Happiness and utility in economic thought – Or: What can we learn from happiness research for public policy analysis and public policy making?

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Abstract

In the past decades, a great interest has emerged in understanding the nature of people's well-being beyond consumption opportunities. It is widely believed that happiness research based on self-reports on people's satisfaction with life has made a significant contribution to this understanding. The growing numbers of happiness studies provoke the question whether, and eventually how, public economists should include well-being considerations into policy analysis. Aiming to contribute in answering this question, this review paper provides a survey of the general happiness conception, the formative steps of happiness research, and its relationship to the economic concepts of ordinal and cardinal utility. We furthermore describe the pitfalls of conventional utility approaches and find that both the ordinal and the cardinal approaches have shortcomings which are not shared by happiness measurements. One advantage is that self-reports on well-being reflect the consequences of people's choices in terms of the well-being they eventually experience. Externalities, as well as the effects of bounded rationality, are inherently taken account of when using happiness measurements for the evaluation of public policies. While it is not entirely clear yet how evidence from happiness research is to be used towards enlightening policy makers, the answer will certainly depend on the policy field under consideration. In general, happiness research may make two major inroads: it may help to discover which conditions foster people's well-being, besides the goods and services provided by the market; it may also help to develop a realistic conception of man, thus facilitating an adequate modeling of multiple-goal and potentially bounded rational real-life actors in policy impact analysis.

Keywords

Beyond-GDP, happiness, life satisfaction, market failures, policy impact analysis, quality of life, smart regulation, sustainability, utility, well-being

1 Introduction

Instead of redistributing financial resources, the task of public policy is increasingly seen as one of mitigating market failures and steering the behavior of social actors by changing their economic and institutional environments. Agro-environmental policies are a pronounced example of this development (Vercammen 2011). On the one hand, agriculture is expected to reduce or avoid negative externalities, such as those caused by the input of nitrogen into groundwater. On the other hand, the primary sector is expected to provide positive externalities that are deemed socially desirable but not remunerated by the market, such as the provision of cultural landscapes and high-nature-value farming (Randall 2002).

The design of institutions and regulatory systems which are capable of mitigating market failures requires a systematic approach. In the first step, the externalities need to be identified and the behavioral

changes that are expected to provide the socially desired outcomes need to be specified. In a second step, a set of promising policy alternatives needs to be drawn up and evaluated. The European Commission (2010) has addressed the necessity to improve the quality of regulation in its *Communication on Smart Regulation in the EU*. In order to provide the necessary information for smart regulation, the effectiveness and the efficiency of regulatory measures need to be assessed in a regulatory impact analysis (Gunningham et al. 1999; Kirkpatrick and Parker 2007). In this context, four crucial questions are to be answered: first, which costs to the taxpayer and society are caused by the regulatory measures under consideration? Second, which behavioral changes are likely to result from which regulatory measures (e.g., payments for a voluntary reduction of nitrogen intensity vs. a Pigouvian tax vs. the enforcement of mandatory rules)? Third, which outcomes are produced by this change in behavior? Fourth, which willingness to pay does society have for the provision of the socially desired outcome (e.g., the reduction of nitrogen loads)? Answering the last question requires that the value of the achieved outcome is mapped into monetary units and contrasted with the costs to the taxpayer and society in a cost benefit analysis.

In its communication, the European Commission (2010) explicitly calls for the quantification of costs and benefits whenever possible. However, even if considerable effort is put into policy impact analysis, each of its procedural steps may be flawed due to inadequate measurement. While procedural flaws in cost benefit analyses can lead to distorted economic policies, a more fundamental pitfall may arise: basing policies exclusively on the analysis of market failures is equivalent to concerning oneself exclusively with material well-being. Non-material dimensions are ignored even though they may contribute a significant share to people's overall life satisfaction. While marking a distinctive turning point, the shift towards correcting for market failures may thence fall short of a more paradigmatic change of political goals towards advancing the well-being of citizens and future generations (social progress) (Diener et al. 2009). Using rural development as an example, this may require factors besides income and wealth to be considered according to their relative contribution to the well-being of rural dwellers.

In the past decades, a great interest has emerged in society and the scientific community to understand the essence and the metrics of "people's well-being" in general. Simultaneously, the conventional belief is dissolving that an exclusive concern with production and consumption, as measured in national accounts such as gross domestic product (GDP), is sufficient for guiding policy makers (Dolan and Metcalfe 2012; Frey and Stutzer 2010, OECD 2013a). Reflecting these developments, Stiglitz et al. (2010: xvii) summarize in the preface of their influential report on the *Measurement of Economic Performance and Social Progress*: "What we measure affects what we do. If we have the wrong metrics, we will strive for the wrong things."

Research on well-being is based on asking people how they feel. Usually, numerical (Likert) scales are used to obtain a quantitative measurement. A typical question is: All things considered, how satisfied or dissatisfied are you with your life-as-a-whole now? "Easterlin (1974) was the first economist to make prominent use of happiness data when he reported that despite increases in personal income over

time, people were not reporting an increasing level of happiness" (Di Tella and MacCulloch 2006: 25). Despite the large number of happiness studies that have been carried out in the last decades, happiness research is still characterized by conflicting concepts, and neither terminology nor definitions have been unanimously agreed upon by the scientific community. We thence believe that we should provide a common starting ground and state that, in this paper, the terms "subjective well-being," "life satisfaction" and "happiness" are used as interchangeable terms that describe an individual's introspective hedonic evaluation of life. In contrast, the meaning of the term "quality of life" is context-dependent. It is used as another synonym for well-being, but it may also designate the determinants of well-being which can be grouped into two classes: first, the individual's living conditions in various life domains (i.e., his/her natural and social environments), and second, the individual's capabilities to cope with life and achieve his/her personal aspirations. Veenhoven (2000) has labeled this dichotomous distinction "liveability of the environment" as opposed to "life-ability of the person."

This review paper is aimed at providing a survey of the happiness and utility conceptions in economic thought as well as of the formative steps of happiness research, thus contributing to the present debate on whether, and eventually how, public economists should include well-being considerations into the analysis of public policies. With this in mind, the article is structured as follows: After this introductory section, we outline in section 2 the general well-being conception and discuss what well-being is, how it relates to utility, and how it is measured. In section 3 we describe the most influential single concepts to measure social progress. Section 4 concludes by exploring the question of how well-being considerations can be incorporated into policy analysis and making.

2 Well-being – the conceptual view(s)

2.1 Commonalities and differences between utility and well-being

Ordinal utility

Since the ordinal revolution of the 1930s, economists have often resorted to the theory of revealed preferences when referring to utility (Houthakker 1950; Pareto 1920/1971; Robbins 1952; Samuelson 1937 and 1938). This holds true especially for new welfare economists and consumer choice (demand) theorists who assume that, given a certain budget (purchasing power), people's purchasing choices (i.e., their revealed preferences over a choice set of goods) reflect their utility order.[1]

The utility concept based on preferences has been criticized in the literature as being circular. Robinson (1962: 47), for instance, states: "*Utility* is a metaphysical concept of impregnable circularity; *utility* is the quality in commodities that makes individuals want to buy them, and the fact that individuals

[1]Consumer demand theory is based on the indifference curve approach which only requires an ordinal measurement of preferences, i.e., a measurement which is unique up to monotonic increasing transformations. A crucial finding of demand theory is that people consume bundles of goods in which the marginal rate of substitution between any two goods equals their reciprocal price ratio (equi-marginal principle). In its specific domain of explaining how consumer choice translates into price, demand theory is rightly satisfied with ordered preferences following "Occam's Razor" according to which – given the same explanatory power – the most parsimonious approach should be selected.

want to buy commodities shows that they have *utility*." Using a choice set $\{A, B\}$, this criticism can be formalized as follows: (i) If A generates higher utility than B $[U(A) > U(B)]$, then the individual prefers A to B $[A \succ B]$. (ii) If the individual prefers A to B $[A \succ B]$, then A generates a higher utility than B $[U(A) > U(B)]$.

The critique by Robinson runs down to attest that basing utility on preferences is tautological because no additional information is obtained by rephrasing a preference order as a utility order. The ordinal approach has nonetheless been found to be a mathematically convenient tool both in consumer and applied welfare analyses. The following quote by Alchian (1953: 31) demonstrates that this is the case even though consumer theorists are aware of the fact that they only need ranked preferences and that they could do without semantically equating preference orders with utility orders: "Can we assign a set of numbers (measures) to the various entities and predict that the entity with the largest assigned number (measure) will be chosen? If so, we could christen this measure 'utility' and then assert that choices are made so as to maximize utility. […] The thing –or numerical measure of the 'thing'– which [t]he [individual] seeks to maximize is called 'utility'. Whether or not utility is some kind of glow or warmth, or happiness, is here irrelevant; all that counts is that we can assign numbers to entities or conditions which a person can strive to realize."

