# Happiness Research and Cost-Benefit Analysis

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June 29, 2007

*Abstract*. A growing body of research on happiness or subjective well-being shows, among other things, that people adapt to many injuries more rapidly than is commonly thought, fail to predict the degree of adaptation and hence overestimate the impact of those injuries on their well-being, and, similarly, enjoy small or moderate rather than significant changes in well-being in response to significant changes in income. Some researchers believe that these findings pose a challenge to cost-benefit analysis, and argue that project evaluation decision-procedures based on economic premises should be replaced with procedures that directly maximize subjective well-being. This view turns out to be wrong or, at best, premature. Cost-benefit analysis remains a viable decision-procedure. However, some of the findings in the happiness literature can be used to generate valuations for cost-benefit analysis where current approaches have proven inadequate.

## Introduction

A new literature on happiness, the product of work of psychologists and economists, poses a significant challenge to traditional economics (see, for example, Adler [2006, p. 1886 n.31] for cites to some overviews of happiness surveys; see also Kahneman, Diener, and Schwartz [2003]). Whereas economics assumes that people's choices advance their well-being, the happiness literature suggests that, in many settings, people make poor choices that undermine their happiness or subjective well-being (SWB). One important finding is that people adapt to both good and bad events but have trouble anticipating their own adaptation, with the result that they overestimate the benefits of good events and the unpleasantness of bad events. The magnitude of this effect is contested, but if it is high enough, many verities of economics must be thrown out. More wealth and higher income do not make people better off if they squander their extra money because their preferences are based on cognitive illusions. Yet most conventional wisdom on macroeconomic and fiscal policy, taxes, government regulation, and development is oriented toward generating wealth or satisfying people's preferences as they understand them.

The happiness literature is mainly empirical, but researchers are beginning to focus on its normative implications. Some scholars argue that the basic premises of modern government regulation need to be rethought. If people's choices do not advance their happiness, then the basis of the market economy seems questionable. But nearly everyone shies away from the implications of this view, which is to replace the market economy with a system of pervasive government control, one that would prevent people from choosing and would instead force them to be happy.

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The literature so far has gone in two much more modest directions. First, some researchers have argued that ordinary means of project evaluation—such as cost-benefit analysis—should continue to be used, but that happiness measures should be used to value the effects of certain goods where market measures and contingent valuation surveys produce unreliable results. The happiness literature is, in essence, used to improve measurement, but not to reorient government policy. Second, some researchers have argued that happiness measures should trump conventional willingness-to-pay based measures where the psychology literature has shown that people's willingness-to-pay does not reflect the impact of a project on their happiness. The difference between these two approaches is that the first accepts the premises of economics while adding a new form of measurement, while the second partially rejects the premises of economics.

In this paper, we evaluate these and other normative implications of the happiness literature. We make two arguments. First, we argue that the happiness literature does not undermine cost-benefit analysis and similar conventional methods of project evaluation that rely on a money metric. The literature does not undermine the normative basis of cost-benefit analysis—does not even address it—and its empirical findings do not contradict the main empirical premises of cost-benefit analysis. Second, we argue that the main empirical results of the happiness literature do suggest ways in which cost-benefit analysis can be refined. In particular, certain preferences will need to be "laundered" to take account problems of adaptation and affective forecasting.

We start off in Part I by describing the normative basis of cost-benefit analysis. In Part II, we describe some of the basic facts about cost-benefit analysis, and in Part III, we address and reject the argument that the happiness literature undermines cost-benefit analysis In Part III we discuss the limited but important implications of the happiness literature for the way that cost-benefit analysis conducted.

## I. Weak Welfarism and Cost-Benefit Analysis

Normative debates about governmental policy analysis should begin with a moral view. This is not to say that legal provisions will perfectly mirror the moral bedrock. There is slippage between law and morality, for a host of reasons. But the ultimate justification for a legal requirement -- in particular, for a legal requirement that governmental agencies employ some decision procedure, such as cost-benefit analysis (CBA) -- will be some moral framework.

Our framework, one we have discussed and defended at length elsewhere (Adler and Posner, 2006, pp. 52-61), is "weak welfarism." Weak welfarism states that overall well-being is one of a possible plurality of fundamental moral considerations. In other words, it says that morality has the structure $\{W^*, F_1, \ldots, F_m\}$, where $M \geq 0$. The $F_i$ might include distributive considerations or moral rights. Weak welfarism is not utilitarianism, which says that overall well-being is the sole moral consideration. Utilitarianism has the structure $\{W^*\}$. Nor is weak welfarism the same as "welfarism" in the standard sense, which eschews rights, intrinsic environmental values, or any other moral considerations

that bring into play non-well-being information. Standard or "strong" welfarism has the structure $\{W_1, \ldots W_N\}$, where each $W_i$ is sensitive *solely* to facts about individual well-being.

The distinction between utilitarianism, strong welfarism, and our own view -- weak welfarism -- is not critical to this Article. Everything we say henceforth about the nature of well-being, the nature of CBA, and the implications of the SWB literature for CBA, will be of relevance to utilitarians and strong welfarists. Still, the reader should understand that our own concern for well-being proceeds from a broader moral framework which also entertains non-welfare considerations.

Because overall well-being is one element of weak welfarism, this moral framework requires a conception of well-being. What, exactly, is human welfare? What makes an individual life better or worse for that person? As we have noted elsewhere (Adler and Posner 2006, pp. 28-35), the philosophical literature on well-being offers three general candidates: objective-list accounts of well-being, preferentialist account, and mental-state accounts.

Objectivists point to goods such as friendship and social life, knowledge, health, accomplishment, and enjoyment. Martha Nussbaum (2000, pp. 78-80) is the most prominent contemporary philosopher working in this tradition, and offers this list:

Life
Bodily Health
Bodily Integrity
Senses, Imagination and Thought
Emotions
Practical Reason
Affiliation (including the goods of both friendship and self-respect)
Play
Other Species
Control over One's Environment (including both political rights and property rights)

Outside philosophy, within various scholarly literatures such as public health or the literature on "social indicators," there is a tradition of developing conceptions of the "quality of life" and corresponding metrics.[2] These conceptions are, in effect, objective-list accounts of human well-being or aspects thereof. An illustrative example is the World Health Organization's "WHOQOL" index (on the WHOQOL, see Adler 2006, pp. 1961-63). This was developed after a massive international effort, including focus groups in 15 countries where members of the general population were asked to develop a list of "the aspects of life that they considered contributed to its quality," and bears more than a

[2] For some reviews of this literature, see Cummins (1996), and Diener and Suh (1997). See also Alkire, (2005, pp. 25-85), reviewing lists of aspects of human well-being from a number of different disciplines.

passing resemblance to Nussbaum's list. The index has 24 facets of quality of life, grouped into 6 domains.

| **Physical Domain** | **Psychological Domain** | **Independence Domain** | **Social Domain** | **Environment Domain** | **Spiritual Domain** |
|---|---|---|---|---|---|
| Pain and Discomfort | Positive Feelings | Mobility | Personal Relation-ships | Physical Safety and Security | Spirituality |
| Energy and Fatigue | Thinking, Learning, Memory, and Concentration | Activities of Daily Living | Social Support | Home Environment | |
| Sleep and Rest | Self-Esteem | Dependence on Medications or Treatments | Sexual Activity | Financial Resources | |
| | Body Image and Appearance | Working Capacity | | Health and Social Care: Availability and Quality | |
| | Negative Feelings | | | Opportunities for Acquiring New Information and Skills | |
| | | | | Participation in and New Opportunities for Recreation/ Leisure | |
| | | | | Physical Environment | |
| | | | | Transport | |

