

# Modelling in happiness economics

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## Abstract

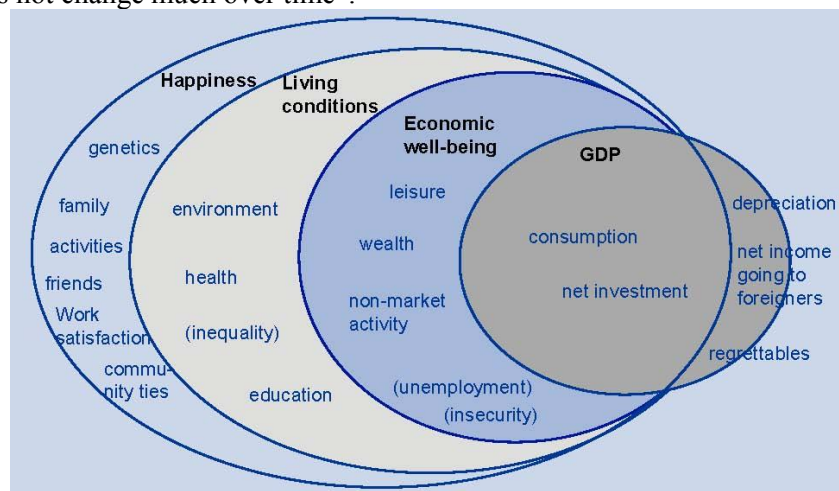
In modern times, in the context of an increasingly quantitative approach to economics, welfare has been related mostly to an economic actor's income. With increasing complexity in social and economic life, studies moving beyond the income approach to welfare enriched economic literature. Modelling the economic concept of 'happiness' is one of the new ways to design welfare policy. Even if it has been shown, using econometric techniques, that an accurate measurement of the true welfare effects is not possible, researchers estimated, for example, the income required for a typical individual in different countries to ascertain the same change, due to various events, in declared happiness as in welfare. This paper introduces the concept of happiness as one of the measures of well-being in economics and presents a brief survey of the literature on this topic.

**Keywords:** happiness economics, Easterlin paradox, welfare, well-being, model

## 1. Introduction

Bergheim [1] discusses four measures of well-being: GDP, economic well-being, individual living conditions and happiness. Figure 1 shows the components of the four measures of welfare.

- ❖ *GDP* measures the market value of all final goods and services produced in a country in a given period of time and it is not fully compatible with welfare, because some of its components are not conducive to welfare, such as depreciation and external debt.
- ❖ *Economic well-being* is a broader concept which is influenced by some GDP elements, non-market activities, leisure and wealth. Unemployment and income inequality tend to reduce economic welfare. The Centre for the Study of Living Standards reports that in Norway, France and Belgium the highest level of economic welfare is achieved.
- ❖ *Individual living conditions* also include features such as health, life expectancy, education and environmental conditions.
- ❖ *Happiness* as 'the goal' in life depends on family, friends, job satisfaction and activities while income is not involved. An interesting observation is that "the happiness level of society - as assessed through surveys - does not change much over time".