In other words, the classic *utilitarian concept* as proposed by Bentham (1789/2000) in the 18th century, which associates utility with introspective hedonism and assumes that the amount of an individual's utility (happiness) is measurable in principle (see below), is replaced in consumer theory by a reductionist *behaviorist concept* which assumes that we can only observe what people do (Hands 2010). The behaviorist approach has its virtues but also its limits. It is, by definition, neither able to elucidate *how much* utility is achieved from an individual choice (e.g., a certain basket of goods), nor *how much* utility is achieved by a group of people in a certain context. To avoid confusion, it should be furthermore emphasized that, when using the behaviorist approach, we are not even able to determine *whether* an observed choice produces more utility than others. This is due to the fact that only people's desires can be inferred from their choices, not their experienced/achieved satisfaction.[2]

Two kinds of bounded rationality are responsible for the gap between desires and satisfaction: first, individuals may make choices that are not consistent with their goal system in place. Second, their goals and evaluations ("tastes") may change over time in a way that is unforeseen at the time that their choices are made. If people are bounded rational in one or both of these ways, their choices will reflect neither their true desires nor their achieved satisfaction. (e.g., Dolan at al. 2008; Kahneman and Krueger 2006; Sen 2010). Thus, it may be wrong to assume that obese people who eat their third bar of chocolate derive more utility from three bars than from two. It may equally be wrong to deduce that people who prefer higher paying jobs obtain an increase in utility once they get one, even though higher incomes do increase consumption opportunities. People may simply underestimate the fact that

[2]Neglecting this fact may lead to misunderstandings and wrong conclusions. Nonetheless, such misinterpretations seem to have a long tradition. As far back as the 1960s, Robinson (1962: 49) apparently felt obliged to clarify the limitation of the equi-marginal principle in consumer theory: "It is the desire, not the satisfaction, that is measured by price, yet the idea of satisfaction cannot be kept out."

extra income, while producing *fleeting* satisfaction, is often correlated with less leisure, higher stress levels, and a poor quality of social relationships, all of which produce *lasting* dissatisfaction.[3]

Let us briefly summarize the problems that arise if the behaviorist ordinal utility perspective is imprudently used: first, if individuals were completely rational (which they are not likely to be), equating revealed preferences with ordinal utility is a tautological semantic variation which generates no additional information whatsoever; second, if individuals are bounded rational (which they are likely to be), revealed preference orders *cannot* be equated with utility orders. Third, if one adopts the behaviorist view that utilities cannot be measured, let alone be compared interpersonally, a discrimination between public policies aimed at promoting collectively rational choices is impossible per se (Binmore 2009; Harsanyi 1955); a preference order that is revealed in one decision environment (e.g., no seatbelt laws) provides no indication whatsoever of the social net effect of a different environment (e.g., compulsory seat belt legislation). Instead, the behaviorist analyst is reduced to having to state that different choices can be observed in different contexts.

Cardinal utility

Going beyond the objective of consumer theory which is concerned with the specific question of how people's desires translate into a demand for goods, the cardinal utility conception is concerned with the question of *how much* utility is achieved from particular choices in specific contexts. Technically speaking, the measurement of cardinal utility is unique up to linear increasing transformations, i.e., a constant can be added to cardinal utility values (numbers) and/or they can be multiplied with a constant positive factor without loss of information. Using an additive constant of 5 and a constant factor of 10, a cardinal utility statement such as $U(A) = 4$ and $U(B) = 8$ can thence be equivalently transformed into $U(A) = 45$ and $U(B) = 85$. In other words, both the zero and the unit of the measurement scale can be freely chosen – at least as long as one considers only one individual and uses the same transformations for all numbers (*intra*personal comparability).[4]

Jeremy Bentham, who – despite many philosophical precursors – is considered to be the founding father of utilitarianism, equated utility with happiness. He started his famous book *An Introduction to the Principles of Morals and Legislation* with the following statement (Bentham 1789/2000: 14). "Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, […]. By the principle of utility is meant that principle which approves or disapproves of every action whatsoever according to the tendency it appears to

[3]The initiate economist knows that demand theory tries to explain how choices that *are* made translate into demand and, finally, prices. He/she also knows that demand theory was never meant to answer the question which choices *should* be made by individuals who strive to maximize their utility. The fact, however, that demand theory uses the term "*utility*" may give rise to serious misunderstandings and exercise a misleading influence on people's real behavior; if economists steadily equate revealed preferences for higher incomes with increasing levels of utility, for instance, – without emphasizing that this would only hold *if* the observed behaviors were completely rational – people who are looking for decision support may take this *conditional* statement as guidance that they *should* strive for higher incomes if they want to increase their utility.

[4]Cardinal measurement can be equated with an "interval scale" (cf. theory of scale-type; Stevens 1946). That is, while intervals between numbers can be meaningfully compared within each transform of the scale, ratios of the numbers are meaningless.

have to augment or diminish the happiness of the party whose interest is in question: […]. I say of every action whatsoever, and therefore not only of every action of a private individual, but of every measure of government."

Though Bentham (1789/2000: Chapter IV) failed to specify a precise method of measurement, he did make some vague suggestions on how to estimate utility which have become known, rather misleadingly, as "felicific calculus" (or "hedoni(sti)c calculus"). Bentham explicated that the estimation of utility is to be based on a decomposition of the individual's happiness into pleasures and pains, and both are to be further decomposed into six dimensions: (1) the intensity of pleasures and pains, (2) their duration, (3) their probability to arise, (4) their temporal propinquity, (5) their fecundity[5], and their (6) purity.[5] According to Bentham, the values of all pleasures and pains are to be added up and balanced against each other. If the balance is on the side of pleasure, the action under consideration will increase individual happiness and vice versa. Going beyond individual happiness and concerning himself with legislation, Bentham (1776: Preface) claimed that "it is the greatest happiness of the greatest number that is the measure of right or wrong." With a look to the aggregation problem that results from such a perspective, Bentham added a seventh dimension to the hedonic calculus – the "extent", i.e., the number of persons whose interests are concerned – and suggested that the hedonic calculus be repeated for each person and that the results be summed up over all individuals.

While Bentham's conception of utility is commonly associated with "cardinal utility," he did not use the term "cardinal" himself. It is questionable whether he interpreted utility as being unique up to linear increasing transformations. With the hedonic calculus, Bentham assumed *inter*personal comparability and aggregation. This requires, first, an identical reference point (zero), and second, identical units of measurement for all individuals under consideration. Using a hermeneutic approach, one might speculate that Bentham had an absolute perspective on utility, i.e., that he considered the reference point to be a natural (true) zero of both pain and pleasure and that he thought the unit of measurement to be a natural (true) given as well. If one accepted the idea of such an *absolute scale of utility* despite the lacking operationalization of the hedonic "calculus," one would have to conclude that Bentham took utility as having *no* equivalent transforms. A more contemporary interpretation in the sense of measurement theory would be to consider Bentham's utility indeed as cardinal in the sense of being unique up to linear increasing transformations. One would have to add, however, that transformations (i.e. the choice of zero and the unit of measurement) need to be harmonized across people to facilitate interpersonal comparability and aggregation.[6]

To provide a conclusive overview of the different utility conceptions, Table 1 summarizes the differences between the behaviorist and the utilitarian perspective.

[5]With the dimensions "fecundity" and "purity" Bentham wanted to capture future consequences, i.e., the probability that a sensation is followed by the same kind (fecundity) or not followed by the opposite kind (purity).

[6]Cardinal utility was the starting point of (Old) Welfare Economics in the Gossen (Gossen 1854/1983) and Pigouvian tradition (Pigou 1920) which adds decreasing marginal utility of income to the assumption that individual utilities are comparable and can be aggregated. If efficient social choice is about maximizing the sum of individual utilities, decreasing marginal utility is an argument for egalitarian redistribution of income.

Table 1: The behaviorist and the utilitarian perspective in economics

	Behaviorist perspective	**Utilitarian perspective**
Measurement assumption	Utility is neither measurable nor can it be compared across people	Utility is measurable in principle and can be compared across people
Metric	Revealed preferences (indifference curves)	Felicific calculus (not operationalized)
Scale type	*Ordinal* scale (of preferences)	*Cardinal* scale (of utility)
Interpretation	Ordinal utility can be inferred from the individual's choices/preferences	Cardinal utility resulting from the introspective hedonic appraisal of outcomes
Scientific objective	Explanation of price formation	Decision support for public policy making aimed at promoting social progress

Table 1 reflects that the ordinal approach is linked to the behaviorist (revealed) preference perspective, while the cardinal approach is linked to the utilitarian (introspective) hedonic appraisal perspective.[7] The essential difference between the behaviorist and the contemporary utilitarian perspective has been highlighted by Kahneman et al. (1997). They use the term "*decision utility*" denoting the assumption that (ordinal) utility can be inferred from people's preferences, as opposed to the term "*experienced utility*" denoting the assumption that the utility of inherently bounded rational actors cannot be inferred from preferences alone.

Well-being

While the ordinal utility conception based on the behaviorist (revealed) preference perspective was prevalent in economics over the last 70 years, "economists and psychologists have become increasingly concerned that preferences are often not a very good guide of the well-being associated with the consequences of choices" (Dolan et al. 2008: 95). In the wake of the seminal paper by Easterlin (1974) who showed that happiness does not increase in line with income in affluent societies such as the US, a large number of happiness studies have been carried out, especially in the last two decades. In many of these studies, researchers associate happiness measures with the classic utilitarian concept explicitly or implicitly. Can we thus conclude that economics is "brought back to Bentham" (Frey and Stutzer 2007; Kahneman et al. 1997; Layard 2007)? To answer this question, we must examine the link between happiness measures and cardinal utility.

