natural experiment that revealed a strong long-term impact of economic growth on happiness.

What is more, we do not see such an effect in our data. Our data set includes only three East-European nations, Hungary, Poland, and Romania since data on happiness before

the year 1990 was available for these countries. The other East-European nations were not included because they (just) failed to meet the demand of a 20-year period. In that respect, our nation set is not much different from the selection made by E&O, while we still find a considerable correlation between economic growth and rise of happiness (r = +0.31), which remains positive when we omit Hungary, Poland, and Romania, r = +0.18.

5.1.2.2 Shifting the question to a causal effect:

E&O next reduced the originally observed 0.005 to 0.001 in another way, now shifting the question of whether there was a relation between economic growth and happiness to the question of whether economic growth had *caused* a rise in average happiness.

The answer to that question requires that the effect of other drivers of happiness in nations be filtered out, such as advancements in medicine and changes in intimate relations. Referring to Kaiser and Vendrik (2019) they call that the 'autonomous trend'. E&O wrote on page 9 of their working paper that in regressing economic growth on happiness in all 67 countries they distinguished three groups of countries and added "interaction terms in each group of countries to the regression in order to allow happiness in each group of countries to have its own constant and relation to growth" (p. 9). This statistical maneuver resulted in the reduction of the earlier observed 0,005 gain in happiness following 1% economic growth to 0.001 (Table 2, column 3 of the working paper), which E&O then denounced as insignificant.

In our view, this makes no sense. Not only divert E&O into another question, but in our view that question cannot be answered, since economic growth in nations is too closely intertwined with other societal developments. We do not see how E&O solved that problem, not in their own words as mentioned above and neither in the working paper of Kaiser and Vendrik (2019) to which they refer. So, we conclude that they should have concluded that the Easterlin Paradox did not apply, as appeared in the slope of +0.005 they observed and which fits their demand of statistical significance.

The above statistical exercises are reported only in the 2020 working paper. In the 2022 book chapter E&O mentioned only that a slope of 0.001 was found, referring to the working paper in which we found no clear explanation of this debatable methodology.

5.1.2.3 Further shifts of the question

E&O further reshaped the question in the following ways, adding requirements that make the empirical defeat of the Paradox more difficult.

Proportionality The question is whether economic growth in nations tends to be followed by a rise in average happiness. E&O re-phrased the question as "Is more rapid economic growth associated with a larger increase in happiness?" (2020 page 6 on top) and next concluded that "a more rapid uptrend in GDP per capita is not accompanied by the more rapid growth of happiness' (p 11). Yet, a positive effect need not be proportional. In Table 4 we showed that the positive effects of economic growth on happiness dominate. So, there is a relation, not a 'nil relation' as E&O maintained. (p. 13).

What is more, our data presented in Figures 1 and 2 show that there is some proportionality in that relationship, and in our view, the data of E&O will also show that.

Growth only: E&O further restricted the claim of a nil effect to positive economic development, claiming that social comparison plays less of a role in times of economic contraction (p. 14). That restriction is quite debatable, if economic growth tends to add to average happiness in nations, economic decline is likely to have lowered happiness. We could not test that in our data, since we found no cases of economic decline over periods of 20 years or longer, economies typically having grown everywhere in this era.

Statistical significance. E&O further required that the change be statistically significant, ignoring the point earlier made by Veenhoven & Vergunst (2014) that the test for significance made no sense here.

Test for statistical significance informs us about the probability that a value observed in an a-select sample will correspond with the value in the population from which that sample was drawn. There is no a-select sample in this case, but a set of countries on which long-term trend data on happiness were available. Hence, we take the correlations as they are, a description of the association observed in this set of nations and eras.

We realize that this will not convince all readers of this text and for those who still want to see the test of statistical significance we can tell that the positive relations between economic growth and the rise of happiness in nations we reported in Section 3.1 all reached statistical significance beyond $p<.05$ with 2-tailed tests. This is mainly due to the greater number of data points available now. The reality was not different from the earlier shorter time-series based on which Easterlin denounced the correlation as insignificant.