A second family of accounts of well-being consists of *preferentialist* accounts. Prefentialists connect individual well-being to preference-satisfaction. Economists traditionally equate well-being with the satisfaction of actual preferences -- but this account is problematic, for a host of reasons. Actual preferences can be non-ideal (consider the sadist's preference for pain-infliction); actual preferences can be disinterested (if someone prefers an outcome on purely altruistic grounds, its occurrence does not benefit him); and actual preferences provide no obvious basis for interpersonal comparisons, which the construct of overall well-being requires. A better preferentialist view says something like the following: individual well-being consists in those things that individuals, with full information and deliberating rationally, contemplating the prospect of living different lives, converge in self-interestedly preferring.[3]

This view of well-being, full-information preferentialism, is our own view. Full-information preferentialism permits the "laundering" of non-ideal or disinterested preferences, yet retains the basic attraction of preferentialist accounts of well-being: such accounts explain why individuals have reason to be motivated by their own well-being,

[3] The convergence requirement is needed to allow interpersonal comparisons. On this conception of well-being, see Adler and Posner (2006, pp. 35-52). Strictly speaking, the view of well-being we defend in New Foundations states that preferences must survive idealization, without taking a position as between full-information, objective-good, and other accounts of idealization. But we believe that the best account does appeal to full information or, equivalently, to objective goods understood just as those features of human lives that individuals want when they are fully informed.

something any decent account of well-being should do. Full-information preferentialism is the view of well-being which will structure our discussion of CBA.

The third family of accounts of well-being consists of mental-state accounts. Mental state theorists claim that an individual's well-being is *wholly* a matter of her mental states. Bentham argued that well-being reduced to pleasures and pains -- to negative and positive affect, in the terminology of the SWB literature. Sidgwick and Mill argued that well-being reduces to the occurrence of preferred mental states. This view is broader than Bentham's, because it allows that individuals might prefer mental states other than their own affects, such as a state of knowledge, contemplation, or awareness. But it still insists that nothing other than an individual's mental states can make a difference to her well-being.

We are persuaded by the arguments against mental-state views, beginning with Robert Nozick's (1974, pp. 42-45) famous "experience machine."[4] Any mental-state account, whatever the relevant mental state or states -- pain, pleasure, happiness, emotion, belief -- must say that two outcomes in which an individual's mental states are identical must be identically good for her. "Experience machine" hypotheticals undermine that basic premise. For example, an individual's well-being may depend upon her having a spouse who is *actually* faithful (not just one she believes to be), a career which is *actually* successful (not just one she is deluded into believing successful) or, for that matter, a happiness state that is "authentic" (in resting on true beliefs). Further, mental state views face the difficulty of navigating the terrain between Bentham's narrow view, on the one hand, and Sidgwick's and Mill's expansive view, on the other. Surely human well-being *is* more than just pains and pleasures. But the Sidgwick/Mill position is also vulnerable: If we say that *any* mental state which an individual prefers (or prefers with full information) benefits him, why not recognize that an individual can prefer items other than her own mental states and allow those, too, to be welfare-relevant?

These weaknesses of the mental-state accounts have been fully rehearsed elsewhere, both in the philosophical literature and in our own work, and we will not belabor them here. The arguments are not knock-down. They do not show that it is illogical or essentially confused to adopt a mental-state view of well-being. The proponent of SWB-based policy analysis might, without incoherence, embrace the position that well-being does reduce to pains, pleasures, happiness states, states of life satisfaction, or other mental states. What *is* deeply problematic, we think, is for the proponent of SWB-based policy analysis to embrace that position *without normative argument*. Most of the existing literature on SWB is purely empirical. That literature, written by psychologists and economists, is important and illuminating, helping to lay bare the causal determinants of individual SWB. But the scholar who wishes to take a position about the *appropriate* structure of law and policy and its *appropriate* sensitivity to SWB cannot do so on purely empirical grounds. She must engage in normative analysis -- and, specifically, confront the large body of normative scholarship that argues against reducing well-being to mental states.

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[4] Citations to overviews of the philosophical literature, where the arguments against mental-state theories are reviewed, are furnished in Adler and Posner (2006, p.196 n.9).

In short, we adopt a full-information preferentialist rather than a mental-state view of well-being. One way to understand the difference is that full-information preferentialism allows *both* the individual's mental states, *and* non-mental facts (such as facts about his body, or about the external world), to affect his well-being. A view of well-being which held that pains, pleasures, and happiness were irrelevant to well-being would be absurd. Full-information preferentialism says that good mental states are one component of well-being, among others. In particular, various mental states are a positive or negative component of well-being just insofar as individuals, with full information, prefer or disprefer them.

So what, exactly, are the sources of well-being, given full-information preferentialism? One bit of evidence comes from the objectivist literature on well-being. We believe (Adler and Posner 2006, pp. 51-52; Adler 2000, pp. 297-300) that there is substantial overlap between full-information preferentialism and objectivism, in the following sense: the best and most plausible lists of objective welfare goods, such as the WHOQOL or Nussbaum's list, are plausible precisely *because* they list the items which, it seems, people with good information, end up self-interestedly preferring.

A second bit of evidence comes from the survey literature. Surveys whereby individuals are asked about their goals and preferences for their own lives would be helpful in specifying full information preferentialism. Most surveys that touch on well-being take a different format -- in particular QALY, contingent-valuation, and SWB surveys, as discussed in Adler (2006) -- but there are a few surveys of this sort that have been undertaken (see the surveys cited by Cummins [1996, pp. 304-05], Ryff [1989], King and Napa [1998], and Diener and Scollon [2003]). For example, Hadley Cantril (1965), in his seminal survey work that helped galvanize SWB research, not only asked respondents an early quantitative life-satisfaction question, but also asked them for open-ended answers to a personal aspirations question and personal fears question. The personal aspirations question was: "All of us want certain things out of life. When you think about what really matters in your own life, what are your wishes and hopes for the future?"(p. 23).[5] The personal fears question was: "Now, taking the other side of the picture, what are your fears and worries about the future"(p. 23). Based on 3000 (!) preliminary interviews, he developed 34 categories of answers to the personal aspirations question and 33 categories for the personal fears question.[6] The answers to the final U.S. questionnaire fell into the following categories, in descending order (Cantril 1965, p. 35).

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[5] Unfortunately, the question then asks: "In other words, if you imagine your future in the *best* possible light, what would your life look like then, if you are to be happy?" So it veers from a question to about the *content* of the respondent's self-interested preferences, to a question about the *causes* of the respondent's happiness. Still, the answers to Cantril's questionnaire provide some initial evidence about the content of individual's self-interested preferences. More work of this sort, with unambiguous questions, needs to be undertaken.