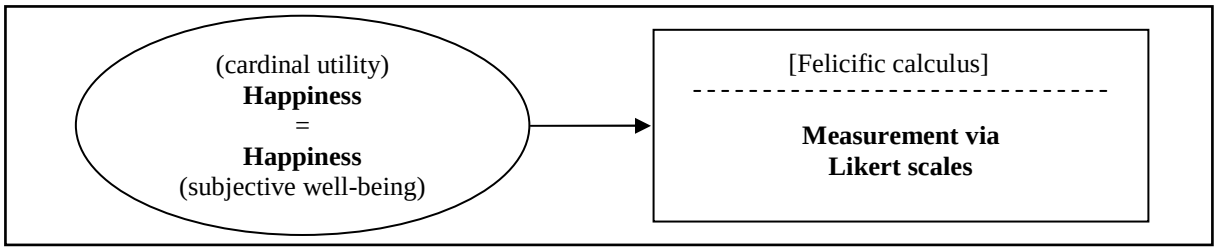
In his 2010 book *The Politics of Happiness*, Derek Bok interprets happiness measures as an operationalization of Bentham's felicific calculus: "Neither he [Bentham] nor his supporters could explain how to measure the intensity and the duration of pleasures and pains let alone how to aggregate the myriad sensations experienced by millions of citizens in order to determine the net effect of legislative proposals. As a result, his felicific calculus remained for many decades a subject suitable only for abstract

[7]Conventional social surplus analysis (Varian 1992) and simple willingness-to-pay approaches are sometimes understood as measuring interpersonally comparable cardinal utilities based on people's preferences. This is not quite correct, however. While they resort to monetary measures that are, as such, cardinal, one cannot infer interpersonally comparable cardinal *utilities* from people's preferences as revealed or stated in their willingness-to-pay if one assumes that marginal utility decreases in income. Social surplus and cost-benefit analyses can thence at best approximate aggregate utility changes.

discussions […]. In the last 35 years, however, psychologists and economists in growing numbers have tried to overcome the problems of measuring happiness by the simple device of asking people directly how pleasant or disagreeable they find particular activities throughout their day or by inquiring how satisfied […] they are with the lives they are leading" (Bok 2010: 5).

Self-reported well-being is either qualitatively assessed or – more commonly – quantitatively measured via Likert scales (psychometric scales). Figure 1 illustrates how cardinal utility can be operationalized if it is equated with happiness and well-being, and if Likert scale measures are used as substitutes for the infeasible felicific calculus.

Figure 1: Mapping utility/well-being into a limited set of real numbers (Likert scales)



The theoretical construct "cardinal utility" represents an unlimited variable which, in principle, requires being mapped into a set of real numbers without predefined bounds. Resorting to self-reported well-being implies measuring utility via a manifest variable (Likert scale measure) that exhibits, by construction, both a lower and an upper bound. From a theory of measurement perspective, the mismatch between the features of the theoretical construct and those of the manifest variable prompts the question whether bounded happiness measures can indeed be seen as an *acceptable approximation* of utility. One might argue in favor of such an approximation that utility can be presumed to be bounded as well because marginal utility approaches zero once people come close to their point of satiation.

Aside from the mismatch between utility and happiness, the behavior of the measurement function itself (i.e., the relationship between Likert scale numbers provided by an individual in a survey and his/her "true" happiness) is far from being clear. Due to its strong focus on empirical research, this is often overlooked in happiness research. As a result, cardinal interpretability and interpersonal comparability of subjective well-being data are often taken as given. Frey and Stutzer (2009), for instance, contend that the calculation of societal well-being would merely require that subjective well-being data from citizens of a given nation be used to calculate an unweighted sum of well-being. Consequently, averaging across individuals and the comparison of population-level means is a common practice (Diener et al. 2000; Schkade and Kahneman 1998; Krueger et al. 2009).

Before happiness measures are averaged, the assumptions regarding the measurement function should, however, be critically reflected within the context of each study. In order to highlight the problems that are associated with the measurement of happiness, we outline in Figure 2 four combinations of the measurement functions of two types of people who have indicated their well-being on an 11-point Likert scale from 0 to 10.

Figure 2: Potential measurement problems arising from Likert scale happiness answers

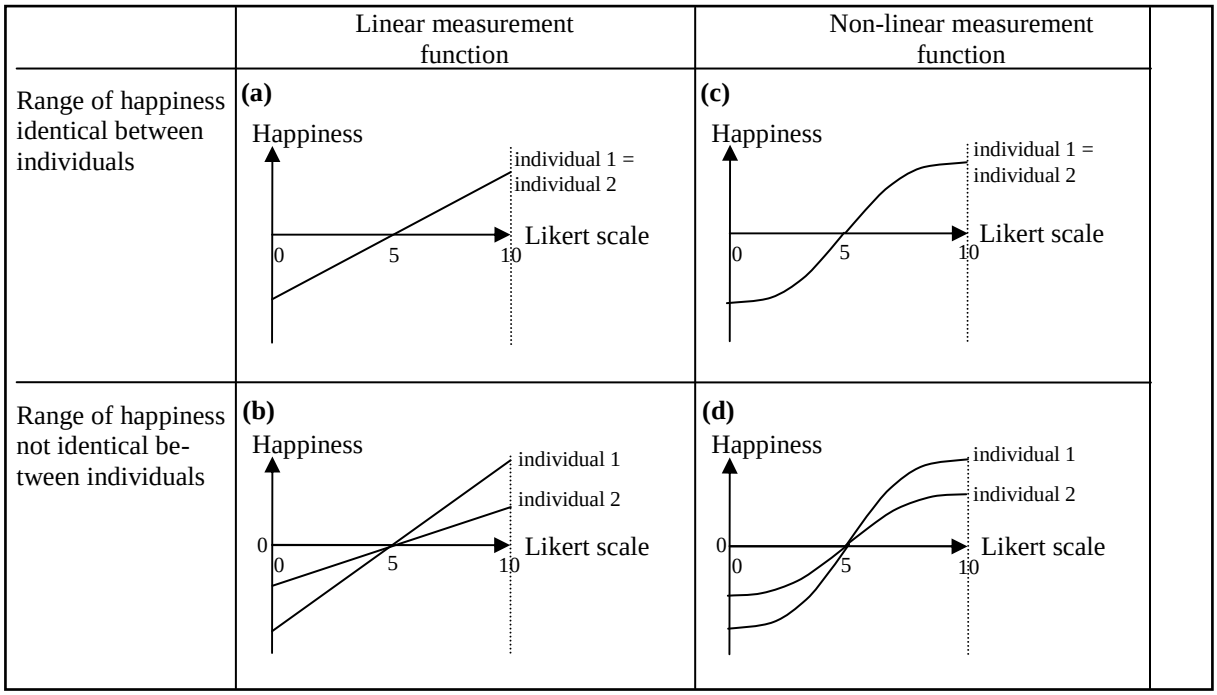


Figure 2 (a) describes a situation in which averaging of subjective happiness measures across a single individual's life domains, such as work, family life, etc. (intrapersonal aggregation), *and* averaging happiness measures across individuals (interpersonal aggregation) is feasible because the relationship between happiness measures and happiness is both linear and identical for everyone. This requires two assumptions: first, the maximum (minimum) amount of happiness must be a psychological constant that holds for all individuals. Second, the Likert scale measures must be understood as representing the "real thing" and exhibiting a percentage format with 5 being the midpoint (i.e., being neither unhappy nor happy) between "100 % unhappiness" (0) and "100 % happiness" (10). With these assumptions, the approximation issue becomes obsolete because happiness measures become a *sound replacement* of cardinal utility and provide exactly the information that is needed for evaluating public policies.

Figure 2 (b) describes a situation in which averaging of happiness measures across life domains (intrapersonal aggregation) is a meaningful arithmetic operation, but averaging across individuals (interpersonal aggregation) is not. If differing measurement functions cannot be excluded, averaging across individuals introduces an *unacceptable bias*, the magnitude of which cannot be assessed because differing but unknown maximum and minimum states of people's happiness are leveled out. A further issue is that even an ordinal comparison between different individuals is no longer meaningful.

Figure 2 (c) illustrates that neither type of averaging is meaningful in the case of a non-linear measurement function. The exponential function corresponds to the assumption that people change their answers quite "freely" around the median, but do so "less freely" towards the end of the Likert scale. That is, intervals between numbers at the end of the scale (e.g., between 0.4 and 0.6 or between 9.4 and 9.6) indicate another happiness differential than intervals around the median (e.g., between 4.9 and 5.1). If this is the case, we are dealing with log-interval scales starting from the median towards

both ends of the Likert scale. This allows only for an ordinal comparison as long as the specific function behavior is not known.

Figure 2 (d) describes measurement functions which are non-linear and non-identical between individuals. Such a setting does not only preclude intra- and interpersonal aggregation, but disqualifies also an ordinal comparison of the happiness of different individuals.[8]

Our discussion of the measurement function behavior demonstrates that the question of whether happiness research brings economics "back to Bentham" cannot be answered definitively. Both the utilitarian approach and happiness research share the maxim that the consequences of people's choices matter in terms of the happiness they eventually achieve (consequentialism).[9] However, while happiness measures may bring us "as close to Bentham" as we can get, self-reports on well-being are not a one-to-one operationalization of interpersonally comparable cardinal utility.[10] The question remains as to whether this is an advantage or a disadvantage. It can be considered an advantage if happiness measures reflect better than the impractical cardinal utility conception what we need to know to distinguish "good" from "bad" public policies.