Economic significance: E&O further required that the effect of economic growth on

happiness be sufficiently sizable to affect public choice and deem a yearly gain of happiness 0,001 naggable. While we do not disregard small changes beforehand, we found a stronger average effect of 0.0035, which at the common economic growth of 2.2% (World Bank, 2023 [calculated by the authors]) results in a one-point gain in happiness in 25 years.

5.2 Tenability of Easterlin's theoretical explanation

Easterlin explains the presumed absence of a rise in average happiness following economic growth in terms of social comparison. He assumes that our happiness depends on the degree to which we think to be better off than people we compare with, typically denoted as 'The Jones'. On that ground, he argues that the distance to The Jones will remain the same when everybody gets better in the country.

This theory falls short on the following grounds: First, the cognitive comparison appears to be marginal in our evaluations of life, with overall satisfaction with life being more a matter of how well one feels most of the time than perceiving to get from life what one wants (Kainulainen et al., 2018). Secondly, if people compare at all when evaluating their lives, they will also make other comparisons, such as the difference with how they did in the past. More such comparisons are enumerated in Michalos' (1985) Multiple Discrepancy Theory.

What is more: Easterlin now concedes that economic growth does add to happiness in the short-run (fluctuations), but still maintains that it does not in the long-run (trend). However, comparison with The Jones is more likely to exist in the short-run than over periods of 20 years or more. Comparison with what other people earn is difficult anyway and often impossible over such long periods. So, this explanation badly fits the presumed absence of a long-term effect.

A more general point is that the effects of economic growth on happiness are likely to be multi-causal and contingent to situations and can as such be not captured in a single mono-causal explanation. In short*:* a deficient account of a non-existing phenomenon.

5.3 The Worth of the Easterlin Paradox

So, the Easterlin Paradox is wrong. Does that mean that it had better not be proposed? We think not. The theory has added to the development of knowledge and has helped in raising

awareness of the limits to economic growth.

5.3.1 Scientific worth

Faulty theories can still add to the growth of knowledge, and that is clearly the case here. The thesis has greatly contributed to the development of Happiness Economics, which now covers more topics than the effects of economic growth on happiness. The ongoing discussion on explanations for the Paradox has resulted in more sophisticated accounts, that take contextual variations into consideration as well as more psychological mechanisms. Click here for a listing of some 200 publications.

What is more, there is some truth in Easterlin's theory that social comparison reduces the effect of economic growth on happiness. Remember the difference between overall happiness and 'components of happiness' discussed in Section 2.1. We distinguished a cognitive component called 'contentment', that is, the perception of getting from life what one wants. Such perceptions are likely to be influenced by social comparison; people typically want more than 'The Jones' rather than less. As such, we can expect that the theory applies to happiness in the sense of contentment. This expectation is confirmed in column 3 at the bottom row of Table 1, where the effect of economic growth is lower for happiness measured using a question on cognitive contentment (bw) than observed for measures of overall happiness (hl, ls, hp). In Table 2 we see even a negative effect of economic growth on contentment together with a positive effect on overall happiness, which pattern is also visible in E&O Table 1 when comparing panel A with panel B.

This means that the theory applies at least partially to this cognitive component of happiness but cannot be extended to happiness in the sense of overall satisfaction with life, which depends largely on the affective component of happiness (Kainulainen et al., 2018), which on its turn reflects the degree to which universal human needs are gratified (Veenhoven, 2009). This difference between overall happiness and its cognitive component was not yet acknowledged when Easterlin launched his explanation in 1974 and neither was the link with different mental determinants of happiness.

5.3.2 Societal implications

The Easterlin Paradox was launched in the 1970s when the *Limits to Growth* movement emerged, which movement lives on today under the name of *Beyond GDP* and is a main topic in *Green* politics in developed nations. The message that economic growth will not make us any happier was welcomed in these circles. The message was also welcomed by critics of

capitalism and worked as an intellectual antidote to the neo-liberal shift in the late 20th century. As such the theory has supported the development of the green-left political movement which has grown into a main political force in developed countries these days. Whether that is desirable or not will depend on one's political preference and even adherents of the green left would prefer to have fared on a theory that holds. Still, the theory has helped to open the public discussion on the value of economic growth, which is now part of a wider discussion on sustainable development.