[6] A fuller description of the categories is provided in Cantril (1965, pp. 329-33).

| *Personal Aspirations* | *% Respondents Citing* | *Personal Fears* | *% Respondents Citing* |
|---|---|---|---|
| Own health | 40% | Own health | 40% |
| Decent standard of living | 33 | Family health | 25 |
| Children | 29 | War | 21 |
| Housing | 24 | Inadequate standard of living | 18 |
| Happy family | 18 | Children | 12 |
| Family health | 16 | No fears | 12 |
| Leisure time | 11 | Unemployment | 10 |
| Keep status quo | 11 | Dependency | 9 |
| Old age | 10 | Family responsibilities | 5 |
| Peace | 9 | Unhappy family | 5 |
| Resolution of religious problems | 8 | Loneliness | 5 |
| Working conditions | 7 | Deterioration in std of living | 5 |
| Family responsibility | 7 | | |
| To be accepted | 6 | | |
| An improved standard of living | 5 | | |
| Employment | 5 | | |
| Attain emotional maturity | 5 | | |
| Modern conveniences | 5 | | |

There are, obviously, many differences in the details of Nussbaum's list, the WHOQOL, and Cantril's list. There would be yet more differences if we were to look at all the lists of objective welfare goods compiled by philosophers, all the "quality of life" frameworks compiled by public health or social indicator researchers such as those who developed the WHOQOL, and all the lists of personal concerns developed by survey researchers who have posed questions similar to Cantril's. For our purposes here, however, all these sources of evidence about the content of fully informed preferences confirm the critical point that people can and do prefer more than their own mental states. It is this point -- not the precise list of mental and non-mental items that advance fully informed preferences, or the precise balance between the two -- that will drive our analysis of the challenges that the SWB literature.

Consider, for example, Nussbaum's list. The list *does* include various aspects of SWB. Nussbaum lists "[b]eing able to have pleasurable experiences, and to avoid … pain" as an aspect of her "senses, imagination, and thought" category. And she lists "[n]ot having one's emotional development blighted by overwhelming fear and anxiety" as an aspect of her "emotions" category. But Nussbaum's list also includes items such as physical health, physical security, employment, affiliation with friends and family, and status in the community (Nussbaum 2000). These items are not mentalistic or wholly mentalistic. They depend, at least in part, on the individual's physical state, or on facts in the world outside the individuals' mind and body, and thus cannot be captured by an SWB measure (however internally complex). An individual whose limbs or organs are diseased -- where the concept of disease is defined by the functioning of average humans, or by evolutionary considerations, or by the consensus of experts, i.e., doctors -- is in a state of imperfect health, even if she is happy in that state. Someone subject to more frequent physical assaults is less secure, even if those assaults affect her SWB not a whit. The researcher who dedicates her life to science has made a genuine accomplishment if

she discovers some novel and important truths, regardless of whether that discovery improves her mood. The dedicated parent has "succeeded" if her children's lives improve because of her efforts, whether or not the effort or that improvement make her happier. The individual who is treated as a second-class citizen, for example in a system of apartheid or gender discrimination, is deprived of what Nussbaum calls "the social bases of self-respect and non-humiliation" even if he or she is happy with her second-class status -- a point underscored by Amartya Sen's (1987, p. 45) famous example of the downtrodden, but happy, housewife.

For purposes of this Article, individual health and safety furnishes a particularly important instance of the point that well-being consists in part of non-mental items. Much of our regulatory apparatus is focused on reducing health and safety risks; the monetary valuation of these risks is a large part of governmental CBA; and the tort system, in compensating for physical harms, is also centrally concerned with such valuation. It is very plausible, we think, that individuals with full information would prefer not to suffer diseases or accidents on non-hedonic grounds -- as a matter of their physical integrity -- and not merely on hedonic grounds. A number of papers in this volume make essentially this point.[7] Because individuals hedonically adapt to many physical setbacks, including serious conditions such as paraplegia or the loss of limbs, purely hedonic compensation for tortious wrongdoing causing physical injuries, and purely hedonic CVs for health and safety losses as a matter of CBA, might be counterintuitively small. But, because physical integrity is itself (plausibly) something that people with full information prefer, physical integrity itself is (plausibly) a concern of CBA and the tort system, above and beyond the hedonic losses (large or small) that flow from physical injury.

The clever proponent of SWB-based policy analysis might, at this juncture, respond that preferences for health and other non-mental items can be "translated" into a mentalistic framework by reconstructing them as preferences for *beliefs*. Rather than saying that the individual prefers to have the use of limbs, let us say that she prefers to believe that she has the use of her limbs. Rather than saying that the individual prefers to have her children lead good lives, let us say that she prefers to believe that her children lead good lives. Rather than saying that she prefer not to be treated as a second-class citizen, let us say that she prefers to believe that she is not treated as a second-class citizen. This "translation" might not be true to the preferences -- that's the point of Nozick's experience machine. But wouldn't it be good enough for government work? In particular, would there be systematic differences between the policies chosen by a partly nonmentalistic CBA that took an individual's preferences regarding her own body, or third parties, at face value -- as preferences for non-mental items - and a CBA that "translated" those as preferences regarding the individual's beliefs about her body and about third parties?

It is not clear whether there would be systematic differences between these two sorts of CBA. (Whether there would be depends on whether individuals form beliefs that tend to deviate from the true state of the world in one direction- for example, whether individual tend to believe that they are healthier than they really are.) If the two variants

[7] Ubel & Loewenstein (2007); Sunstein (2007).

do deviate, that shows that the mentalistic "translation" of partly nonmentalistic CBA *is* problematic as a policy matter. If the two variants don't deviate, then that simply shows that there are certain variants of purely mentalistic policy analysis that are coextensive with partly nonmentalistic CBA -- not that the partly nonmentalistic CBA which we favor should be abandoned or altered.

In any event, this "belief" based translation of preferences for health and other non-mental items is of purely theoretical interest. The SWB scales that have been generally used by SWB researchers -- the life-satisfaction and happiness scales -- as well as the scale of momentary experience favored by Kahneman (1997, 1999, 2000) *are* not simply measures of the extent to which an individual believes her preferences to be satisfied. Rather, they are -- to a substantial extent -- influenced by the individual's mood and affect (see Schwarz and Strack 2003).[8] "Happiness" is, in common parlance, largely a matter of mood and affect. And a question such as "how satisfied are you with your life" is naturally understood as asking, in part, about how strong the respondent's *feeling of satisfaction* with his life is -- not just about his (possibly affectless) judgment about the extent to which his self-interested preferences are satisfied.

To sum up: Our position is that overall well-being has moral relevance, under the rubric of weak welfarism, and that full-information preferentialism is the most attractive account of well-being. On this account, it is very plausible to think that individual well-being depends, in part, on the individual's mood and affect and other aspects of her mental state. But is also very plausible to think that an individual's well-being depends on her physical integrity, her physical security, her children's well-being, whether she belongs to a group that is legally or socially subordinated, and other items which are not mental states -- and, in particular, are distinct from the individual's mood and affect.

## II. **Cost-Benefit Analysis**

The traditional view sees cost-benefit analysis as a mirror for Kaldor-Hicks efficiency. We have defended a different view (Adler and Posner 2006). First, Kaldor-Hicks efficiency has zero moral relevance. A policy is Kaldor-Hicks efficient if the winners could, potentially, compensate the losers. But either this potential compensation would actually occur, e.g., via a very well-functioning tax system -- in which event the policy is a genuine Pareto improvement over the status quo, and the Kaldor-Hicks criterion is otiose -- or the potential compensation would not occur, in which case the mere unattained *potential* for a Pareto improvement furnishes no moral basis for choosing a policy that, in fact, would harm some.

Second, cost-benefit analysis is a rough and administrable proxy for overall well-being. Overall well-being *is* a fundamental moral criterion; cost-benefit analysis is not. In

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[8] Indeed, a standard understanding among SWB reseachers is that it encompasses mood, not just judgments of life quality. As Diener and Suh (1997) note, "Subjective well-being consists of three interrelated components: life satisfaction, pleasant affect, and unpleasant affect. Affect refers to pleasant and unpleasant moods and emotions, whereas life satisfaction refers to a cognitive sense of satisfaction with life."

particular, because of the variable marginal utility of money, a policy can have positive net benefits but reduce overall well-being, or vice versa. In general, however, cost-benefit analysis overlaps with overall well-being sufficiently well, and is sufficiently easily monitored by the President, the Congress, the judiciary, and the citizenry, to be the appropriate decision procedure for administrative agencies in a wide range of choice situation -- the administrative decision procedure best justified by the underlying criterion of overall well-being.