2.2 The pitfalls of conventional preference wisdom – a brief overview

Neoclassical welfare economics in the Pareto tradition (Pareto 1920/1971) is based upon a behaviorist concept of *decision utility* which resorts exclusively to people's revealed preference orders without considering *experienced utility* as resulting from their choices. "Of course, the two definitions have the same extension if people want what they will eventually enjoy" (Dolan and Kahneman 2008: 215). However, this is often not the case because people are bounded rational decision makers. Individual choices, such as preferences for higher incomes, may furthermore cause externalities and reduce the happiness of other people. From the perspective of public policy making, externalities as well as bounded rationalities that are rooted in human nature or pervasive cultural constructs and therefore arise continuously across large numbers of individuals (universal biases) may create a want for intervention, including human capacity building. A common bias that people are prone to is, for instance, that they overestimate the utility they derive from material goods and underestimate the utility they derive from (friendly) social interaction (Frey and Stutzer 2007).

Happiness research has provided many indications that the exclusive consideration of income and consumption opportunities falls short of providing the information that is needed for the design of public policies that are intended to promote societal well-being. In brief, the conventional "*more-is-*

[8]Differing cultural and linguistic backgrounds and related questions of "good taste" may be an important reason why measurement functions are both non-linear and differing between groups of people. Notwithstanding their true happiness, Japanese people, for instance, may give answers to a happiness question that differ widely from those of supposedly more extrovert South American people.

[9]Applying consequentialism to utility/happiness implies that it is understood in its broad sense in that the utility/happiness derived from an action's outcome (utility of outcome) *and* the utility/happiness derived from the action itself (procedural utility) are considered.

[10]Kahneman and Krueger (2006: 4) state in this context: "While various measures of well-being are useful for some purposes, it is important to recognize that subjective well-being measures features of individuals' perceptions of their experiences, not their utility as economists typically conceive of it."

more" (more income, more utility) belief is challenged. In Table 2, we systematize the misconceptions that are associated with this conventional belief.

Table 2: Why increasing purchasing power does little to increase people's happiness

	Bounded individual rationality (disregard of the *internalities* of higher income)	**Deviation of individual and collective rationality (disregard of the *externalities* of higher income)**
Ignored correlations	*Ignored negative linkages* between income, on the one hand, and leisure, personal flexibility, stress, competitiveness in the work environment, health, risk, etc., on the other	*Decreasing marginal utility of income*: decreasing aggregate happiness if the inequality of the income distribution is growing ceteris paribus
Changing tastes	*Hedonic treadmill (habituation).* dissipating appreciation of extra income; changing relative evaluations of utility components (income, leisure, stress, etc.)	*Rat race (social comparison).* eroding appreciation of extra income once others have achieved high income levels as well

Bounded rationality is one reason why, despite observed preferences for higher incomes, an increase of purchasing power may do little to increase people's happiness – at least in affluent societies where basic human needs are met. It cannot be overemphasized that, in this context, *bounded rational behavior is exactly the kind of behavior which conventional economists label as "rational choice."* While sounding paradoxical, this seeming contradiction can be quickly explained. An individual may enjoy – besides consumption – leisure, low stress levels, and a supportive, non-competitive work place environment. That is, he/she may have a multi-dimensional goal system that is very different from a narrow-minded homo economicus who exclusively maximizes income. Making the choices that would be rational for the so-defined homo economicus will *not* maximize the utility of the multiple-goal individual. Contrasting the term "*externality*," the disregard of negative linkages between the individual's multiple utility components has been coined "*internality*" by Frank (1999).

To be more precise, acting like homo economicus, while in fact having a multi-dimensional goal system, is the result of two kinds of bounded rationality. A *first* error arises if the correlations between different utility sources are ignored. High incomes, for instance, are often correlated with high stress levels and little time for leisure and family. Consequently, the net increase of utility achieved by a higher income is either much less than what has been previously assumed, or – depending on the strength of the correlation – it may even be zero or become negative. In line with expected utility theory (von Neumann and Morgenstern 1944), increasing risks (e.g., job insecurity, environmental uncertainties, etc.) constitute an additional reason why an increase of income levels may do little to foster average happiness. A *second* error arises if people ignore that, and in which manner, their "tastes" will change over time. "Changing tastes" refers to the fact that, even if all correlations are considered correctly, people's relative evaluation of different outcomes, such as income and leisure, may change over time and/or as a consequence of their choices. The most well-known example of "changing taste" is temporal habituation as demonstrated by Easterlin (1974)[11]. The Easterlin-paradox arises because

[11]Graham (2008) argues that the relationship between health and happiness roughly mirrors the income happiness relationships as described by the Easterlin-paradox. She reports that although serious illness or disabilities have strong negative effects on happiness, people (partially) adapt and return to their initial level of happiness.

the utility value that is a priori assigned to extra income dissipates quickly once people have acquired the consumption opportunities they have been striving for.[12]

Externalities are a further reason why revealed individual preferences may not be taken to indicate collective rationality and aggregate happiness. While the analysis of material externalities and market failures has become a common tool, especially for environmental economists, in the last decades, two additional externalities have to be considered once we concern ourselves with societal well-being. *First*, the individual's striving for an above-average share of income generates a negative externality inasmuch as it feeds on a re-distribution of incomes. Growing income and wealth inequalities reduce aggregate societal utility due to the decreasing marginal utility of income.[13] *Second*, the utility people derive from their income depends partly on what their income level is relative to others. That is, people's appreciation ("taste") of extra income is eroded once others around them obtain high incomes as well. Hence, each individual who "climbs the ladder" generates a negative externality because he/she impairs the relative position of the others.

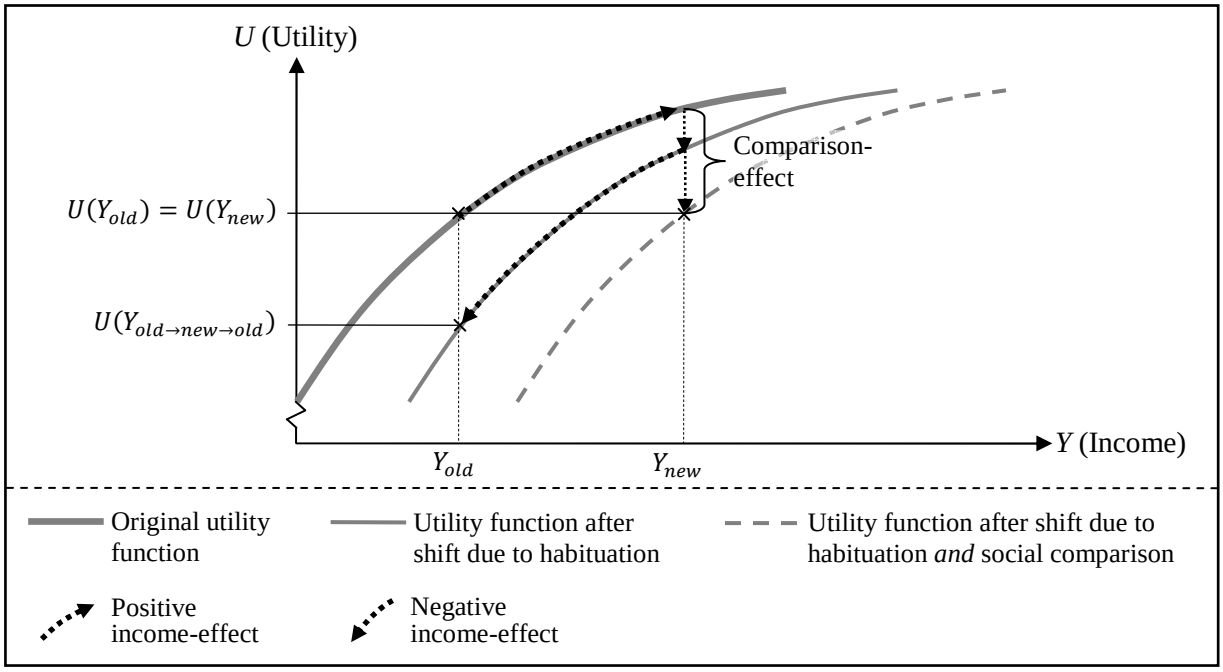
Habituation is illustratively called "*hedonic treadmill*." Even more poignantly, Layard (2003: 5-6) labeled it "addiction." Correspondingly, the label "*rat race*" can be attached to the social comparison externality. Habituation and social comparison are negative effects resulting from implicit/unconscious comparisons: habituation means that the utility of income depends on what it is *compared* to one's own income in the past. Social comparison means that the utility of income depends on what it is *compared* to others. Figure 3 illustrates that both comparison effects shift the individual's utility function to the right and thus reduce, neutralize or even outweigh an originally positive income effect. For the sake of simplicity, we assume in this figure that the joint effects of both types of comparison exactly neutralize the positive income effect, i.e., $U(Y_{old}) = U(Y_{new})$.

A longitude study by Oswald and Powdthavee (2008) also confirms that people adapt to permanent shocks to their health. However, by focusing on people who become disabled, the two scholars also find that the degree of adaption depends on the severity of the disability.

[12] This can be related to the finding that both perception and intuitive evaluation are reference-dependent and that changes are more accessible than absolute values. According to Kahneman (2003: 1455), it is thus "quite surprising that in standard economic analyses the utility of decision outcomes is assumed to be determined entirely by the final state of endowment, and is therefore reference-independent."

[13] Other externalities of a highly unequal wealth and income distribution include a reduction of the pleasantness of everyday social life, an imminent threat to public safety, and the costs of target hardening, including the need perceived by wealthy citizens to live in gated communities (Wilkinson and Picket 2009).