In that context, the question arises whether our falsification of the Easterlin Paradox will undermine the movement toward sustainable development. Do we provide a ticket to unlimited economic growth? In our view, we do not. Happiness is not everything. If economic growth undermines other things we value, such as saving the earth, we must do with less happiness. Yet our finding means that such price should be acknowledged, in particular when radical curtailments in economic growth are considered, such as zero-growth and de-growth. Informed public choices on that matter require that we have reliable estimates of how high such prices in foregone happiness will be, and for that reason, research on the relation between economic growth and happiness should not stop with this defeat of the Easterlin Paradox.

6 CONCLUSIONS

There is no 'Paradox'. Rising income tends to be followed by rising happiness, at the micro-level of individuals as well as at the macro-level of nations. This was at least the case in most of the nations over the last 50 years considered in this study. The theory that social comparison will nullify the economic growth on happiness in all times and places falls short, taking one possible causal mechanism for all causal effects in that complex relationship.

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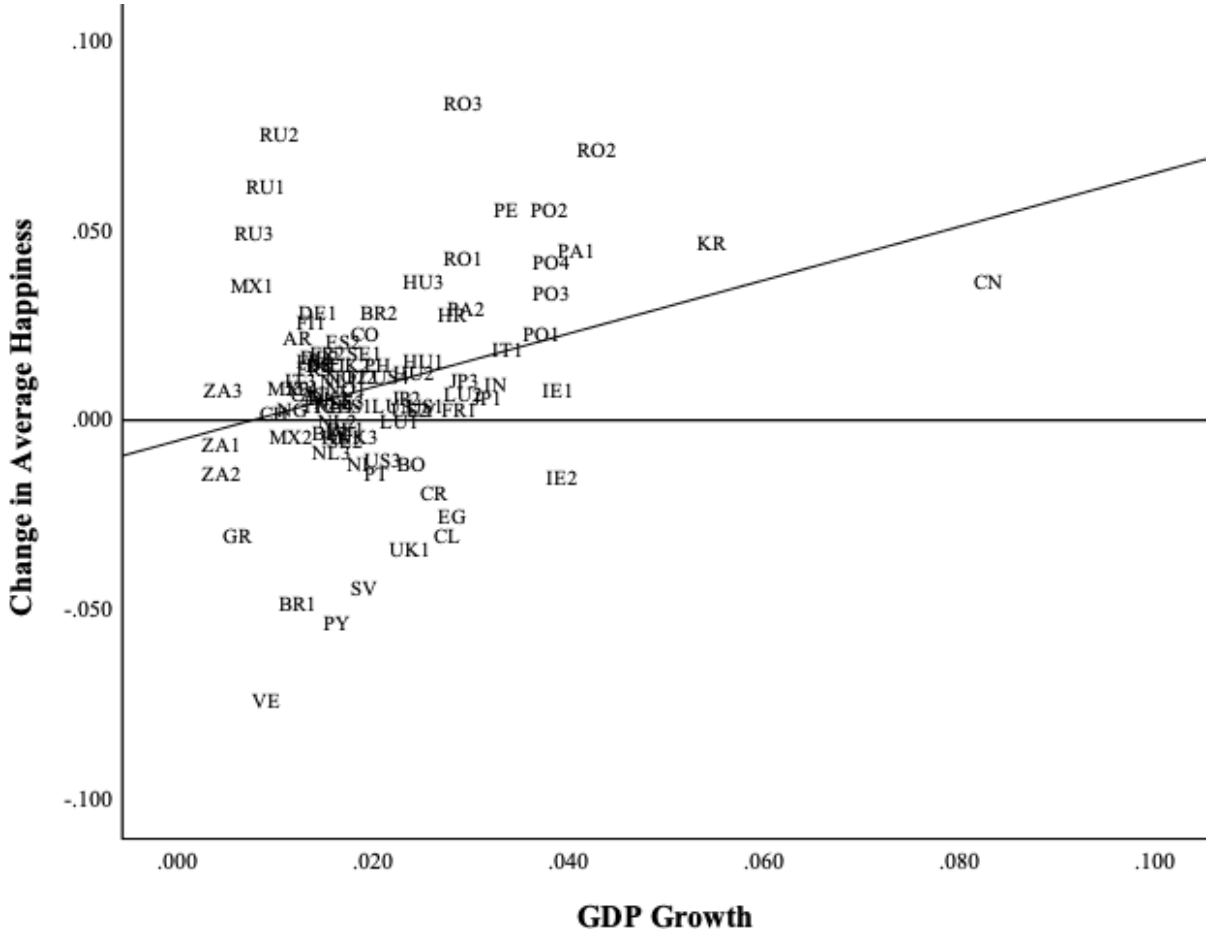
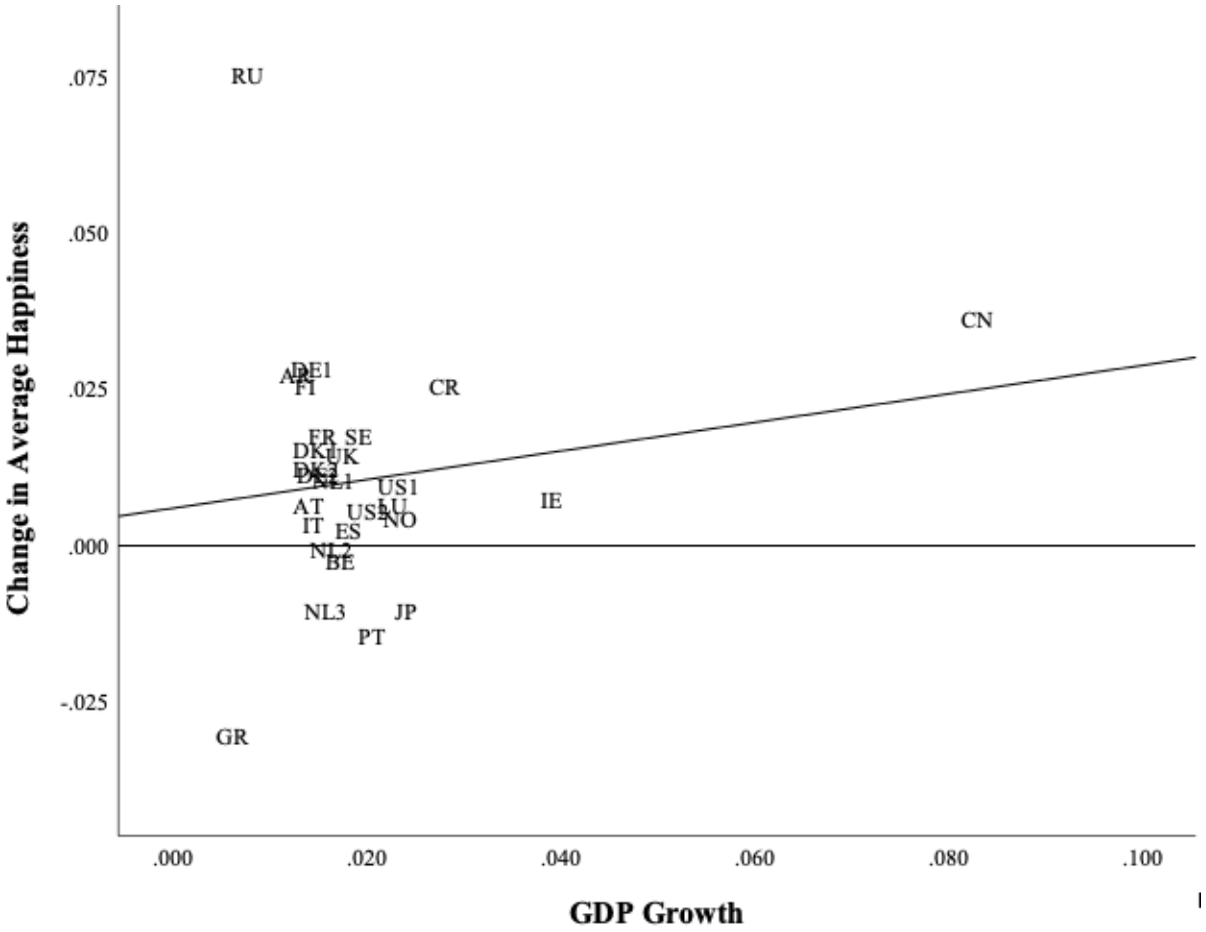
Figure 1
Economic Growth and Rising Happiness in Nations