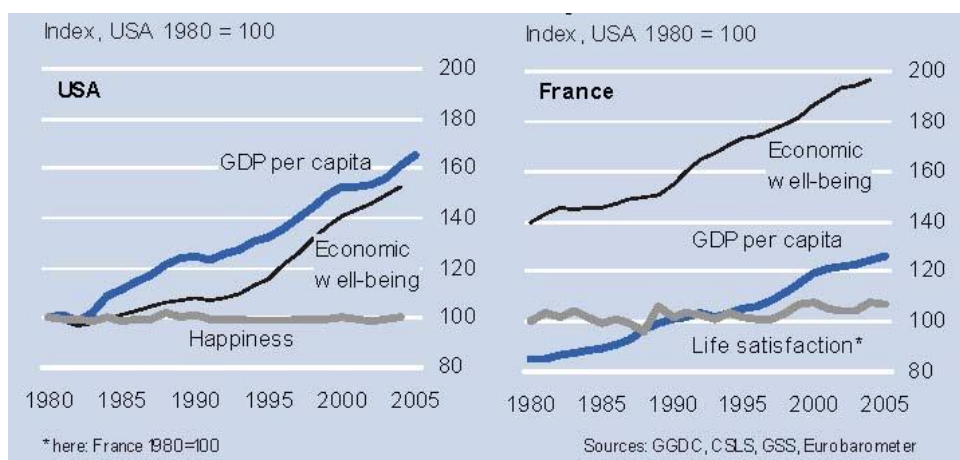


Source: Bergheim, S. 2006, p. 3

**Fig. 1** Four measures of well-being

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It is important to note that the measure chosen is very important because the resulting narrative will vary depending on the measure; for example, when comparing two or more countries from the point of view of well-being. Figure 2 illustrates this situation for the U.S. and France<sup>1</sup>.



Source: Bergheim 2006, p. 3

**Fig. 2** Different measures, different stories! (U.S. and France)

## 2. The concept of happiness in economics

Since Aristotle, searching for human happiness was of interest for philosophers and later for economists such as Jeremy Bentham, John Stuart Mill, and Adam Smith. In modern times, an increasing quantitative approach for studying the economy, utility and later on welfare were considered to be related only to the income of a rational economic actor who makes individual choices and whose preferences are dependent on individual budget constraints.

In the 1970s, the revival of economists' interest in happiness began with Richard Easterlin [2], and nearly thirty years later it was already widely spread ([3], [4], [5], [6]).

McCloskey [7] defines happiness as “a good story of your life” and points to the ancient Greek version of the word happiness, “*eudaimonia*” which means “to have a good guiding angel” and to Aristotle's definition of happiness as an “exercise of vital powers along lines of excellence in a life affording them scope.”

In terms of methodology, Graham defines happiness economics as “an approach to assessing welfare which combines the techniques typically used by economists with those more commonly used by psychologists.”<sup>2</sup> Happiness surveys use questions like “Overall, how satisfied are you with your life” or “How satisfied are you with your life” with the possible responses on a scale of four to seven points.

This approach is used to investigate situations for which the revealed preference approach is not very strong and expressed preferences are a better indicator. Some examples include the effects on welfare of inequality, inflation and unemployment, and also poverty research based on Amartya Sen's capabilities approach. Standard concepts of utility and welfare are extended to include interdependent utility functions, procedural utility, and the interaction between rational and non-rational influences in determining economic behavior.

Regarding public policy, although useful, the analysis of happiness may be biased due to unobserved idiosyncratic events, unobserved personality traits and correlated measurement errors, and when policies should be designed based on those analyses precautions must be taken ([8], [9], [10]). There is public support for this approach. A 2005 BBC study asked if the main objective of the government should be “the greatest happiness” or “the greatest wealth” and 81% felt that happiness should be the main objective of the government [11].

<sup>1</sup> Bergheim, S., “*Measures of well-being*”, Deutsche Bank Research, September 8, 2006, p. 3

<sup>2</sup> Graham, C. “*happiness, economics of*”, “The New Palgrave Dictionary of Economics”, Eds. Steven N. Durlauf and Lawrence E. Blume, Palgrave Macmillan, The New Palgrave Dictionary of Economics Online, Palgrave Macmillan, 2008, p.1.

Econometric techniques associated with happiness economics have evolved over time. Van Praag and Ferrer-i-Carbonell [12] use panel data and advanced econometric techniques such as Probit Ordinary Least Square (POLS). Graham<sup>3</sup> makes clear that it is not possible to accurately measure the effects of independent variables on the actual welfare. Despite this drawback of the method, researchers used OLS coefficients. For example, it was estimated the income required for a typical individual to achieve the same change in declared happiness as from a welfare loss from divorce (\$ 100,000) or from a job loss (\$ 60,000)<sup>4</sup>.