Figure 3: The adverse effects of comparison on individual utility



Loss aversion (Kahneman and Tversky 1979; Tversky and Kahneman 1991), which can be related to the phenomenon that people adapt easily and quickly to an increase in income but adapt much less easily and quickly to a corresponding decrease of income, may be an additional reason why an increase of income does little to increase happiness in a risky environment. This mechanism can be explained by focusing on the habituation effect in Figure 3: a shift of the utility function to the right caused by habituation to a higher income Y_{new} is *not* neutralized by a corresponding shift to the left when income falls again to its former level Y_{old}. Instead, the individual obtains only $U(Y_{old \rightarrow new \rightarrow old})$ because he/she maintains his/her new aspiration level and thus experiences a negative income effect on the utility function that he/she had grown accustomed to after the rise in income.

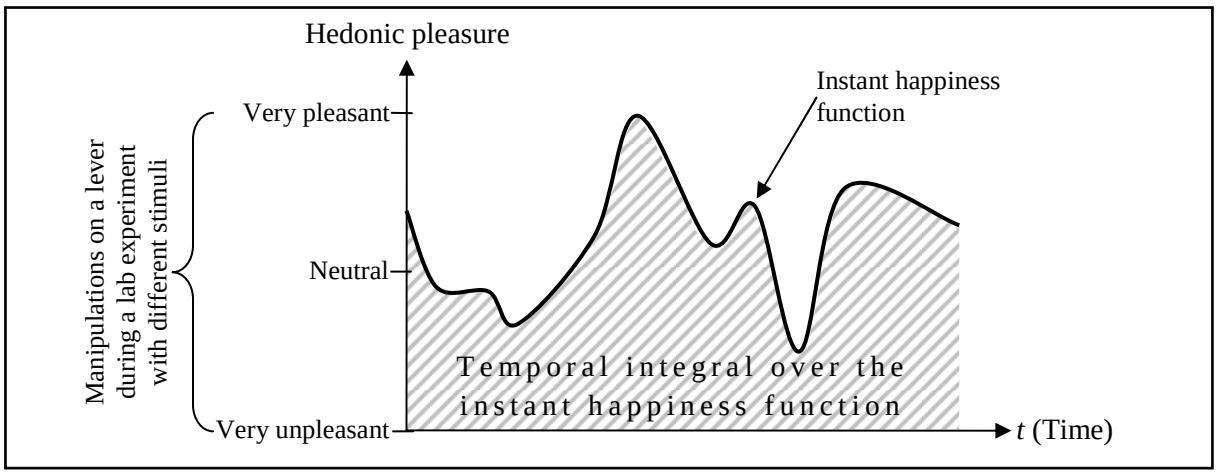
2.3 Terminology and basic conceptions in well-being research

2.3.1 The semantics of well-being

Unfortunately, a universally accepted meaning has not yet been given to the terms "subjective well-being," "happiness," "satisfaction," and "utility." Frey and Stutzer (2002: 4) even justify the lack of theoretical rigor and posit: "Because happiness is such an elusive concept, it makes little sense to proceed by trying to define what happiness is. Fortunately, there is a useful way out. Instead of trying to determine what happiness is from outside, one can ask the individuals how happy they feel themselves to be." While simply equating people's "true" happiness with people's answers on a Likert scale may seem debatable, we approve the notion that the best way to distinguish between the different happiness conceptions is to look at the methods of measurement they are associated with. Accordingly, three principal conceptions of happiness/well-being can be distinguished: instant happiness, remembered happiness, and the explicit construction of a well-being judgment.

Instant happiness focuses on the spontaneous hedonic pleasure of a situation. The idea of instant happiness is best explained by going back to Edgeworth who "imagined a 'hedonimeter', an instrument that measures the utility of moments of experience and plots experienced utility as a continuous function of time (Edgeworth, 1881/1967). He proposed that the area under the curve represents the individual's total happiness over a given period" (Dolan and Kahneman 2008: 215). That is, happiness is equated with the temporal integral over the instant happiness function. Recently researchers have used "experience sampling" to assess instant happiness by asking people how they feel during various periods of their day, such as commuting, work, dinner, housework, etc. (Kahneman and Riis 2005). An approximation of instant happiness has also been derived from lab experiments in which people are subjected to more and less pleasant stimuli. "They are asked to provide a continuous indication of the hedonic quality of their experience in real time by manipulating a lever that controls a marker on a scale, which is usually defined by extreme values such as very pleasant and very unpleasant and by a neutral value" (Kahneman and Krueger 2006: 5). Figure 4 illustrates the essence of Edgeworth's 'hedonimeter' as operationalized in such lab experiments.

Figure 4: The operationalization of Edgeworth's 'hedonimeter' in the lab



Remembered happiness is different from the temporal integral over the instant happiness function. When people evaluate their experiences retrospectively, they do not simply sum up instant happiness over time but use a weighted average which deviates in three ways from the temporal integral: first, the duration of episodes of pleasure and displeasure has a disproportionately low weight; second, disproportionately high weights are placed on positive and negative peaks; third, the relative weight of the experience increases towards the end of the period under consideration (Kahneman and Krueger 2006: 5). While remembered happiness is no longer a spontaneously felt pleasure/displeasure but rather a retrospective evaluation, it is still an intuitive and effective appraisal. Veenhoven (2009: 6) labeled this kind of introspective appraisal "*hedonic level*."[14]

[14]The "day-reconstruction method" is a methodical variation that is to be situated in between "instant experience sampling," on the one hand, and asking people about their retrospective feelings at large, on the other. The day-reconstruction method asks "subjects to recall the various things they did on the preceding day and describe the mood during each activity" (Bok 2010: 32).

The **construction of an overall well-being judgment** is a more comprehensive introspective evaluation than remembered happiness in that the intuitive appraisal of the pleasantness of sensory and affective experiences is complemented by cognitive evaluation. Cognitive evaluation is based on the individual's perception of to which degree his/her aspirations are being (and are likely to be) realized. Veenhoven (2009: 6; 10) attaches the label "*contentment"* to this cognitive component and posits that "most human evaluations are based on both sources of information, that is: intuitive affective appraisal and cognitively guided evaluation."

Relating happiness to the last concept, Veenhoven (2009: 4-5) attempts to provide a definition of happiness by using the following declaratory statements:

- *Happiness* implies that an individual has made a judgment of the favorableness of life which includes an appraisal of past and expected future experiences. "[…] the word 'happiness' cannot be used for those who did not make up their mind. […] Thus, the concept cannot be used for animals or small children" (Veenhoven 2009: 4).
- *Happiness* is a subjective appraisal by an individual of his/her own life. "[…] there is no given 'objective' standard for happiness. A person who thinks he/she is happy, really is happy" (Veenhoven 2009: 4).
- *Happiness* denotes a *position* on a continuum of favorableness but *not* its maximal endpoint.
- *Happiness* is a comprehensive concept. On the one hand, it encompasses "*life-as-a-whole*" (i.e., all life domains such as work, family, social life, consumption opportunities, health, etc.). On the other, happiness is an "*overall*" judgment that integrates two criteria: "hedonic level" (i.e. intuitive appraisals of sensory and affective experiences) and "contentment" (i.e. cognitive evaluations based on the individual's aspirations and achievements).

Veenhoven's definition is clearly associated with the preconceived idea that happiness is to be measured via Likert scale answers to questions such as: "All things considered, how satisfied or dissatisfied are you with your life-as-a-whole now?" Nonetheless, this can be seen as an attempt to bring us "as close to Bentham" as possible by providing an operational definition of *what* it is that is measured in happiness studies.

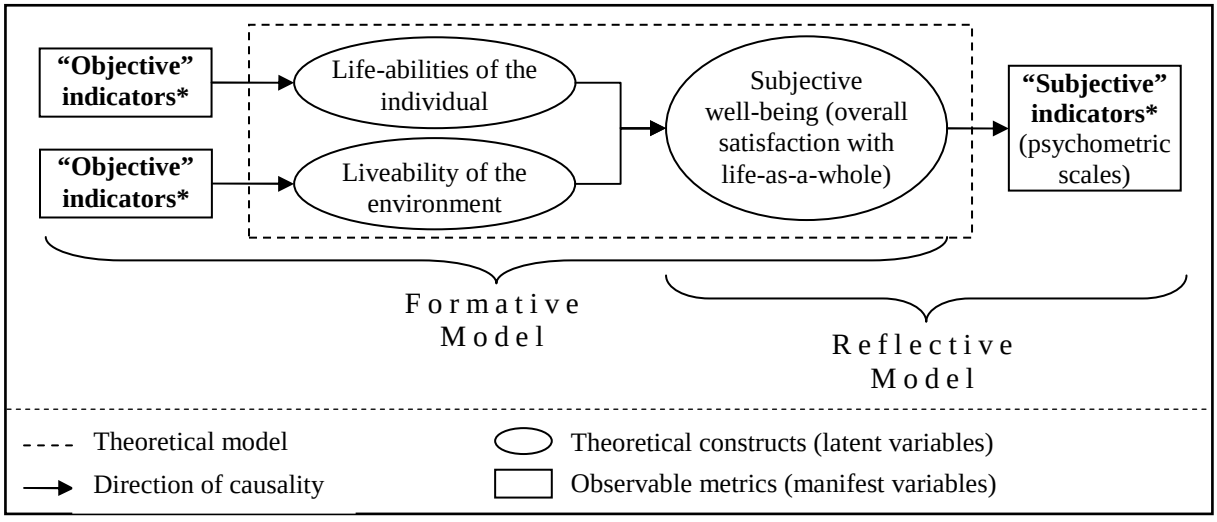
With regard to normative policy conclusions, research on **individual well-being** is intimately linked with Bentham's notion (1776: Preface) that "it is the greatest happiness of the greatest number that is the measure of right or wrong." In other words: Research on individual happiness is commonly seen as a preparatory step for the consideration of the aggregate, i.e., the **well-being of society**. As such, it is closely associated with public policy making and the present debate on indicators on social progress "beyond GDP." With a view to collective rationality and social progress, happiness considerations have also been merged with sustainability considerations. The consequential focus on the **well-being of future generations** implies that the measurement and short-term predictions of well-being are not satisfactory. Instead, long-term developments have to be anticipated and considered (Stiglitz et al. 2009).