This, in the smallest of nutshells, is our revisionary framework for CBA -- one that embeds it within weak welfarism and links it to overall well-being. But what, exactly, is CBA? To be clear, by CBA we mean monetized CBA: the sum of compensating variations (CVs) test. Take a set of possible policy choices, including the status quo choice of inaction. In the simplest case, each choice maps for sure onto one outcome. So the choice situation becomes $\{O_1, O_2 \ldots. O_m\}$, where $O_1$ is the status quo outcome. Consider some other outcome, $O_i$, and some individual $P_j$. $P_j$'s CV for $O_i$ -- taking $O_1$ as baseline -- is the amount of money, added to or subtracted from $P_j$'s holdings in $O_i$, which would make her just as well off as in $O_1$. Designate this as $CV_{i,j}$ The net benefits of $O_i$ are $\sum_{j=1}^{N} CV_{i,j}$ . The CBA rule says to pick the outcome with the greatest net benefits.

In a more realistic case, the policymaker will be unsure which outcome results from a given policy choice. Formally, the choice situation becomes $\{A_1, A_2 \ldots A_m\}$, where each $A_i$ is a lottery over outcomes, and $CV_{i,j}$ is a function of the lottery of outcomes associated with $A_1$ plus the lottery associated with $A_i$. Because this redefinition of the CV to accommodate lotteries is orthogonal to the issues at stake in this paper, our analysis will focus on CVs for outcomes rather than for lotteries. That simplification is meant to make the discussion less cumbersome. A fuller (and more cumbersome) analysis would reach the same result.

CVs are a *money metric* of well-being change. The idea is to measure the *well-being* difference for some individual *P*, as between some baseline outcome *O* and some alternative outcome *O**, by asking about the hypothetical monetary increment to *P*'s holdings, in *O**, that equilibrates the well-being change. In addition, the following features of CVs, all relevant to the implications of the SWB literature for CBA, bear note:

*CVs are a generic tool*. CBA can, and is, used to evaluate policies that affect a range of non-market goods, not simply policies that change the structure of markets. *P*'s CV is the change in his money holdings in *O** that just counterbalances the welfare difference between *O* and *O**. Although the CV itself is a change in P's money endowment, the difference between *O* and *O** need not be. The difference may be that P is healthier in *O** than *O*; that he has access to different public goods; that there are changes to the well-being of P's friends or family; and so forth.

*CVs assume that money is instrumentally, not intrinsically, beneficial*. Money is not intrinsically beneficial. To put this in the language of economics, money is an

"intermediate" good, not a "final" good. An increment in *P*'s income increases *P*'s well-being because *P* can spend the money in various ways -- on consumption goods, health care services, education, travel, and so forth. And CBA does not suppose otherwise. *P*'s CV for *O** is *not* the change in *P*'s income which make him just as well off as in *O*, holding *everything else* constant in *O**. Rather, the CV is determined by imagining that *P*'s income in *O** is slowly increased or decreased, and that *P*'s pattern of expenditure in *O** varies as well, until we reach a point where *P* is just as well off as in *O*.

*CVs hold constant the social background in the policy outcome.* While the CV is determined by varying *P*'s expenditures in the policy outcome *O**, the social background in *O** -- the price vector, the incomes of other individuals, and other such background characteristics -- is held constant. This is not to say that CBA can only be used to evaluate policies which do not have widespread social effects. The price vector, the general pattern of incomes, and so forth *can* differ as between *O* and *O**. But CBA's technique for estimating the overall welfare difference between *O** and *O* is to sum individual welfare differences, with those differences in turn measured on a money scale by considering the welfare effect for each individual in *O** of hypothetical changes to her income and therewith her expenditures in that outcome, holding fixed the price vector and social background in *O**.

*CVs can be estimated using surveys as well as revealed preference evidence*. Market prices and other behavioral information are one standard source of evidence for CVs. But so-called "contingent valuation" surveys are also widely used to estimate CVs. Economists are sometimes skeptical about such surveys. This position might reflect a universal skepticism about the utility of any survey data -- a deeply problematic position, and not one that anyone who is interested in the sources of SWB can sustain. (The SWB literature is, after all, built on happiness and life satisfaction surveys.) Or it might reflect a specific skepticism about the contingent valuation format. But most of the anomalies with this format involve "non-use" values: stated preferences for items, such as the improvement of distant ecosystems or the preservation of endangered species, that do not affect the respondents' well-being. There is no reason to dismiss the utility of well-conducted contingent valuation surveys regarding health, recreation, psychological states, or other items with respect to which individuals have substantial self-regarding preferences (see generally Adler 2006).

*CVs can be laundered*. Our prior work on CBA emphasizes that agencies can "launder" CVs, as warranted by the full-information preferentialist account of well-being (See Adler and Posner 2006, pp. 124-53; see also Adler 2006, pp. 1904-35). In other words, they can screen out disinterested preferences, poorly informed preferences, or preferences that are distorted by irrationality. Consider that the "utility" numbers representing *P*'s well-being in outcomes *O* and *O**, $v(O)$ and $v(O^*)$, are numbers representing the preferences of a fully informed and rational observer, contemplating the prospect of stepping into *P*'s shoes in *O* and *O**.[9] These numbers are possibly quite

[9] Given our full-information preferentialist account of well-being, "utility" numbers -- representing interpersonally comparable welfare levels -- are naturally defined with reference to the preferences of a

different than the utility numbers representing P's actual preferences as between *O* and *O**, *u*(*O*) and *u*(*O**). Because CBA is a proxy for overall well-being, *P*'s CV should (modulo considerations of administrability) be adjusted to approximate the difference *v*(*O**) - *v*(*O*), rather than reflecting *u*(*O**) -*u*(*O*).

In practice, agencies actually do launder CVs, at least to some extent. They (implicitly) screen out disinterested preferences, except in the area of environmental law. Agencies often attempt to compensate for informational failures, for example by using contingent valuation surveys that provide respondents with information, or by characterizing the goods in certain ways (for example, describing a pollution-reducing policy in terms of its ultimate visibility and health impacts rather than its regulatory language or the changes in tonnage of pollutants emitted). Agencies also sometime compensate for irrationality (such as a departure from expected utility theory) by debiasing survey respondents.

To be sure, the precise extent to which agencies should launder preferences in determining CVs raises difficult issues of balancing the accuracy of CBA against decision costs and ease of monitoring. But some degree of laundering is, we believe, optimal. We return to this issue below.

## III. **Does the SWB literature undermine CBA?**

The literature on SWB calls into question the connection between money and SWB. Let us distinguish between two possible claims, which we shall examine in turn. The Extreme Claim says that money generally makes no difference to an individual's SWB. The Moderate Claim says that money generally makes little difference to an individual's SWB.

Why might these claims undercut CBA? On our account of well-being -- full-information preferentialism --- SWB is one component of well-being, along with non-mental items. If SWB were irrelevant to well-being, research undercutting the link between money and SWB would be irrelevant to CBA. But, because well-being is *partly* constituted by SWB, such research has the potential to undermine CBA. Whether it does is what we consider here.

