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**Happiness Economics:  
A New Road to Measuring  
and Comparing Happiness**

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# Happiness Economics: A New Road to Measuring and Comparing Happiness

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## Happiness Economics: A New Road to Measuring and Comparing Happiness

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### Abstract

This paper deals with the concept of happiness in economics. Of late there has come into life a branch of *happiness economics* and it is this field that will be our concern. Actually, not only economists are interested in quantifications of happiness but also researchers in other disciplines. Notably there are several psychologists who investigate happiness as well. We mention Schimmack et al. (2002), Kahneman et al. (1999, 2006), Kahneman and Krueger (2006), Clark et al. (2008) and Lucas and Schimmack (2009). There are also some interconnections between happiness economists and psychologists as in the citations just mentioned. In this paper we will focus on happiness economics, although we will sometimes refer to work in other disciplines as well. Happiness economics is up to now an empirically oriented field. There is no attention for philosophical contemplations on happiness, the sense of life, etc. as we find in philosophy and religious studies (see, e.g., Feldman (2010), Nussbaum and Sen (1993), Haybron (2010) and Bok (2010) for a philosophical approach). We shall not touch on these issues in this tract.

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# 1

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## Introduction

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### 1.1 What is Happiness?

Economic science deals with individual behavior, notably the decisions of individuals dealing with questions like what do they buy, what do they produce, how long do they work, how do they spend their leisure time, whom do they choose as partner in marriage, and so on. The basic explanation among economists and non-economists alike is that individuals do not act haphazardly, but with a specific objective in mind. They try to optimize or improve their situation. If a situation  $A$  is considered to be better than situation  $B$ , we say that the individual derives more *well-being* or *happiness* from  $A$  than from  $B$ . There are philosophers (e.g., Haybron, 2010), who distinguish between the two words *well-being* and *happiness* as standing for two different concepts. However, the problem is that at an empirical level nobody can make out what is the exact difference between the two concepts. For instance, it is very hard to conceive of two situations where one is happier in  $B$  than in  $A$ , but derives more well-being from  $A$  than from  $B$ . If the two words would stand for different properties of  $A$  and  $B$ , then giving ‘more well being’ seems to go parallel with causing ‘more happiness’. In short, we and most happiness economists make no semantic differ-

## 2 Introduction

ences between the two. Other terms used to refer to this concept are *utility*, *ophelimity*, *eudaemonia* and *satisfaction*. We shall take them all as operationally synonymous. That is, we do not exclude the possibility that it is philosophically or psychologically possible to give different meanings to the terms, but it is empirically impossible yet with our present day empirical instruments of observation to make a meaningful differentiation between them.

This paper deals with the concept of happiness in economics. Of late there has come into life a branch of *happiness economics* and it is this field that will be our concern. Actually, not only economists are interested in quantifications of happiness but also researchers in other disciplines. Notably there are several psychologists who investigate happiness as well. We mention Schimmack et al. (2002), Kahneman et al. (1999, 2006), Kahneman and Krueger (2006), Clark et al. (2008) and Lucas and Schimmack (2009). There are also some interconnections between happiness economists and psychologists as in the citations just mentioned. In this paper, we will focus on happiness *economics*, although we will sometimes refer to work in other disciplines as well. Happiness economics is up to now an empirically oriented field. There is no attention for philosophical contemplations on happiness, the sense of life, etc. as we find in philosophy and religious studies (see, e.g., Feldman, 2010; Nussbaum and Sen, 1993; Haybron, 2010; Bok, 2010, for a philosophical approach). We shall not touch on these issues in this tract.

### 1.2 The Attitude of Mainstream Economics Toward Happiness

Most economists until recently were very suspicious about happiness economics. Actually, the common opinion in the twentieth century was that happiness is not empirically measurable, and consequently, all empirical studies about it could not be different from worthless. And if some concept is believed to be non-measurable, even theoretical studies about happiness would not be possible as the basic ingredient was a chimera. It is evident that we are not of that opinion, for, if so, writing this study would make no sense. Actually there is now a growing body

of serious economists who are willing, either reluctantly or wholeheartedly, to include happiness economics as a part of economic science. Nevertheless, not only for describing the historical setting, but also for a better understanding of happiness economics itself, we devote a few pages to the viewpoint of mainstream economics, as it reigned in the twentieth century, and as it still reigns in a shrinking majority group of present day economists.

It is possible to describe human behavior in simple mathematical terms. We describe situations by some dimensions we deem relevant, say, variables  $X_1, X_2, \dots$ . For instance, let us take the traditional example of consumer theory. We think of the consumption bundle of the individual in terms of goods and services bought. A specific situation is then described by having  $x_1$  units of bread,  $x_2$  bottles of beer, etc. The happiness derived from a specific bundle  $x = (x_1, x_2, \dots)$  is set equal to a number  $U(x)$  and behavior is described as choosing that situation from the set of reachable situations, which maximizes  $U(x)$ . Usually it is assumed that ‘reachable’ stands for those bundles that may be bought for an amount of money  $M$  and prices  $p = (p_1, p_2, \dots)$ .