It is critically discussed by Stiglitz et al. (2009) to which extent present well-being may serve as guidance for what should be done to safeguard social progress and future well-being. In line with the capability approach of Sen (1979 and 2010; Nussbaum and Sen 1989), they argue that the scarcity of environmental goods is subject to change and therefore likely to affect the value of these goods in terms of their capacity to generate well-being in the future. Consequently, they propose focusing on the maintenance of the objective factors that can plausibly be expected to promote people's well-being, i.e., the preservation or increase in the quantity or quality of "stocks" in human, social, and physical capital as well as in natural resources.

2.3.2 Well-being from a theory-of-measurement perspective

The objective of empirical happiness research is to find out which conditions foster happiness and how changes in these conditions impact people's well-being. Before we can attempt to identify the relationships between well-being and its determinants, we must ensure that happiness is reliably measured. From a theory-of-measurement perspective, the theoretical construct "happiness" constitutes a *latent* variable that cannot be observed or measured directly. Instead, it must be operationalized, i.e., indirectly measured by means of one or several *manifest* variables. Depending on the relationship between manifest variable(s) and the latent variable of interest, two fundamentally different measurement models are distinguished. Figure 5 outlines the two models with a view to the measurement of happiness.

Figure 5: Formative and reflective models for measuring "well-being"



* The term "*objective*" is to indicate that the indicator values are objectively observable as opposed to "*subjective*" indicators that result from introspection and psychometric self-reports.

In a **formative measurement model**, the manifest variables relate to factors that are presumed *to determine* the latent variable "happiness." We understand the latent variable "happiness" as being an endogenous variable that is dependent on two exogenous variables that are latent as well: life-ability (i.e., the individual's intrinsic capabilities to cope with life), and liveability (i.e., the favorableness of

the individual's natural and social environments).[15] Correspondingly, two sets of measures are used to indicate an individual's "true" well-being. Exemplary indicators for the life-ability of individuals are their educational qualification, their physical and mental health status, and their incomes and corresponding consumption capacities. Selected indicators for the liveability of the environment are the quality of public infrastructure and government, stress levels at work and required overtime hours, the quality of social relationships, employment vs. unemployment, the exposure to air, water and noise pollution, along with the exposure to violence, crime and corruption.

Formative measurement models have several specific features that should be carefully considered, lest one succumbs to logical fallacies when interpreting the measures: first, often it is not entirely clear in which direction the causation runs. It may run in the opposite way or in both ways as is true in many cases due to interdependencies.[16] Second, in some cases a causal relationship may not exist at all. Instead, the variables that are used as indicators for happiness and happiness itself may be dependent on some third variable that is not known or difficult to measure. While imprudently jumping from correlation to causation represents a serious fallacy when trying to arrive at normative conclusions, even simple correlates will serve the purpose of indicating well-being in purely descriptive approaches. Third, a multicollinearity problem will arise if well-being is regressed on its determinants even though it has been measured exactly via these determinants. Veenhoven (2009: 12) has highlighted this problem nicely by stating that if we are to find out which factors are most conducive to happiness, we must not "include conditions in the definition of happiness [lest] we get into circular reasoning. Happiness must be conceptually distinguished from its possible determinants."

In a **reflective model**, the manifest variable is assumed *to be determined* by the latent variable. We might also say that the causation runs from the latent variable to the manifest variable which is seen as an observable reflection (response) of the former. A reflective model in happiness research is a model where the Likert scale numbers derived from self-reports in well-being surveys are used to approximate the individual's "true" well-being. Since reflective models measure the outcome, they allow for a regression-type of analysis aimed at identifying how different factors impact people's well-being. To assess the impact of environmental conditions on subjective well-being, the Likert scale numbers provided by people in surveys may be regressed, for instance, on various pollution measures.

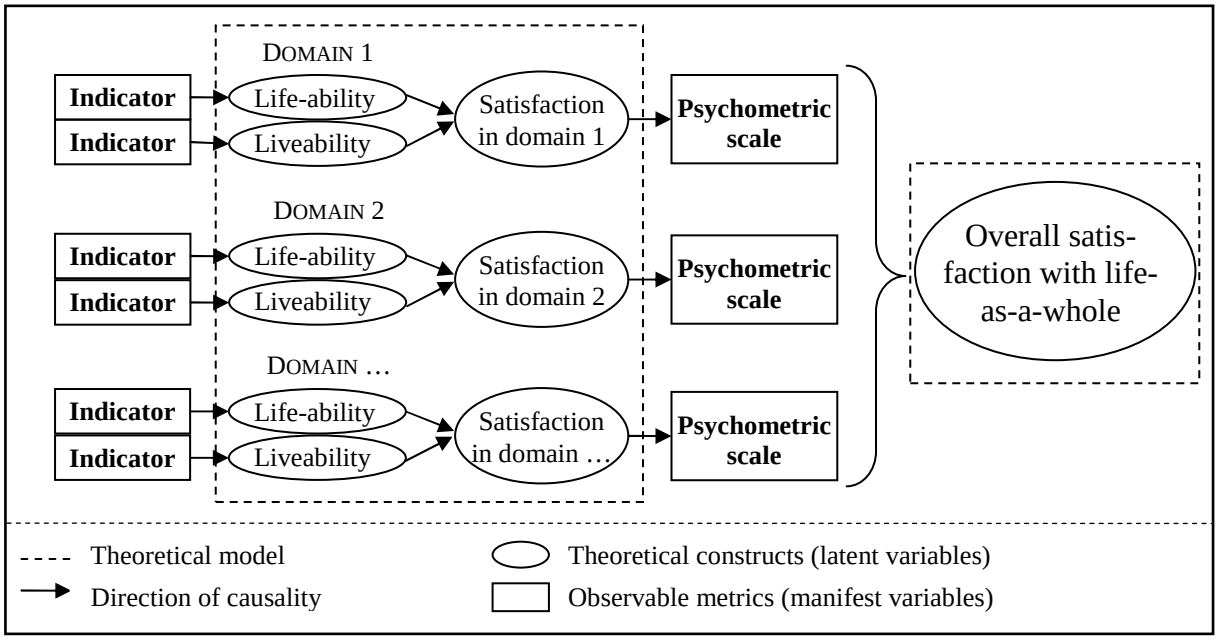
Well-being studies are often concerned with people's perception of life-as-a-whole. However, there are also studies that separately collect evaluations for different life domains such as health, social life, work, recreation, or the environment. Paralleling the approaches that are used to gauge the quality of

[15] We refer to the distinction by Veenhoven (2009). Within Sen's capability approach (Sen 1979 and 2010), the term "capability" is conversely used as a superordinate term that encompasses both the quality of the individual's intrinsic abilities and the quality of the environmental and social resources that are at his/her disposal.

[16] Cohen et al. (2003), for instance, report that people who describe themselves as being happy are more resilient to colds. Diener and Seligman (2004: 1) conclude after a review of studies on subjective well-being that "outcomes, even economic ones, are often caused by well-being rather than the other way around." Reviewing several happiness studies regarding marriage (Bok 2010: 17) also avers that causation runs both ways: happy people are more likely to get married, and marriage increases people's happiness. Inglehart (2006; cited after Bok 2010: 23) found that both effects can even be found for the quality of government: happy people sustain and improve the quality of government, and good governments make people happy.

life-as-a-whole, both formative and reflective models are used in life domain studies (cf. Figure 6). Using a formative model, the quality of life in the environmental domain, for instance, may be gauged via the number of recreational areas close to the individual's home, or the exposure to air and noise pollution. Using a reflective model, the environmental quality of life may be estimated via the answers in surveys in which individuals are asked how satisfied they are with the environment. It should be noted, however, that the aggregation of well-being measures from separate life domains into one single well-being measure of life-as-a-whole requires that arbitrary weights are assigned to each of them.

Figure 6: Measuring "well-being" in various life domains



3 The most prevalent approaches to well-being in recent history

In the past decades, interest in well-being and social progress has been growing among economists, politicians, and the public worldwide. As a result of this global interest, many suggestions have been made on how to best measure social progress in ways that reach beyond national income and output accounts, such as GDP or net national income. The approaches that have been proposed differ in several ways: first, widely varying combinations of indicators are used.[17] Second, while some approaches are satisfied with compiling lists of indicators that cover various dimensions of social progress, others propose an algorithm for the computation of a comprehensive index that integrates all relevant dimensions. Third, some indexes are already published on a regular basis, whereas other initiatives are still in their infancy. Fourth, different organizations are behind the respective initiatives. Some have been launched by national governments, others by international organizations or non-governmental actors. Table 3 provides a non-conclusive chronological synopsis of existing approaches.