Our conclusions will be as follows. First, the Extreme Claim is false. Second, the Moderate Claim may be true, but the relevant question for CBA is not whether money's effect on SWB is large or small. Rather, the relevant question is one of variable marginal utility. If, because of differential adaptation or differential affective forecasting ability, the money/well-being nexus varies across individuals or goods, CBA may, in theory, deviate from overall well-being. It is not clear to whether these are real or theoretical issues and, in any event, they can be mitigated by the techniques that we shall discuss in Part IV: laundering preferences and incorporating information about SWB-based CVs.

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fully informed observer contemplating the prospect of living different lives (see Adler and Posner 2006, pp. 47-51).

### A. *The Extreme Claim: Money Generally Makes No Difference to Individual SWB*

Some of the literature on SWB seems to advance the Extreme Claim. "Many surveys of the field … . conclude that the connection between money and [SWB] is slight or non-existent" (see Gardner and Oswald 2007, pp. 49-50). While the Moderate Claim may render CBA a poor or suboptimal decision procedure, the Extreme Claim threatens to undercut CBA more radically. Assume that expenditures of money make no difference to P's well-being at all. Then *P*'s CV for outcome *O**, as against status quo outcome *O*, would just be undefined (except in the limiting case where P is equally well off in both worlds). If P is better off in *O** than in *O*, no reduction in *P*'s income and expenditures in *O** will suffice to reduce his welfare to the level he attains in *O*. If *P* is worse off in *O** than *O*, then no increase in *P*'s income and expenditures will suffice to increase his well-being to the level he attains in *O*. With even one undefined term, the sum of CVs formula becomes undefined, and gives no guidance at all in choosing policies. Of course, we could "salvage" the formula by dropping occasional undefined terms - but if the Extreme Claim means that individuals generally have undefined CVs, the bona fides of CBA as a proxy for overall welfare would be devastated.[10]

Fortunately, it is *not* the case that individuals generally have undefined CVs. To begin, the SWB literature does not call into question the connection between money and the non-mental items that appear on Nussbaum's (2000) list, the WHOQOL, or similar lists of objective goods or the elements of "quality of life" (using these, once more, as defeasible evidence of what fully informed individuals would self-interestedly prefer).[11] Consider Nussbaum's list. Money can be used to purchase pharmaceuticals, medical care, healthier foods, leisure time for exercise, and other items that extend life (the "life" good) and improve health ("bodily health"). Wealthier individuals can live in safer neighborhoods and purchase better security devices or services ("bodily integrity"). Money can be used to fund an education ("senses, imagination, and thought," "practical reason"). Money helps to advance the good of friendship ("affiliation") -- by funding the leisure time to spend with friends and the costs of traveling to be near them; and, in the case of the special friendship institutionalized in marriage, by reducing the financial stresses that can cause divorce. It hugely promotes the good of family ("affiliation") on the assumption of parent-child utility interdependence (if increments to the child's well-being increase the parent's). There are many ways in which parents can use money to

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[10] If money has no impact on well-being, then observed WTP/WTA amounts might exist, but appropriately laundered CVs would be undefined. The same is true if money has no impact on SWB and well-being and SWB are equivalent.

[11] The focus of the literature on "affective forecasting" is on individuals' failures to understand how to improve their SWB, not on their failure to understanding how to improve their position with respect to the non-mental items on these lists of objective goods or the quality of life (on affective forecasting, see Kahneman and Sugden 2005). Analogous failures may, to some extent, affect individual pursuit of non-mental well-being, but the evidence suggests that increased income does in fact tend to improve individuals' non-mental well-being (see Diener and Biswas-Diener 2001, p. 121). Finally, there is no doubt that money *can* be used to improve individual attainments on a list such as that in Nussbaum (2000). Thus, as further discussed below, even if certain individuals do not actually employ increased income to improve their well-being (nonmental and/or mental), their "laundered" CVs would still be well-defined.

improve the well-being of their children -- most obviously, by providing for their basic needs and then furnishing them an excellent education. Under the heading of "affiliation," Nussbaum also lists "[h]aving the social bases of self-respect and non-humiliation." In a materialistic society, increases in income bolster the "social bases of self-respect."

An additional point is methodological: well-controlled empirical studies should show that income has not impact on well-being even if the premises of CBA are entirely right. Because money's connection to SWB is *instrumental*, not *intrinsic* -- because money produces SWB indirectly, by causing changes in individual attainments with respect to various nonmonetary determinants of SWB (such as need-satisfaction or status) -- multivariate studies that control for some of these determinants will tend to underestimate the impact of money on SWB (see Dolan and Peasgood 2006, p. 11). In a complete study that controlled for both money and every other possible determinant of SWB, we would expect the coefficient on income to be zero. And, in less complete studies, controlling for some of the variables on the causal pathways from money to SWB can produce misleading results. For example, the income coefficient in a study that controls for both money and health status would fail to capture the positive influence of income on SWB *via* health improvements (see also Dylan et al. 2005). (Money can fund health care interventions to cure or mitigate physical disease, thus improving "health" measured in a purely physical sense; and it can alleviate the functional detriments of disease, thus improving "health" measured in a functional sense, as QALY and other measures often do.) The income coefficient in a study that controls for both money and physical location would fail to capture the positive influence of income on SWB *via* the individual's relocation to a safer or more pleasant environment. The income coefficient in a study that controls for both money and marital status would fail to capture the fact that increased income partly enhances SWB by improving marital prospects-- by making the individual more desirable to prospective mates who care about the spouse's income and/or status, and by mitigating the financial stresses that lead to divorce.

Even if the Extreme Claim were true, and money had no impact on *SWB*, CVs would still be well-defined as long as money has an impact on the non-mental sources of well-being. Imagine that P is at a different well-being level in *O** than in *O* (either because of variation in his mental states, his non-mental states, or both). Assume, further, that changes to *P*'s income in *O** have no effect on his SWB in *O**. As long as changes to *P*'s income in *O** affect his attainments with respect to the non-mental sources of well-being, sufficiently to equilibrate the well-being difference between *O** and *O*, *P*'s CV will be defined.

In any event, the Extreme Claim is false. Money may not have a large impact on SWB -- that is a point we will consider in a moment -- but it generally has *some* positive impact. The Extreme Claim is undercut by cross-sectional studies, which consistently demonstrate that individuals with higher incomes tend to have greater SWB. As Easterlin (2001, p. 468) notes, "in every representative national survey ever done a significant positive bivariate relationship between happiness and income has been found." Nor does the relationship hold only in the lower stretches of the income distribution. "[T]he

supposed attenuation at higher income levels of the happiness-income relation does not occur when happiness is regressed on log income, rather than absolute income" (Easterlin 2001, p. 468; see also Diener and Biswas-Diener 2002, p. 129). The strength of the correlation is in dispute. Robert Frank (2005, p. 67), analyzing 1980s data from the U.S., concludes:

> When we plot average happiness versus average income for clusters of people in a given country at a given time, rich people are in fact a lot happier than poor people. It's actually an astonishingly large difference. There's no single change you can imagine that would make your life improve on the happiness scale as much as to move from the bottom 5 percent on the income scale to the top 5 percent.