Note: The numbers next to some country codes are used to indicate that there is more than one happiness data for that country and are numbered according to their order in Table 1. For example, BE2 refers to Belgium's ls11 data. r^2= +0.098 b= -0.006

Figure 2
Economic Growth and Rising Happiness in Nations (Identical Question)



Note: The numbers next to some country codes are used to indicate that there is more than one happiness data for that country and are numbered according to their order in Table 2. For example, DE2 refers to Germany's ls11 data. r^2= +0.027 b= +0.006

Table 1
Happiness and Economic Growth in Nations over Time

Nation	Happiness Measure	Period	Change happiness in points on a scale of 0-10	Average GDP Growth	Correlation between Change Happiness and Change GDP
Argentina	ls4	1997-2018	+0.021	+0.012	+0.097
Austria	ls4	1995-2019	+0.006	+0.014	+0.122
Belgium	ls4	1973-2019	-0.003	+0.017	+0.018
	ls11	1975-2018	-0.004	+0.016	+0.040
Bolivia	ls4	1997-2018	-0.012	+0.024	+0.039
Brazil	ls4	1997-2018	-0.049	+0.012	+0.505
	bw11	1960-2019	+0.028	+0.021	+0.121
Canada	bw11	1975-2019	+0.006	+0.013	-0.276
Chile	ls4	1997-2018	-0.031	+0.028	+0.317
China	bw11	1999-2019	+0.036	+0.083	-0.242
Colombia	ls4	1997-2018	+0.022	+0.019	+0.232
Costa Rica	ls4	1990-2018	-0.020	+0.026	-0.189
Croatia	ls10+ls11	1995-2018	+0.027	+0.028	+0.343
Denmark	ls4	1973-2019	+0.014	+0.015	-0.159
	ls10+ls11	1975-2018	+0.005	+0.016	-0.236
Ecuador	ls4	1997-2018	+0.014	+0.015	+0.143
Egypt	bw11	1960-2019	-0.026	+0.028	+0.162
El Salvador	ls4	1991-2018	-0.045	+0.019	-0.188
Finland	ls4	1990-2019	+0.025	+0.014	-0.471
	ls11	1976-2018	+0.011	+0.019	-0.007
France	hl3	1965-1986	+0.002	+0.029	-0.392
	ls4	1973-2019	+0.017	+0.015	-0.291
	ls10+ls11	1975-2018	+0.013	+0.014	-0.046
	bw11	1975-2019	+0.015	+0.014	+0.506
Germany	ls4	1990-2019	+0.028	+0.015	+0.020
	ls11	1990-2018	+0.016	+0.015	-0.099
Greece	ls4	1981-2019	-0.031	+0.006	+0.526
Honduras	ls4	1997-2018	-0.005	+0.016	+0.587