[17]It should be noted that the inclusion of both formative indicators (that are related to the conditions/determinants of well-being) and reflective indicators (that measure the well-being outcome) into one single index generates a fundamental methodological problem. Even for purely descriptive purposes, the outcome "well-being" should be clearly distinguished from its determinants, and any index aimed at approximating well-being should utilize *either* determinants *or* outcomes in order to avoid double counting.

Table 3: Eliciting social progress beyond-GDP

Indicators / Commissions and Indexes	Set 1: Economic Indicators	Set 2: Environmental Indicators	Set 3: Social Indicators	Set 4: Subjective Well-being
Government of Bhutan 1972: *Gross National Happiness Index*	Living standard index (assets, quality of housing, household per capita income)	Ecological diversity and resilience index	Education index, health index, good governance index, time use index, community vitality index, cultural diversity and resilience index	Well-being in various life domains (health, occupation, family, standard of living, work-life balance) measured on a scale from 1 (very satisfied) to 5 (very dissatisfied)
United Nations 1990: *Human Development Index*	Gross national income per capita	Not included	Life expectancy at birth, education index	Not included
Government of Australia 2002: *Measures of Australia's Progress* (no algorithmic computation of an all-encompassing single index)	National income, productivity and wealth indicators, disposable household income in low and middle income groups; inflation, competitiveness and openness indicators	Biodiversity indicators, land quality, inland water quality, oceans and estuaries quality indicators, atmosphere indicators, waste indicators	Health indicators, education indicators, work indicators, family, social cohesion and community indicators, crime, democracy, governance and citizenship indicators; culture and leisure indicators, communication and transportation indicators	Not considered
new economics foundation 2006: *Happy Planet Index*	Not included	Ecological footprint: land of average biocapacity required to sustain per capita consumption	Life expectancy at birth	Satisfaction with "life-as-a-whole" measured on a scale from 0 (worst possible life) to 10 (best possible life)
French Government 2008: *Commission on the Measurement of Economic Performance and Social Progress* (no algorithmic computation of an all-encompassing single index)	Material living standard indicators (income, consumption, wealth), economic insecurity indicators	Environmental indicators (present and future conditions)	Health and education indicators, personal activities, political voice and governance indicators, social relationships indicators, physical integrity index (crime, accidents, natural disasters)	Various subjective well-being indicators that are to include cognitive evaluation of one's life and positive and negative emotions
OECD 2011: *Your Better Life Index*	Income index (disposable household income and wealth), job index (employment rate, long-term unemployment rate, personal earnings, job security)	Environmental index (air pollution and water quality)	Housing and community index, education index, civic engagement index, health index, safety index, work life balance	Satisfaction with "life-as-a-whole" measured on a scale from 0 (worst possible life) to 10 (best possible life)
German Government 2013: *Commission on Growth, Prosperity and Quality of Life* (no algorithmic computation of an all-encompassing single index)	GDP per capita and its rate of change, income distribution, government debt ratio	National greenhouse gas emissions, national nitrogen surplus, biodiversity indicator (national bird index)	Employment rate, education (secondary education rate), health (life expectancy), freedom (World Bank indicator for "Voice and Accountability")	Not considered
European Union (ongoing). *GDP and beyond*	Still to be elaborated	Still to be elaborated	Still to be elaborated	Still to be elaborated

The goal of increasing "Gross National Happiness" has been declared by the King of Bhutan as early as 1972. Currently, the "**Gross National Happiness Index**" (GNH) is used by the government of Bhutan to evaluate its policies in terms of encompassing social progress (Ura et al. 2011). Here, a total of nine equally weighted indexes are used to assess happiness: (1) living standards index, (2) ecological diversity and resilience index, (3) education index, (4) health index, (5) good governance index, (6) time use index, (7) community vitality index, (8) cultural diversity and resilience index, and (9) subjective well-being. Bhutan's GNH-Index is the only index so far that includes the preservation of its culture in the set of indicators. This index is also possibly the most cited example of a happiness index, and "Bhutan is still the only nation to formally adopt the people's happiness as its principal goal" (Bok 2010: 4).

The "**Human Development Index"** (HDI) has been annually published by the United Nations in the Human Development Report since 1990 (UNDP 1990). The HDI was the first international attempt to deliver a more comprehensive development measure than GDP. The fact that the HDI uses, and is limited to, measures of life expectancy, education, and gross national income per capita has been criticized for several reasons. First, the choice of indicators has been criticized as being redundant, as "statistics used in the HDI are so closely correlated with one another that indistinguishable alternative indexes can be created from the same statistics with very different weights" (Cahill 2005). Second, the HDI does *not* include environmental indicators at all. The fact that a minimum environmental preservation is a prerequisite for the well-being of future generations is thus not considered. This is often viewed as an inadequacy when trying to provide meaningful policy advice.

From the time of the first publication of the HDI in 1990, an ever-increasing number of governments and inter- and non-governmental organizations have tried to find reliable measures of social progress that can be used as guidance for public policy making.

Since 2002, the Australian Bureau of Statistics has been publishing the "**Measures of Australia's Progress**" which is a composite of indicators that range from social and environmental to economic indicators and are categorized into 17 headline and five supplementary dimensions (Australian Bureau of Statistics 2011). The aim of the Measures of Australia's Progress is to assist in answering the question of whether, and in which dimension, progress has been made. Neither an overall index is computed nor are subjective well-being indicators included.[18]

Another attempt to go beyond production and consumption measures is the "**Happy Planet Index**" provided by the non-governmental "new economics foundation" (first published in 2006). It is an index which is aimed at showing the relative capability of different nations to convert the natural resource "land" into long and happy lives for their citizens. To this end, merely three indicators are in-

[18]Various other national and local government bodies have started to broaden their statistical reporting systems. The Office for National Statistics in the UK has included well-being questions in its ongoing household surveys in 2011. The province of Alberta in Canada uses a composite of 64 existing statistics (including work hours and incidence of violent crime) called "Canadian Index of Well-being." Similarly, the states of Maryland and Vermont in the U.S. use an index called "Genuine Progress Indicator" to measure sustainable prosperity (Wolverson 2012: 45).

cluded into the computation of the index. No explicit economic measure of well-being is included in the index (new economics foundation 2012).

In 2008, a "**Commission on the Measurement of Economic Performance and Social Progress"** was established by Joseph E. Stiglitz, Amartya Sen, and Jean Paul Fitoussi at the request of Nicholas Sarkozy, the former President of the French Republic.[19] While the commission considered all four sets of indicators in its report (Stiglitz et al. 2009), it did *not* propose an all-encompassing single index for measuring social progress. Instead, the report points out the need for more and improved indicators and data collection. Stiglitz et al. (2009) argue that various measures are available to describe the quality of life and that the measures to be used depend on the questions that are addressed.

In 2011, the "**Your Better Life Index"** was established by OECD as a WEB tool. Contrary to the United Nations' Human Development Index, it includes environmental and subjective well-being indicators. Every user of the Your Better Life WEB tool can adjust the index individually. To be more precise, the weights for seven sets of indicators are set by default on one, but the user can assign weights from 0 to 5 to each of them. According to individual weights, the ranking order of the included countries may change (OECD 2013b and 2013c).

Early in 2013, the German "**Enquete Commission on Growth, Prosperity and Quality of Life**" delivered its proposal on how to go "beyond GDP." The Commission deliberately refrained from computing a single index. Instead, the majority of its politically appointed members suggested a set of ten indicators to measure economic, environmental, and social development. A measure of subjective well-being is not included in this set. The German government is expected to release an annual report on these indicators (Deutscher Bundestag 2013).

Even though a roadmap was released in 2009, the initiative of the European Commission labeled "**GDP and Beyond**" has not yet provided suggestions for the construction of an index. It is envisaged, however, to include social, environmental, and economic indicators as well as subjective well-being measures (European Commission 2009). All approaches aimed at measuring social progress beyond GDP differ in their details. This can be attributed to differing subjective evaluations of those who are in charge to suggest measures of well-being. The example of Bhutan, which is the only country to include indicators on cultural diversity and resilience in its GNH-index, illustrates that this process is highly dependent on cultural values.

[19]Other members of the commission included: Bina Agarwal, Kenneth J. Arrow, Anthony B. Atkinson, François Bourguignon, Jean-Philippe Cotis, Angus S. Deaton, Kemal Dervis, Marc Fleurbaey, Nancy Folbre, Jean Gadrey, Enrico Giovannini, Roger Guesnerie, James J Heckman, Geoffrey Heal, Claude Henry, Daniel Kahneman, Alan B. Krueger, Andrew J. Oswald, Robert D. Putnam, Nick Stern, Cass Sunstein, and Philippe Weil.

4 Conclusion – how consider well-being in public policy analysis and making?

Public policy can be equated with "governance by governments" in that it is concerned with the provision and distribution of resources and/or the regulation of the behavior of social actors.[20] Every policy intervention and act of legislation should be based on the assumption that it produces social progress and increases societal well-being compared to a situation without that intervention. Popular instances of such interventions include the imposition of high tobacco taxes to encourage people to make a "healthy" non-smoking choice, food safety and environmental legislation, compulsory schooling, speed limits, etc. There are other collective choice questions, such as mandatory health insurance or the provision of free education, where there is less agreement and where different countries have opted for different degrees and types of policy intervention. In other words, while it is undisputed that governments need to devise public policies, it remains a legitimate question of public debate as to what extent, in which contexts, and in what way governments should provide, distribute and regulate.