Diener and Biswas-Diener (2003, pp. 122-24, 126), reviewing 9 studies from different nations, conclude that there is a more modest correlation between income and SWB (ranging from 0.13 to 0.24). The correlation appears to become stronger when a particular measure of SWB (so-called affect balance) is used.[12] In any event the Diener and Biswas-Diener (2003) review of the cross-sectional literature undercuts the claim that money has no impact on SWB.[13]

A different group of studies attempts to correlate changes in an individual's SWB with changes in her income (see Diener and Biswas-Diener 2003, pp. 131-34, citing these studies). An important issue, here, is controlling for unobserved characteristics that might both cause increased income and less SWB. (For example, it may be that materialistic individuals have a disposition which both impels them to make more money and makes them less happy than non-materialistic individuals. It doesn't follow that increasing an individual's income, holding constant her disposition for materialism, will make her less happy!) Although Brickman's (1978) famous lottery study found that lottery winners were no happier than controls, the most recent lottery study reaches a different conclusion. Using data from the British Household Panel Survey, Gardner and Oswald (2007) looked at changes in SWB among medium-sized lottery winners (above £1000), as compared to smaller winners and those who don't win, using the GHG score as a measure of SWB. The study concludes:

> When compared to two control groups -- one with no wins and the other with small wins -- the paper demonstrates that these medium-size winners go on to have significantly better psychological health. After 2 years, their mental wellbeing compared to before the lottery win has improved by approximately 1.4 GHQ points on a 36-point scale. … To provide a better feel for the size of the units, … it [can be noted] that the worst thing observable in standard data sets is - perhaps as might be expected -- the impact .. of being widowed. That rare and traumatic event is associated with a worsening in people's mental well-being of, on an average, approximately five GHQ points. Such a calculation suggests that 1.4 points, the estimated consequence of a medium-sized lottery win … is economically significant and not merely statistically significant (Gardner and Oswald 2007, p. 48).

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[12] The authors looked at 11 studies altogether, but 2 were from cities or villages in India and generated much higher correlations.

[13] Another important piece of evidence undercutting the Extreme Claim consists of international comparisons which show a strong correlation between per capita income and average SWB (see Diener and Biwas-Diener 2003, pp. 136-139).

What, then, is the evidence supporting the Extreme Claim? Perhaps the strongest evidence comes from within-country studies that find no change in average SWB despite large income growth. For example, Japan's per capita GDP increased 5-fold between 1958 and 1987, with virtually no change in average SWB (Diener and Biswas-Diener 2002, pp. 139-40). Diener and Oishi (2000, pp. 202-03) generalize this result, examining 15 nations during the period 1965-1990, and finding a mean SWB slope of virtually zero despite substantial average economic growth rates, in the neighborhood of 2 or 3 percent.[14]

A real difficulty with these studies is the possibility of scale recalibration (see Ubel and Loewenstein year?). If the mapping from the numbers on a happiness or life-satisfaction scale to mental states is not fixed, but rather varies with national prosperity, then an increase in prosperity might produce a positive change in individuals' average mental states but a compensating shift downwards in the scale. (Imagine that an individual's understanding of the scale is, in part, a function of her own expectations with respect to her own SWB, and that these expectations increase with general prosperity.)

But even if the studies involve no scale recalibration, and it is actually true that increases to GDP do not increase average SWB, that fact would not, in turn, imply the Extreme Claim. Consider the following two propositions. (1) SWB is invariant to collective increases in income. If everyone's income is multiplied by the same factor k, no one's SWB increases at all. (2) Increasing a given individual's income, holding everyone else's constant, does not increase that individual's SWB.

A little reflection shows that it would be a fallacy to infer Proposition 2 from Proposition 1. To see the fallacy, imagine that money influences an individual's SWB solely because money is a marker of social status -- in other words, that SWB is *purely* a function of relative income.[15] On this model, Proposition 1 is true (multiplying everyone's income by the same amount changes no one's relative income and thus no one's SWB), but Proposition 2 is *false* (increasing a given individual's income, holding everyone's constant, increases *her* relative income and thus her SWB).

Proposition 2 is just the Extreme Claim. As already explained, CVs are constructed by holding constant the social background. The Extreme Claim -- more specifically, the version of this claim that would radically undermine CBA by leading to undefined CVs -- denies that a change in an individual's income will improve his well-being, even holding constant others' incomes and other elements of the social background. The time-series studies just mentioned, bracketing the problem of scale

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[14] For reasons of data availability, these were all developed countries; there is some evidence that the slope of SWB has been larger in poor countries. See Diener and Oishi (2000, p. 204) and Hagerty and Veenhoven (2003).

[15] Although there is evidence that SWB is partly a function of relative income, we do not believe that it solely is (see Frank 2005, denying that SWB is solely a function of relative income). We are therefore skeptical about Proposition 1. The point of our relative-income model, here, is that even if Proposition 1 *is* true the Extreme Claim does not follow.

recalibration, might be seen as supporting Proposition 1. But even if Proposition 1 is true, the Extreme Claim does not follow.

To sum up: the totality of the empirical evidence either supports, or is consistent with, the proposition that increasing an individual's income, thereby increasing her expenditures and social status (but holding fixed the incomes of others and other elements of the "social background"), generally increases to some extent her SWB.

It should also be noted that, even if this is not true in some unusual cases -- even if there are individuals whose SWB would remain neutral or decrease with more income -- any difficulty this might create for the existence of CVs can be resolved by "laundering" the preferences. Imagine that P is quite irrational in using money for his own benefit, both with respect to SWB and with respect to the non-mental components of well-being. (For example, P cares about his SWB, his health, and his kids' lives, but is a poor affective forecaster, health forecaster, and parent, and fritters away his income on material comforts that do not improve his attainment with respect to these components of well-being at all.) There is a policy that leads to outcome $O^*$, which makes P worse off than in the status quo outcome $O$. We are trying to identify $P$'s CV for $O^*$, which is in turn a rough metric of $v(O^*) - v(O)$ -- where $v()$ is the utility of a well-informed and debiased (or unbiased) observer, contemplating the prospect of living $P$'s life in $O$ and $O^*$. If we try to determine how much money would equilibrate the welfare difference between $O$ and $O^*$, as that money would be expended by P, the answer is: no amount. But we might instead produce a "laundered" CV by asking: how much money would equilibrate the welfare difference between $O$ and $O^*$, as that money would be expended by a well-informed and debiased adviser who cared about $P$'s interest. There are many things that a well-informed and debiased adviser could do with increased income to improve $P$'s SWB or his attainments with respect to the non-mental components of well-being.[16]

To sum up: the SWB literature does *not* undermine CBA by implying that CVs do not exist. First, even if the Extreme Claim is true, CVs will be defined as long as money increases attainments with respect to the non-mental components of well-being. Second, the Extreme Claim is false: money does generally improve individual SWB to some extent. Third, in unusual cases where individuals are sufficiently irrational or poorly informed that increases to their income would not, in fact, increase their well-being, well-defined CVs can be constructed by "laundering out" the irrationality and poor information.

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[16] With respect to SWB, the literature suggests in particular that SWB is correlated with the following items, all of which money is helpful in producing: mental health; avoiding certain physical health states, such as severe or progressive diseases; marriage and relationships; leisure; social status; and the satisfaction of material goals (which improves SWB at least to some extent). See generally Argyle 2003, Diener and Biswas-Diener 2002, Diener et al. 1999, and Furnham and Argyle 1998. Note also that, even if SWB is purely dispositional, money can increase an individual's lifetime SWB by increasing his longevity (see Veenhoven 2005). This is a relevant point because overall well-being is, strictly, overall *lifetime* well-being, and CVs are therefore money amounts that would equilibrate policy-induced changes in individuals' lifetime well-being.