Hungary	ls10	1981-2018	+0.015	+0.025	+0.470
	ls11	1992-2018	+0.012	+0.024	+0.225
	ls10[5]	1990-2018	+0.036	+0.025	+0.470
India	bw11	1962-2019	+0.009	+0.033	+0.166
Ireland	ls4	1973-2019	+0.007	+0.039	+0.300
	ls10+ls11	1975-2018	-0.016	+0.039	+0.505
Italy	hl3	1965-1986	+0.018	+0.034	-0.141
	ls4	1973-2019	+0.003	+0.015	+0.061
	ls10+ls11	1975-2018	+0.010	+0.013	-0.116
	bw11	1975-2019	+0.008	+0.013	+0.249
Japan	ls4	1958-2013	+0.005	+0.032	-0.340
	ls5	1978-2005	+0.005	+0.024	+0.354
	bw11	1962-2019	+0.010	+0.029	-0.319
Korea (South)	bw11	1981-2019	+0.046	+0.055	-0.112
Luxembourg	hl3	1975-2008	-0.001	+0.023	+0.586
	ls4	1973-2019	+0.006	+0.029	+0.217
	ls10+ls11	1975-2018	+0.003	+0.022	-0.102
Mexico	hl4	1981-2018	+0.035	+0.008	+0.014
	ls4	1997-2018	-0.005	+0.012	+0.528
	bw11	1975-2019	+0.008	+0.012	-0.282
Netherlands	ls4	1973-2019	+0.010	+0.017	-0.087
	ls5	1974-2012	-0.001	+0.016	+0.276
	hp5	1977-2019	-0.009	+0.016	+0.192
	ls10	1981-2019	+0.003	+0.016	+0.565
	ls11	1974-2018	+0.004	+0.016	+0.011
Nicaragua	ls4	1991-2018	-0.012	+0.019	+0.316
Nigeria	bw11	1963-2019	+0.002	+0.012	+0.195
Norway	hp4	1981-2018	+0.008	+0.017	-0.144
	ls10+ls11	1981-2018	+0.011	+0.017	-0.701
Panama	ls4	1997-2018	+0.044	+0.041	+0.440
	bw11	1962-2019	+0.029	+0.030	+0.236
Paraguay	ls4	1996-2018	-0.054	+0.016	-0.228
Peru	ls4	1997-2018	+0.055	+0.034	+0.201
Philippines	bw11	1959-2019	+0.014	+0.021	+0.404

Poland	hl4	1990-2017	+0.022	+0.037	+0.538
	ls10+ls11	1990-2018	+0.055	+0.038	-0.220
	bw11	1962-2019	+0.033	+0.038	+0.276
	bw11***	1990-2019	+0.041	+0.038	+0.276
Portugal	ls4	1985-2019	-0.015	+0.021	+0.594
Romania	hl4	1990-2018	+0.042	+0.029	+0.504
	ls4	1998-2019	+0.071	+0.043	+0.285
	ls10+ls11	1990-2018	+0.083	+0.029	+0.377
Russia	hl4	1989-2019	+0.061	+0.009	+0.441
	ls5	1991-2019	+0.075	+0.010	+0.399
	ls10+ls11	1990-2017	+0.049	+0.008	+0.364
SouthAfrica	hl5	1983-2015	-0.007	+0.005	-0.240
	ls5	1983-2015	-0.015	+0.005	-0.246
	ls10+ls11	1981-2013	+0.007	+0.005	-0.015
Spain	ls4	1985-2019	+0.003	+0.018	+0.312
	ls10+ls11	1981-2018	+0.020	+0.017	+0.158
Sweden	ls4	1995-2019	+0.017	+0.019	-0.352
	ls10	1982-2017	-0.006	+0.017	-0.233
	ls11	1999-2018	+0.004	+0.017	-0.281
Switzerland	ls10+ls11	1976-2018	+0.001	+0.010	+0.220
UK	hl3	1965-1986	-0.035	+0.024	-0.101
	ls4	1973-2019	+0.014	+0.018	-0.287
	ls10+ls11	1971-2018	-0.005	+0.018	-0.140
Uruguay	ls4	1997-2018	+0.002	+0.025	+0.167
USA	hl3	1946-2010	+0.003	+0.025	+0.123
	hl4	1946-2017	+0.002	+0.024	+0.441
	ls10+ls11	1959-2017	-0.011	+0.021	+0.182
	bw11	1955-2019	+0.011	+0.022	-0.196
Venezuela	ls4	1997-2018	-0.075	+0.009	+0.005
Average	**ls+hp+hl**	**33 years**	**+0.008 (0.027)**	**+0.020 (0.009)**	**+0.104 (0.300)**
	bw	**49 years**	**+0.017 (0.017)**	**+0.029 (0.018)**	**+0.073 (0.260)**
	All	**36 years**	**+0.009 (0.026)**	**+0.021 (0.012)**	**+0.098 (0.293)**