In the nineteenth century, economists (like Edgeworth, 1881) had the idea that the function  $U(x)$  would be known in the near future, leading to the situation that consumer behavior of rational utility maximizing consumers could be rather well predicted and even corrected, if it was non-optimal. The economist/sociologist Pareto (1909) made it clear in his influential *Manuel d'Économie Politique* that things were more complicated than that. Let us assume for convenience that  $U(x_1, x_2) = x_1^2 + x_2^2$  which is maximized under the budget constraint  $x_1 + 2x_2 = 10, x_1, x_2 > 0$ . This yields an optimal consumption bundle or demand vector. However, we see that maximization of  $\tilde{U}(x_1, x_2) = \sqrt{x_1^2 + x_2^2}$  would yield the same optimum. Actually, each  $\tilde{U}(x_1, x_2) = \phi(U(x_1, x_2))$  where  $\phi(U(\cdot))$  is a monotonously increasing function will yield the same optimum. Hence, observing choice behavior does not give sufficient information to detect the utility function in the background that is maximized. Or said more precisely, there is an infinite class of utility functions, which yield the same choice behavior. It is therefore that we speak of an *ordinal* utility concept. What do the ordinal utility functions belonging to one class have in common? These

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are the so-called utility indifference curves, where an indifference curve is the whole set of points given by the equation  $U(x_1, x_2) = u$ , where  $u$  is a constant. They can be discovered by observing the demand behavior when the budget constraint is varying, say, by varying income  $M$  and the price vector  $p$  in the variable budget  $p_1x_1 + p_2x_2 = M$ . Hence, the fact is that the common indifference curves can in theory be detected or identified by looking at choice behavior, even if in reality this method is rather difficult to apply as there is not much price variation in most consumer surveys. However, by this method we are unable to detect the specific utility function used by the individual, because there is a multitude of so-called cardinal utility functions yielding the same empirical choice behavior. There is no one–one relationship between the observed choice behavior and the underlying utility function yielding the observed behavior.

This fact, first explicitly signaled by Pareto, changed the progress of economic science in the twentieth century. The influential tract *An Essay on the Nature and Significance of Economic Science* by Robbins (1932, 1938) gave a final blow to the idea of cardinal utility. Debreu (1959), Houthakker (1950) and Samuelson (1947, 1974) established a new structure of economic science in which the utility concept (cardinal but even ordinal) was factually eliminated. One of the main instruments of which one had great expectations, the utility function, lost much of its position, as it could not be empirically identified for individuals. This is not to say, of course, that individuals do not have some *cardinal* utility function in mind when performing choices between alternatives, but it cannot be estimated from their choice behavior.

Since Pareto's work, the measurement of utility fell into disgrace. Not only was observation of demand behavior shown to be insufficient to derive the individual's cardinal utility/happiness function, but knowledge of cardinal utility appeared also unnecessary to make welfare judgments or to predict behavior. A utility function became just a description of a preference ordering or rather of a net of indifference curves, losing all its classical meaning of describing levels of pleasure. Therefore, looking for an alternative source of measurement became unnecessary. Since Pareto and especially since the publication of Lionel Robbins' influential tract in 1932 most mainstream economists

were mainly preoccupied on minimizing the necessary assumptions to describe human behavior and welfare economics was left with income as the only measure to compare well-being between individuals.

In the previous lines we chose consumer behavior as our playground, but the same holds for all situations of choice, e.g., when choosing between jobs, or between marriage partners.

Nevertheless, this strong result on the non-measurability of utility or happiness is also very unsatisfactory. In common language, people speak about ‘John being very happy lately’, and happiness is compared between individuals, e.g., ‘John is *much* happier than Peter’. This suggests that individuals are able to measure the level of happiness of people, including their own happiness, and that individuals are able to make interpersonal comparisons of happiness. Obviously, the exactness of such measurements has to be taken with a grain of salt and the measurement outcomes will fluctuate over time and circumstances, but there is no reason why everyday statements by almost every individual would have no basis at all. The point is also clearly visible when we think on the definition of poverty. If poverty is a status of low well-being and we pretend that we can recognize individuals as being ‘poor’, then it implies that some kind of measurement of well-being is possible. For instance, if the poverty line for a family of four persons is set by Parliament at €1200 per month, it suggests strongly that the well-being that may be derived from an amount below € 1200 per month is considered too low in the specific country.