A final point. The premise that money has no impact on well-being would not merely explode CBA, by leading to undefined CVs. It would also have radical implications for other practices even more central to the legal system than CBA, such as judicial damage awards in tort and contract cases, antitrust law, and progressive taxation. The compensatory rationale for awards would evaporate. No amount of money would help repair any loss of well-being the plaintiff may have suffered. The deterrence rationale for awards would also evaporate, at least with respect to activities causing pecuniary losses. (If less money does not mean less well-being, then why worry about deterring activities causing pecuniary losses?) The upshot would be that damages in contract law would disappear entirely; tort damages would be limited to personal injury torts, rather than property torts; and our current understanding of how to set tort damages as a matter of optimal deterrence (which assumes that money payments increase the plaintiff's well-being and reduce the defendant's) would need to be radically changed.

Antitrust law would also need to be repealed. The modern justification for these laws is that firms with excessive market power will charge excessive prices, to the detriment of consumers. If money makes no difference to well-being, then higher prices do not, in fact, harm consumers. The justification for progressive taxation would also evaporate. That justification is the diminishing marginal utility of money. If money, instead, has zero (and therefore constant) marginal utility, there is no gain in overall welfare when money is transferred from higher to lower income citizens. Perhaps we might say that money has zero marginal utility above a low threshold -- the poverty line. But this would imply that tax and transfer systems which succeed equally in redressing poverty, but differ in other ways (for example, in their transfers between the rich or super rich and the middle class), are identical as a matter of overall welfare. Similar points can be made about environmental regulation, which is partly justified by its reduction of medical expenses; market regulation, which is usually justified by the wealth-reducing impact of natural monopolies; and many other areas of the law.

### B. *Money Makes Little Difference to An Individual's SWB*

Even though the Extreme Claim is probably false, and CBA is a coherent decision procedure—because CVs are generally well-defined—the question remains whether CBA is a *good* decision procedure. If money has a positive but small effect on SWB, perhaps CBA is not the best way for governmental agencies to determine whether polices increase overall well-being. [17]

This view is, at best, incomplete, and probably wrong. Even if the connection between money and SWB is small, that itself wouldn't undermine CBA if the marginal utility of money across individuals was constant. To see this in a simple way, imagine that individuals care just about SWB, and money translates into SWB at a very low rate which is constant across persons. Then CVs would be a perfect metric of project effects.

[17] For studies showing that the coefficient is small, see, for example, Blanchflower and Oswald (2004 p. 1373), Oswald and Powdthavee (2006), and Clark and Oswald (2002 p. 1139).

A possible problem would arise only if the effect of money on SWB varies by type of person. Such a pattern could arise because of (1) differential adaptation, that is, differential SWB benefits of money for different people; or (2) differential affective forecasting, that is, differential ability to predict the effect of money on SWB. To see the first possibility, imagine that the winners from a particular project adapt more quickly to money than the losers, and that we elicit CVs for the project by a project-specific contingent valuation survey. The project is a dam, and the winners enjoy lower electricity bills while the losers suffer from higher tax payments. If the winners, for whatever reason, adapt to their greater wealth more rapidly than the losers adapt to their reduced wealth, then the winners' CVs will exaggerate their SWB gain from the dam relative to the losers' SWB loss.

To see the second possibility, consider a project to reduce noise, where the costs will be reduced consumption. Individuals are good at predicting the effect of noise on their SWB, but not so good at predicting the effect of consumption (they tend to overestimate its effect). CVs elicited from a contingent valuation survey would accurately reflect the SWB gain from the reduction in noise but exaggerate the SWB loss from the reduction in consumption.

With respect to the problem of differential adaptation, some of the literature lends itself to the interpretation that people with some money adapt to additional income relatively quickly, whereas the very poor do not adapt to additional income but enjoy significant SWB increases. But relatively few people of the latter sort live in the United States—they are mainly found in developing countries—and in any event the benefits and costs of most projects cut across income groups. Other types of differential adaptation might exist but so far there is no evidence for them.

The problem of differential affective forecasting is more serious. The SWB literature does suggest that people not only commit affective forecasting errors in an absolute sense, but particularly overestimate the effect of certain goods – material goods, in particular – on SWB. However, differential affective forecasting can be handled by the techniques that we will consider in Part IV.

## IV. SWB and New Approaches to Policy Analysis

The case for CBA is a comparative case: the question is always whether another decision procedure would better advance overall well-being. The literature on SWB has not, however, developed a decision procedure based on SWB that is comparable to CBA. Rather than developing such a decision procedure, the happiness literature has for the most part focused on how its empirical findings can be used to justify broad-gauged interventions in public policy or to tweak the methodology of CBA. In this Part, we first discuss how a possible SWB-based decision procedure might work, and the problems with it. Then we address how the SWB research could be used to improve CBA.

### A. An SWB-Based Decision Procedure

We have not found a detailed description and defense of an SWB-based decision procedure in the literature, but there are a number of hints. Dolan and Peasgood (2006, p. 8), for example, appear to suggest that the cost of a project should not be measured in terms of money, but in terms of a "resource-based compensating variation," by which they mean that "the household would be given another non-market good, V, up to the level at which it just compensates for" the non-market good produced by the project. However, they do not explain how this process would work. Which non-market good would be used? In order to evaluate projects, one needs a common metric. Kahneman and Sugden (2005) argue, in an article with the promising title, "Experienced Utility as a Standard of Policy Evaluation," that valuations should be based on the moment-by-moment affective states of people; however, they do not in fact propose a standard for evaluating projects.

Without guidance in the literature, we can only provide some conjectures about how such a metric could be developed. One possible approach, which we will call the "intuitive approach," involves using the insights of the happiness literature to guide agencies in a rough, intuitive way. Consider, for example, the finding in the literature that people gain SWB from a reduction in commute times. One could imagine an agency using this finding to justify new projects to improve transportation infrastructure. The problem is that an agency needs to be able to take account of the costs of these projects as well as the benefits. These costs can be put in monetary terms, of course, but it is not clear how they would be weighed against the benefits, which are described in terms of an SWB scale. Would a project that reduces average commute times from one hour to thirty minutes for ten thousand commuters be justified if it costs $100 million? $20 million? The intuitive approach does not provide sufficient guidance to agencies.

A more rigorous approach would translate the monetary cost into SWB units, so that a common metric can be used to evaluate a project. Suppose that a transportation project costs $100 million, which in turn amounts to an annual $100 loss for each of one million taxpayers. Survey instruments can then be used to translate this $100 per person loss into an SWB unit loss. Suppose that the project increases the average happiness of commuters by 0.2, while reducing the average happiness of taxpayers by 0.01. One could imagine multiplying 0.2 by 10,000 to obtain an aggregate gain of 2000, while multiplying 0.01 by 1 million to obtain an aggregate loss of 10,000: therefore, the project reduces rather than increases aggregate happiness.

However, nearly every step of this analysis is open to criticism. First, it seems doubtful that one can obtain reliable, fine-grained valuations of the impacts of this project on SWB. Second, the comparison of SWB levels across persons is problematic. If one person loses 0.01 units of SWB, and another person gains 0.2 units of SWB, can we say with confidence that the second person gains more SWB than the first person loses? What if the first person starts from a low level and the second person starts from a high level? It is not obvious that a project that moves one person from 5 to 4.8 and another person from 1 to 1.01 is objectionable. Third, the notion of aggregation is troubling as well. If one person moves from 5 to 4.8 and 100 people move from 6 to 6.01, does the project increase aggregate SWB? To be sure, some of these problems are characteristic of

conventional CBA; however, they have not yet received similar theoretical scrutiny. At a minimum, an SWB-based procedure will not escape many of the puzzles that continue to trouble CBA analysts.