Bergheim [13] distinguishes four varieties of capitalism, based on the results of a systematic review of happiness in 22 rich countries:

1. *The happy variety of capitalism*: Australia, Switzerland, Canada, the UK, the US, Denmark, Sweden, Norway and the Netherlands, and more or less Finland and New Zealand.
2. *The less happy variety of capitalism*: Germany, Spain, France, Belgium and Austria.
3. *The unhappy variety of capitalism*: Portugal, Italy and Greece.
4. *The Far East variety*: Japan and Korea have very different institutions compared to the other countries discussed.

Easterlin et al. [14] discussed the interesting case of *transition countries*, in particular China and Eastern European countries. Despite the unprecedented increase in production per capita in the last two decades, satisfaction with life in China has followed essentially the path recorded in the transition countries of Central and Eastern Europe. As in European countries, in China, the trend and the U-pattern model seem to be related to a marked increase in unemployment followed by a slight decrease and the corresponding dissolving of the social protection system along with increasing income inequality. In China, most of the burden of the worsening life satisfaction fell on the lower socioeconomic groups. An initially very egalitarian distribution of life satisfaction has been replaced with one increasingly unequal, with a decreasing life satisfaction for people in the bottom third of the income distribution and an increasing life satisfaction for the top third.

Other happiness measures are:

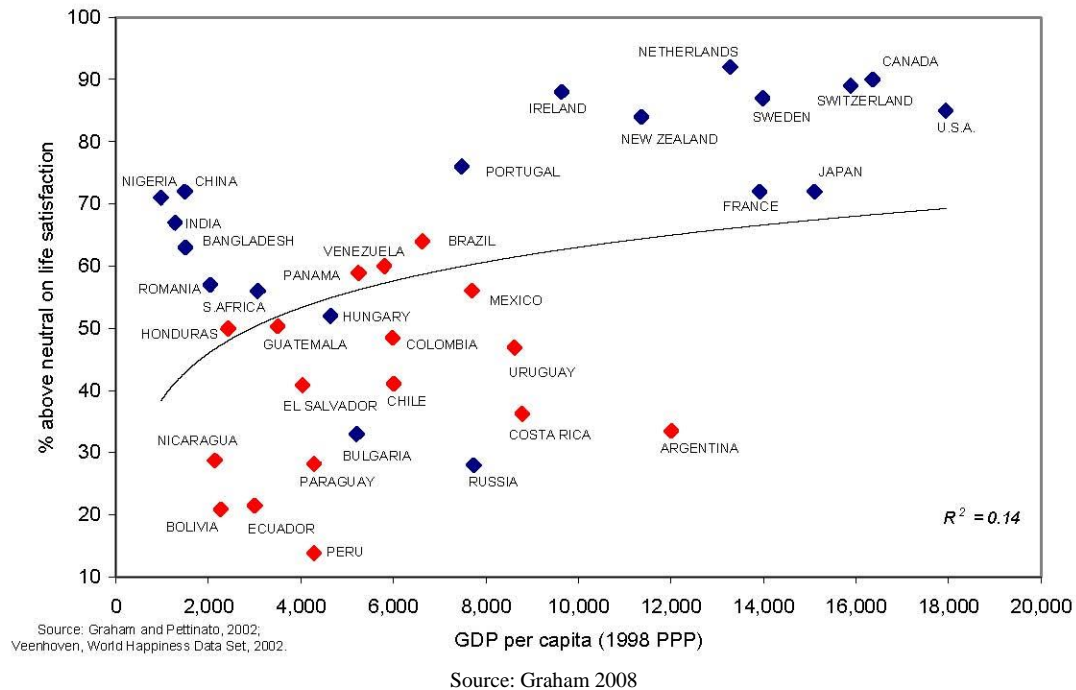
- ❖ Your Better Life Index created by OECD
- ❖ Gross National Happiness (GNH) from Bhutan [15]. GNH was invented in 1972 by the fourth Dragon King of Bhutan, Jigme Singye.
- ❖ The Happy Planet Index (HPI) was developed by the New Economics Foundation (NEF), with support from Friends of the Earth. Essentially, HPI argues that a long and happy life must be the ultimate goal of the economy and not only an insatiable economy activity. It recognizes that all material possessions are based on planetary resources converted to products, processes and services.