Simply observing people's preferences as revealed in their behaviors in a given context (e.g., the migration of young people from rural areas to cities) is not enough to guide policy makers (e.g., regarding rural development policies), unless one adopts an extreme libertarian view that zero intervention is always the best policy. Instead, policy makers need two types of information: first, to be able to aptly identify relevant political goals, they need to know where policy interventions are needed to foster social progress (*policy goal setting*); second, to select adequate measures for any given political goal, they need to understand which types of intervention will have which impact on people's behavior and well-being (*policy impact analysis*).

In the recent years a lively debate on the questions of whether and how happiness measures and research should be used within the public policy design and evaluation process has surged (e.g., Dolan and Metcalfe 2012; Dolan and Peasgood 2008; Frey and Stutzer 2012). We may summarize this debate with the words of Levinson (2013: 15): "The past 10 years have seen the introduction of happiness economics as a new tool for answering important policy questions, a tool with its own new set of hurdles and biases that must be confronted." Without going into the particularities of these hurdles, we see two principle ways in which happiness research can contribute to the setting of policy goals that foster social progress:

Goal setting 1 – assess what is in the true interest of potentially bounded rational people whose observed "preferences are often not a very good guide of the well-being associated with the consequences of [their] choices" (Dolan et al. 2008: 95). If happiness research provides evidence of what is conducive or detrimental to people's well-being – eventually contrary to their own evaluations and choices – it can, first of all, make a contribution towards the identification of misguided policies that should not be carried out. Looking beyond the question of what should not be done, the question of

[20] We refer to the definition by Braithwaite et al. (2007: 3). "Governments and governance are about providing, distributing, and regulating. Regulation can be conceived as that large subset of governance that is about steering the flow of events and behavior, as opposed to providing and distributing. Of course, when regulators regulate, they often steer the providing and distributing that regulated actors undertake as well."

what should be done to foster social progress needs to be considered[21]. In this respect, there has been much debate on whether paternalistic approaches are legitimate.[22] In this debate it should be recognized that all acts of government are paternalistic in that they are (and should be) based on the assumption that people's behaviors without the intervention would produce less "social good." This applies to weak forms of paternalism that resort to education and training (e.g., health education, antidiscrimination training) or the provision of incentives (e.g., tobacco taxes, voluntary environmental schemes) as well as to strong forms of paternalism that resort to mandatory law (e.g., occupational safety law, food safety law). Advocating a context-dependent paternalism, Bok (2010: 59) states: "On questions about which a large majority of constituents feel strongly, lawmakers are likely to accede to popular sentiment, […]. On other issues, […], legislators tend to exercise a good deal of discretion in deciding how best to serve the interests of their constituents. [… using happiness research to inform decisions], lawmakers are not ignoring the interests to their constituents by catering to powerful interest groups. Nor are they expressing their own private views about what voters ought to value. Rather, they are relying on persuasive evidence on what *will* make constituents happy […]." According to this understanding, happiness research has the capacity to inform policy makers about where public interventions, which have so far been focused on material growth, should be extended to include the abatement of human misconceptions such as the overestimation of utility derived from consumption and the underestimation of associated disutilities. This may require redirecting at least some public efforts towards social cohesion policies, the promotion of supportive and family-friendly work environments, the mitigation of social inequality, and the reduction of socially competitive consumption attitudes – even if many citizens ignore the negative interactions between their income and the non-economic determinants of their well-being.

Goal setting 2 – assess what are the true wants of people with multiple goals: Inasmuch as people are aware of their multiple goals beyond consumption, happiness research may also provide evidence as to what people desire in terms of public services, infrastructure, environment and social conditions. Many conditions of social life that are conducive to happiness are not provided by the market or only to an insufficient degree. As these conditions are partly non-existent, and thus not part of the choice set that is available at present, one cannot deduce what is important to people by observing their *factual choices*. Instead, one would need to know people's *counterfactual choices*, i.e., know what they would choose if given the choice. With this in mind, happiness research can be understood as being an extension to willingness-to-pay analyses,[23] especially in the social arena where people are reluctant to

[21]In light of findings from happiness research, Easterlin (2013) for instance concludes that policies should focus on full employment and establishing a comprehensive social safety net.

[22]This question is part of a more general debate on the right balance between personal freedom and the enforcement of collective rules by governments. This has been a controversial issue ever since Hobbes' (1651) distinction between the (anomic) state of nature "where every man is enemy to every man" (Hobbes' 1651: Chapter XIII) as opposed to a social contract by which the right to enforce rules (monopoly on the use of force) has been ceded to a sovereign authority (the LEVIATHAN or state).

[23]It has been noted that subjective well-being data can be used to complement conventional methods of environmental valuation, such as stated willingness-to-pay analyses (Dolan and White 2007; Frey and Stutzer 2009). Modeling life satisfaction as a function of income, noise, air quality or other variables is one example (e.g., Luechinger 2009; van Praag and Baartsma 2005). The money that is required to compensate people for noise

map the value of certain features, such as social recognition and mutual trust, explicitly into monetary units. Happiness research in this context can be associated with counterfactual choices as investigated in marketing studies. While the latter is aimed at identifying innovative products and services that consumers want, the former is aimed at identifying the institutional innovations that citizens want. Policies for the development of rural areas provide an illustrative example: policy makers who attempt to improve the quality of life in rural areas need to understand what rural dwellers judge themselves as valuable and thus relevant for their well-being aside from income and consumption opportunities. The dichotomous distinction into "liveability" of the environment and "life-ability" of the individuals of interest may be a helpful structuring device in this attempt.

Policy impact analysis – assess what are the likely reactions of people to policy changes: We have seen that happiness research may help policy makers to identify relevant political goals. Once policy goals and promising policy alternatives (i.e., promising institutional innovations) to achieve said goals have been identified, happiness research can also help policy analysts to gain a better understanding of the behavioral changes that are likely to result from alternative policy choices. So far, mainly rational-choice-models based on the behavioral assumption of a completely informed and exclusively profit-maximizing homo economicus have been used to assess which behavioral adaptations to natural, technological, and institutional changes are to be expected. Using narrow rational-choice-models generates the risk that both the pace and the type of behavioral adaptations to changing environments are misjudged. Real-life actors who realize that their well-being depends on more than money will pursue multiple goals including leisure and self-determination, rewarding family life and satisfying social interactions in general, as well as non-competitive and trusting relationships in the work place. They may be furthermore bounded rational in the pursuit of their multiple goals. The results derived from one-dimensional rational-choice-models may thence lack external validity which, if disregarded, may lead to policy designs that would only work for actors that do not exist in reality. Such designs are very likely to cause counterproductive results. Against this background, happiness research, eventually in combination with experimental economics, may help to substitute the narrow homo economicus by a more realistic conception of man in policy impact analyses.

Despite the above-described information potential of happiness research, it must be acknowledged that there is much disagreement on whether aggregate individual happiness should be the aim of public policy at all. There are three main objections. First, libertarians prefer lean governments in general and will want to restrict government action to protecting political freedom and property rights. Second, constitutional lawyers may make the argument that there are indispensable moral principles such as the fundamental human rights that must be upheld independently of whether this increases or decreases aggregate well-being according to happiness studies. Third, political philosopher such as Sen (1979, 1987 and 2010) advocate that public policy should focus on an ongoing comparative analysis and improvement of people's capabilities. Capabilities are understood to represent people's factual freedoms

pollution or other disturbances ("compensating variation") can then be determined by observing the rate of substitution between income and the variable of interest that leaves life satisfaction constant.

of choice and thus their potential to achieve valuable life outcomes (i.e., their personal abilities and the opportunities provided by their natural and social environments). The capability approach is not restricted to civil and political rights but includes "rights" such as the freedom to access safe water supplies and sanitation or the freedom from hunger, illiteracy, and diseases, all of which are counterfactual choices for many people. The line of reasoning associated with the capability approach is that the human capacity to adapt even to unacceptable deprivations may not be taken as an argument for accepting such living conditions even if happiness research reveals that people who are subjected to these conditions manage to be quite happy.[24]

We can finally conclude that the promotion of sustainable well-being that avoids dire consequences for the well-being of third parties including future generations represents an appropriate and legitimate aim of public policy in general. The manner in which evidence from happiness research is to be used towards enlightening policy makers in their quest to find adequate policies cannot be determined in general, but depends largely on the respective policy field and problem under consideration. Rural development policy is an illustrative example that two meaningful uses of happiness research can be envisaged in practical policy making: first, happiness research may help policy makers to discover which public services, infrastructure, environment and social conditions foster people's well-being ; second, it may help policy analysts to develop a realistic conception of man which facilitates an adequate modeling of the multiple-goal and potentially bounded rational actors who are to be subjected to institutional innovations.

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[24]This can be taken as an argument to interpret cross country comparison with caution such as those in which the inhabitants of Columbia are found to be amongst the happiest people on earth on average (Inglehart et al. 2008). Sen (1987: 45-46) writes in this context: "A person who has had a life of misfortune, with very little opportunities and rather little hope, may be more easily reconciled to deprivations that others reared in more fortunate and affluent circumstances […]. The hopeless beggar, the precarious landless laborer, the dominated housewife, the hardened unemployed or the over-exhausted coolie may all take pleasures in small mercies, and manage to suppress intense suffering for the necessity of continuing survival, but it would be ethically deeply mistaken to attach a corresponding small value to the loss of their well-being because of this survival strategy."

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