Notes:
1) Using time series of average happiness in nations that cover at least 20 years and minimally 10 data points.
2) Up to 2019, before the start of the COVID-19 pandemic.
3) ls10 data was added to the ls11 data to obtain more observations from Denmark, France, Ireland, Italy, Switzerland, and the UK.
4) Missing data GDP growth: Canada 1975-1997, Brazil 1960-1996, Croatia 1995, Egypt 1960, Hungary 1981-1991, Japan 1958-1960, the Philippines 1959-1960, Poland 1962-1990, Romania 1990, Russia 1989, Switzerland 1976-1980, and Venezuela 2015-2018. The standard deviation is shown in parentheses.
5) The Hungary ls10 and Poland bw11 were recalculated after the transition.

Sources:
Economic growth: World Bank https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG (GDP per capita growth) and (for the USA 1946-1960) Country Economy https://countryeconomy.com/gdp/usa?year=1947
Happiness: World Database of Happiness: Trend report of Happiness in Nations: https://worlddatabaseofhappiness.eur.nl/wp-content/uploads/TrendReport-AverageHappinessInNations1946-2021-4.pdf

Table 2
Happiness and Economic Growth in Nations over Time (Identical question)

Nation	Happiness Measure	Identical Question Code	Period	Change happiness in points on a scale of 0-10	Average GDP Growth	Correlation between Change Happiness and Change GDP
Argentina	ls4	O-SLu-g-sq-v-4-c	1997-2018	+0.027	+0.013	+0.079
Austria	ls4	O-SLL-u-sq-v-4-b	1995-2019	+0.006	+0.014	+0.122
Belgium	ls4	O-SLL-u-sq-v-4-b	1973-2019	-0.003	+0.017	+0.018
China	bw11	C-BW-c-sq-l-11-c	1999-2019	+0.036	+0.083	-0.242
Costa Rica	ls4	O-SLu-g-sq-v-4-c	1997-2018	+0.025	+0.028	-0.106
Denmark	ls4	O-SLu-u-sq-v-4-i	1973-2015	+0.015	+0.015	-0.112
		O-SLL-u-sq-v-4-b	1984-2019	+0.012	+0.015	-0.275
Finland	ls4	O-SLL-u-sq-v-4-b	1990-2019	+0.025	+0.014	-0.471
France	ls4	O-SLL-u-sq-v-4-b	1973-2019	+0.017	+0.015	-0.291
Germany	ls4	O-SLL-u-sq-v-4-b	1990-2019	+0.028	+0.015	+0.020
	ls11	O-SLW-c-sq-n-11-d	1990-2017	+0.011	+0.015	-0.007
Greece	ls4	O-SLL-u-sq-v-4-b	1981-2019	-0.031	+0.006	+0.526
Ireland	ls4	O-SLL-u-sq-v-4-b	1973-2019	+0.007	+0.039	+0.300
Italy	ls4	O-SLL-u-sq-v-4-b	1973-2019	+0.003	+0.015	+0.061
Japan	ls5	O-SLu-g-sq-v-5-e	1978-2002	-0.011	+0.024	+0.321
Luxembourg	ls4	O-SLL-u-sq-v-4-b	1973-2019	+0.006	+0.023	+0.217
Netherlands	ls4	O-SLL-u-sq-v-4-b	1973-2019	+0.010	+0.017	-0.087
	ls5	O-SLL-c-sq-v-5-d	1974-2012	-0.001	+0.016	+0.281
	hp5	O-HP-u-sq-v-5-a	1977-2019	-0.011	+0.016	+0.203
Norway	hp4	O-HP-g-sq-v-4-a	1985-2007	+0.004	+0.024	+0.157
Portugal	ls4	O-SLL-u-sq-v-4-b	1985-2019	-0.015	+0.021	+0.594
Russia	ls10+11	O-SLW-c-sq-n-10-a O-SLW-c-sq-n-11-a	1990-2017	+0.075	+0.008	+0.440
Spain	ls4	O-SLL-u-sq-v-4-b	1985-2019	+0.002	+0.018	+0.359
Sweden	ls4	O-SLL-u-sq-v-4-b	1995-2019	+0.017	+0.019	-0.352
UK	ls4	O-SLL-u-sq-v-4-b	1973-2019	+0.014	+0.018	-0.287
USA	bw11	C-BW-c-sq-l-11-a	1959-2006	+0.009	+0.023	+0.128
		C-BW-c-sq-l-11-c	1955-2019	+0.005	+0.020	-0.288