### 3. Easterlin Paradox

Easterlin paradox was mentioned for the first time in Easterlin's 1974 study and states that for the long-term, usually 10 years or more, "at a point in time both among and within nations, happiness varies directly with income, but over time, happiness does not increase when a country's income increases" [16]. Graham provides more details (Fig. 2):

<sup>3</sup> Graham, C. "happiness, economics of", "The New Palgrave Dictionary of Economics", Eds. Steven N. Durlauf and Lawrence E. Blume, Palgrave Macmillan, The New Palgrave Dictionary of Economics Online, Palgrave Macmillan, 2008

<sup>4</sup> Blanchflower, D., Oswald, A., "Well-being over time in Britain and the USA", Journal of Public Economics 88, 1359–87, 2004.



**Fig. 3** Happiness and income per capita, 1990

“While most happiness studies find that *within* countries wealthier people are, on average, happier than poor ones, studies across countries and over time find very little, if any, relationship between increases in per capita income and average happiness levels. On average, wealthier countries (as a group) are happier than poor ones (as a group); happiness seems to rise with income up to a point, but not beyond it. Yet even among the less happy, poorer countries, there is not a clear relationship between average income and average happiness levels, suggesting that many other factors – including cultural traits – are at play... Thus, a common interpretation of the Easterlin paradox is that... aspirations increase along with income and, after basic needs are met, relative rather than absolute levels of income matter to well-being.”<sup>5</sup>

Clark et al. show that for a country, beyond the Easterlin paradox, happiness inequality matters because “if raising the income of all can not raise the happiness of all, it will at least to reduce the gaps between them, provided that income inequality is not too large” [17].

In 2010, Easterlin and a group of co-authors<sup>6</sup> have revisited the income-happiness paradox. The study was conducted in a number of developing countries, including Eastern European countries in transition from socialism to capitalism, and a larger than previously group of developed countries. The results show that the long-term paradoxical relationship between happiness and income still holds. For the short term, however, for all three groups of countries, happiness and income have a similar behavior. Striking are the studies for China, South Korea, Chile which recently had very high growth rates (corresponding to a doubling of real per capita income in less than 10 years for China, in 13 years for South Korea, and in 18 years for Chile). Despite such a strong income growth, subjective well-being improvements were not as expected.

The conclusion of this study suggests that welfare policy should move beyond achieving mere material accumulation: “Possibly more useful are studies that point to the need to focus policy more directly on urgent personal concerns relating to such things as health and family life and to the formation of material preferences<sup>7</sup> rather than on the mere escalation of material goods.”<sup>8</sup>

<sup>5</sup> Graham, C. “*happiness, economics of*”, “The New Palgrave Dictionary of Economics”, Eds. Steven N. Durlauf and Lawrence E. Blume, Palgrave Macmillan, The New Palgrave Dictionary of Economics Online, Palgrave Macmillan, 2008, p. 4-5.

<sup>6</sup> Easterlin, R. A., Angelescu McVey, L., Switek, M., Sawangfa, O., Smith Zweig, J., “*The happiness-income paradox revisited*”. Proc Natl Acad Sci USA, 107(52), p. 22463–22468, 2010.

<sup>7</sup> Easterlin, R. A. “*Explaining happiness*”. Proc Natl Acad Sci USA, 100, p.11176–11183, 2003.

<sup>8</sup> Easterlin, R. A., Angelescu McVey, L., Switek, M., Sawangfa, O., Smith Zweig, J., “*The happiness-income paradox revisited*”. Proc Natl Acad Sci USA, 107(52), p. 22463–22468, 2010, p. 22467.

#### 4. Models in happiness economics

Hayo [18] makes the distinction between two main lines of research in the empirical literature. First, individual level variables determining happiness and affecting life satisfaction for countries, between countries and over time, are found. Then is analyzed the influence of other variables on welfare, such as macroeconomic inflation and unemployment variables.