Could it be that cardinal well-being after all is measurable, but that the instrument which economics used thus far, observation of choice behavior, is not the right instrument of observation? Despite the logical positivism that has dominated economics since the 1930s, some economists walked against the stream and did look for alternatives to the measurement of utility by asking individuals themselves about the satisfaction level they are experiencing or which happiness values they would assign to hypothetical situations. The simplest question of this type is given in Figure 1.1

This is what we may call the *direct* approach to happiness measurement. Although intuitively this seems an obvious way to get information, there are social scientists that doubt the validity of such a

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How satisfied are you with your life as a whole?										
<i>Please answer according to scale below</i>										
0	1	2	3	4	5	6	7	8	9	10
<i>completely</i>										<i>completely</i>
<i>dissatisfied</i>										<i>satisfied</i>

Fig. 1.1 Life satisfaction question.

question. However, at the moment question modules of this type have been posed to millions of individuals all over the globe, and it is seen that the great majority of respondents has no problem whatsoever to answer on this question and it has also been seen that most people in the same objective circumstances evaluate their life approximately by the same figure. This question is the prototype of the happiness questions, which form the basic instrument for all studies in happiness economics.

The same question can be posed to individuals with respect to specific aspects/domains of their life, e.g., their financial situation, their health, their marriage life, the satisfaction with their job, etc. Then we speak of *domain* satisfactions.

There are basically two ways to study data sets in general and happiness in particular. The first is so-called primary analysis. This is just a matter of tabulating and counting to get answers on the question what fraction of the population under consideration is happy and what fraction is unhappy, mostly differentiated with respect to relevant subsets, e.g., age brackets, income brackets, or education segments. So-called secondary analysis goes further. It tries to find out *why* individuals feel happy or less happy, it is a quest for the determining factors that cause happiness, or as econometricians say, the explanatory variables. In this paper we shall focus in line with the economic literature on the secondary analysis.

The direct approach to happiness measures relies on the assumption that self-reported satisfaction can be used as a proxy measure for utility. For economists, the most obvious way to test this assumption is to examine whether individual behavior can be explained or predicted by the individual's reported happiness. Up to this time and to our knowledge, there are only a very few studies that have tried

to do this. We mention Kapteyn et al. (1979) that tried to do just that on the basis of the direct approach to utility measurement. Their outcome was that in the context of consumer behavior the assumption that consumers maximized their utility had to be firmly rejected. Actually, they came out with much more support for so-called ‘satisficing’ behavior. This term, coined by Simon (1955), stands for behavior that tries to maintain the status quo, except if satisfaction falls behind a critical level, in which case the individual tries to find a better position. According to Wikipedia ‘satisficing is a decision-making strategy that attempts to meet criteria for adequacy, rather than to identify an optimal solution. A satisficing strategy may often be (near) optimal if the costs of the decision-making process itself, such as the cost of obtaining complete information, are considered in the outcome calculus (see also Schwartz et al., 2002; Frijters, 2000). Clark (2001) shows that reported job satisfaction can predict future job quits while controlling for a set of job characteristics; Guven et al. (2010) find that the satisfaction gap between spouses explains the probability of a future divorce; Oswald et al. (2009) find a positive causal correlation between happiness reports and individuals’ productivity in a laboratory setting; and Helliwell (2007) finds a negative correlation between the probability to committ suicide and self-reported life satisfaction. From a somewhat different perspective, Oswald and Wu (2011) correlate subjective measures of happiness with a market-derived indicator of quality of life (i.e., behavior observed in the market). They find a very strong correlation between reported happiness of one million US individuals and an objective measure of regional quality of life.

Other scientists have sustained the meaningfulness of satisfaction measures by reporting positive correlations between reported happiness and physical expressions such as amount of smiling in the questionnaire (Sandvik et al., 1993), changes in facial muscles (Kahneman, 1999), and physical measures of brain activity (Urry et al., 2004); or by proving that individuals can predict each others’ reported happiness levels (Diener and Lucas, 1999; Sandvik et al., 1993).

In Section 2 we start by considering the methods of analysis in happiness economics. In Section 3 we consider life satisfaction (or happiness), in Section 4 we consider domain satisfactions, in Section 5 we

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return to the ordinality–cardinality question, and in Section 6 we lay the link between domain satisfactions and satisfaction with life as a whole. In Section 7 we consider the work of the Leyden school that may be seen as a forerunner of modern happiness economics. In Section 8 we consider the effect of the individual’s reference group on her his happiness. In Section 9 we consider what we can say about the influence of past events and the anticipated future on present life satisfaction. In Section 10 we deal with the effect of climate and more generally of the external environment on satisfaction. In Section 11 we consider the effect of inequality on individual happiness and we consider happiness inequality *per se*. In Section 12 we consider in how far the vignette approach, so popular in marketing, can be applied in happiness economics. In Section 13 we try to delineate the significance of happiness economics for normative economics. In Section 14 we draw some conclusions and discuss the relevance of the new findings for economic science and the social sciences in general.

There is nowadays an enormous production of papers in happiness economics, and the reader will understand that it is unfeasible to do justice to all contributions. Moreover, the task of reading would become rather tedious for the reader of this tract who wants a short introduction into the field. We mention here a few recent monographs that give introductions to the field. Not only are they sometimes more detailed than ours, but they have rather different outlooks and accents as well. We mention a.o. Frey and Stutzer (2002), Layard (2005), Frey (2008), Graham (2009), Bok (2010), Van Praag and Ferrer-i-Carbonell (2004, 2008).



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