Average	**ls+hp**		**35 years**	**+0.010 (0.020)**	**+0.018 (0.006)**	**+0.071 (0.284)**
	bw		**44 years**	**+0.017 (0.017)**	**+0.042 (0.029)**	**-0.134 (0.186)**
	All		**36 years**	**+0.104 (0.019)**	**+0.020 (0.014)**	**+0.048 (0.277)**

Notes:
1) Using time series of average happiness in nations that cover at least 20 years and minimally 10 data points.
2) Up to 2019, before the start of the COVID-19 pandemic.
3) ls4 of Austria, Belgium, China, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, and the UK consist of identical questions in Table 1 and Table 2. The standard deviation is shown in parentheses.

Technical details to Tables 1 and 2:

1. Happiness is assessed by means of surveys in general public samples. This list is based on standard surveys that used the same question over the years.

2. The trend lines in this report are based on slightly different questions. Measure codes refer to an equivalent of survey questions on happiness.
   Best-Worst possible life
   Bw11 question on how one rated one's current life on a numerical scale ranging from best possible to worst possible

   Happiness
   hl3 question on happiness answer rated on a 3-step verbal response scale
   hl4 question on happiness answer rated on a 4-step verbal response scale
   hl5 question on happiness answer rated on a 5-step verbal response scale
   hp4 question on happiness answer rated on a 4-step verbal response scale
   hp5 question on happiness answer rated on a 5-step verbal response scale

   Life-satisfaction
   ls4 question on life-satisfaction answer rated on a 4-step verbal response scale
   ls5 question on life-satisfaction answer rated on a 5-step verbal response scale
   ls10 question on life-satisfaction answer rated on a 10-step numeral response scale
   ls11 question on life-satisfaction answer rated on an 11-step numeral response scale
   ls10+11 question on life-satisfaction answer rated on 10 and 11-step numeral response scale

3. The original scores on these questions were transformed to a comparable 0-10 scale. See Section /3.3.3 of the introductory text to this collection of distributional findings on happiness in nations, Chapter 7 how the data were homogenized (Veenhoven, 1993).
4. Mean scores were taken from the country tables in the collection of distributional findings on happiness in nations. In the nation, reports look into: 'Methodological notes', 'All distributional findings on happiness by measure and year in …' (right bottom of the screen).

5. When happiness was assessed more than once in a year in a country, the average of the mean scores was used.

6. The variables used here are also described in the codebook of the data file 'Trend in nations', variable trend average happiness in nations and trend GDP in nations

7. The average annual change is expressed in a regression coefficient that stands for the size of the slope of the linear regression line through the dots (averages) in the time charts. A positive coefficient denotes an average increase in average happiness, and a negative coefficient a decline. A regression coefficient of +.01 means a 0.01-point increase on this 0-10 happiness scale per year, which implies that a one-point rise of happiness would take one hundred years at this

pace of change.

8. **Sources:**
   Economic growth: World Bank https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG (GDP per capita growth) and (for the USA 1946-1960) https://countryeconomy.com/gdp/usa?year=1947
   Happiness: World Database of Happiness: Trend report of Happiness in Nations: https://worlddatabaseofhappiness.eur.nl/wp-content/uploads/TrendReport-AverageHappinessInNations1946-2021-4.pdf

Table 3

The ratio of concordant and discordant cases

Combinations of change in average happiness and economic growth in nations observed in 118 series

Change happiness	**GDP Growth**	
	Rise	Decline
Rise	66	-
Decline	25	-
Concordant/discordant ratio	2.64	

Table 4

Correlations between economic growth and rise of average happiness in nations 1946-2019

Split by similarity of questions on happiness used in time-series

Question on happiness	Countries	Time-series	Correlation (r)
Equivalent	48	91	+.28
Identical	22	27	+.17
All	48	118	+.31