According to Graham [19], in micro-econometric happiness research, equations have the standard form given by:

$$W_{it} = \alpha + \beta x_{it} + \varepsilon_{it} \quad (1)$$

where  $W$  is the welfare of the individual  $i$  at moment  $t$ , and  $X$  is a vector of known variables, including socio-demographic and socio-economic characteristics. Unobservable characteristics and measurement errors are captured in the error term  $\varepsilon_{it}$ .

In 2012, Graham and Chattopadhyay [20] presented a gender and welfare model using Gallup World Poll (2005-2011) data for countries “around the world, both across and within countries - comparing age, income and education cohorts”. Subjective well-being is measured using Cantril scale.

Their results “highlight a seeming paradox, in which the changes that are associated with improving gender rights can be associated with lower levels of well-being for women, while contexts which have longer standing and well-established equality in gender rights are associated with higher levels of well-being for women.”

The basic models are:

$$LL_i = X_{1i}\beta_1 + X_{2i}\beta_2 + \varepsilon_i \quad (2)$$

and

$$LL_{future_i} = X_{1i}\beta_1 + X_{2i}\beta_2 + \varepsilon_i \quad (3)$$

where:

$X_1$  is a person-specific vector of individual characteristics such as age, sex, marital status, personal experience of the joys and sorrows of the previous day, and satisfaction with freedom.

$X_2$  is a person-specific vector of household socio-economic conditions such as annual household income (in deciles for the country), the location of the household (ranging from rural to large urban areas), and household size.

$LL$  and  $LL_{future}$  are Cantril scale questions. The first asks individual respondents to evaluate their present life compared to the best possible life (on a scale ladder of 0-10), and the second asks them to predict their position on the ladder five years in the future. Zero indicates the worst possible life and ten is the best possible life on this 11-step scale.

In the literature there is a large number of happiness studies on Eastern European countries; four of them are presented below.

Blanchflower and Freeman [21] use a set of pooled cross-sectional data for Hungary and Slovenia in comparison with Western countries (at that time); they found that, on average, life satisfaction was lower for developing countries.

Blanchflower and Oswald [22] analyze the impact of unemployment on happiness and conclude that it is relatively similar to that for Western countries.

Hayo and Seifert [23] focus on economic welfare analysis and note that in the early stages of transition subjective well-being is not too well approximated by indicators based on national accounts such as GDP per capita.

Hayo<sup>9</sup> studied happiness in Eastern Europe, especially the Czech Republic, Slovakia, Slovenia, Hungary, Poland, Romania and Bulgaria, using a data set containing representative population surveys collected in 1991

<sup>9</sup> Hayo, B. “Happiness in Eastern Europe”. Working Paper 12/2004, Phillips Universität Marburg, 2004.

by Paul Lazarsfeld Society in Vienna [24]. He estimates a model for the average happiness in Eastern Europe with GDP per capita and unemployment as explanatory variables.

The results show that compared to other societies, even in 1991, during the transition period at the beginning of the transformation process, the drivers of happiness are similar. Rural respondents reported a higher satisfaction with life than urban resident. A possible explanation may be related to the differences in purchasing power and to the slower adjustment of the level of aspirations for rural residents.

## 5. Conclusions

Human welfare can be analyzed using different measures; one of which is happiness. The philosophical interest in human happiness started with Aristotle, and centuries later was taken to the realm of economics by Jeremy Bentham, John Stuart Mill, and Adam Smith. Today, happiness evaluation is done using econometric techniques which have evolved over time, which this paper briefly surveyed the literature on the topic. A string of research investigated long-term happiness and Easterlin paradox synthesizes the finding that happiness does not increase when a country's income increases. Some authors used panel data and advanced econometric techniques, such as Probit Ordinary Least Square (POLS), while others estimated the income required for a typical individual to ascertain the same change, due to various events, in declared happiness as in welfare. The road ahead is open for research on the concept of happiness and well-being changes due to the recent global economic and financial crisis.

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