Another difficulty can be seen in proposals for using SWB to determine the proper level of compensation in tort cases (e.g., Oswald & Powdthavee 2006). Suppose that an injured victim sues the wrongdoer and obtains damages. The injury causes the victim's SWB level to decline from 5 to 4.8 for a period of six months. What is the proper level of damages? Note that judicial awards typically occur after a lengthy delay; here we will assume that the award is made at the conclusion of the six month period. Thus, the problem for the court is to "compensate" a person whose happiness level is back up to 5, for a six month period during which his happiness level was depressed by 0.2. One might argue that the award should equal the amount of money that would cause a 0.2 increase in the level of happiness for a person who has a happiness level of 4.8, for a period of six months. However, the effect of such an award would be to enrich a person who has a happiness level of 5. The sum of money necessary to raise a person from 4.8 to 5 is not necessarily the same (and is likely to be lower than) the sum of money necessary to raise a person from 5 to 5.2. But the main problem is that it is not clear that raising a person from 5 to 5.2 really compensates him for being reduced from 5 to 4.8.

In the absence of a coherent and adequately defended SWB-based decision procedure, the choice comes down to the intuitive approach and a modified version of CBA. In the next section, we endorse the latter.

B. Improving CBA

As we have discussed elsewhere, the optimal version of CBA does not rely exclusively on WTPs based on actual preferences. Agencies often "launder" preferences, and this practice is justified whenever actual preferences do not reflect overall well-being. Preferences do not reflect overall well-being when cognitive biases cause people to make poor choices. The happiness literature focuses on one such cognitive bias: affective forecasting. People often fail to appreciate the impact of a positive or negative event on their SWB. They often think that monetary gains and losses will have a greater impact than they actually do. They also think that physical injuries will reduce their SWB more than these injuries actually do, and they think that mental and emotional harms will reduce their SWB less than those injuries actually do. These phenomena provide a strong case for laundering preferences when two conditions are met: (1) when fully informed preferences include enhancing SWB in a particular setting; and (2) affective forecasting prevents actual preferences from approximating these fully informed preferences.

As an example, suppose that people who live near an airport, or think about moving near that airport, would enjoy higher SWB if airplane noise were reduced. If they have low WTPs for reducing airplane noise, these WTPs may be accurate or inaccurate. They are accurate if people would, with full information, choose to endure the noise even though it reduces their SWB, *and* if people accurately predict the effect of the noise on their SWB. Or imagine that people who engage in dangerous activities or take dangerous

jobs have high WTPs for avoiding disabilities, but, with full information, would have lower WTPs because the disabilities neither significantly lower hedonic affect nor interfere with important preferences, *and* wrongly predict high rather than low negative effects. In both these cases, it may be appropriate for agencies to launder the actual preferences and use WTPs based on estimated fully informed preferences instead.

1. SWB-Based Compensating Variations

Let us start with the two most sophisticated efforts in the literature to incorporate the happiness research into otherwise conventional economic analysis. The first example involves project evaluation, while the second involves the determination of damages in legal actions, but the themes are the same.

Van Praag & Baarsma (2005) use an SWB-based approach to monetize the cost of noise pollution for those living near Amsterdam Airport. Their motivation is not affective forecasting but the assumption that housing prices do not adjust fully to the SWB-reducing effect of noise because of rigidities in the housing market caused by legal regulation. Thus, they implicitly assume that people's preferences and SWB are aligned; but for the rigidities, people would choose where to live by balancing the cost of noise against the various hedonic benefits of locating near the airport. Van Praag & Baarsma estimate an equation where people's self-reported SWB level is a function of subjectively perceived aircraft noise (determined through surveys of people living near the airport), income, and various controls. The regression results allow them to determine how much extra money must be given to a person so that his level of happiness remains constant despite an increase in the noise level. This study provides an example of using an SWB-based methodology to value a non-market good where contingent valuation studies are deemed suspect and market-based studies are undermined by market rigidities.

Oswald & Powdthavee (2006) use a similar methodology for determining how to value disabilities.[18] Conventionally, courts implicitly value disabilities as the sum of medical costs, lost income, and pain and suffering, with the latter determined in an ad hoc fashion. Economists would normally estimate the cost of disability for the purpose of project evaluation by using market studies (how much do people spend on disability insurance) or, possibly, contingent valuation surveys that asked people how much they would be willing to pay to avoid a disability. The findings in the happiness literature cast doubt on these approaches. Of course, an ad hoc approach is not satisfactory. And market studies and contingent valuation surveys presuppose that people accurately anticipate their disutility from disability; in fact, people systematically overestimate the disutility because they underestimate their ability to adapt over time. At the same time, monetary awards based on lost income or pain and suffering may have little effect on the disabled person's happiness because money is relatively unproductive of happiness. Oswald & Powdthavee (2006) adjust for these cross-cutting effects—that people overestimate the SWB loss from disability but that money compensates for lost happiness only poorly—in a manner similar to that of van Praag & Baarsma (2005). Regression equations using life

[18] See also their conference paper (Oswald & Podwthavee 2007), which uses the analysis for compensating relatives for the deaths of relatives.

satisfaction surveys for the disabled and non-disabled, income, and controls, can be used to determine the sum of money necessary to make a disable person just as happy as a non-disabled person.

Although these authors' focus differs from ours, their methods illustrate how the happiness research can be used in CBA. Van Praag & Baarsma (2005) assume that people's WTP to avoid noise does not actually reflect the effect of noise on their SWB. They justify this assumption by reference to market rigidities, but one could also point to problems of affective forecasting: people who buy houses near airports, or fail to sell them, do not anticipate the effect of noise (or quiet) on their SWB. Oswald & Powdthavee (2006) rely on the affective forecasting story. If either of these assumptions are correct, WTP is not a reliable method of valuing noise abatement measures, and the SWB approach provides a reasonable alternative, as long as, in this context, people's fully informed preferences are substantially for SWB.

The latter point is a crucial assumption. For the SWB approach to be an adequate alternative, it must be the case that, in this setting, SWB contributes to overall well-being—that is people's fully informed preferences are to maximize SWB. If people live near airports so that they can easily travel, and they travel in order to satisfy a particular ambition not related to their own SWB, they may well care relatively little about their SWB. If fully informed people engage in actions that risk disability—such as mountaineering, for example—because they think that the risky activities are more important than being happy, then again the SWB impact of disability might have less impact on their well-being than the happiness studies assume.

In sum, the case for using SWB-based survey results to monetize goods for the purpose of CBA depends on an empirical assumption. The more closely linked SWB and people's fully informed preferences are, the stronger the case for using SWB-based survey results. Ironically, some research in the happiness literature suggests that the link is not strong at all. If that is the case, CBA should be thrown out, and the moderate approach we have been discussing should not be used. There is no reason to try to monetize the SWB effects of projects if money itself is unconnected to happiness. But as we discussed earlier, we do not think that this strong claim can be sustained.

## 2. A Note on the Hedonic Treadmill

Another strand of the SWB literature suggests that money does increase individual happiness, but the gainer's increased SWB comes at the cost of other people's lost SWB. People seek status, and they obtain status through greater consumption, but in doing so, they lower the status of others. In this way, greater wealth creates negative externalities: everyone is trapped on a "hedonic treadmill."

SWB researchers cite evidence for this effect as yet another reason for abandoning CBA and its reliance on monetary valuations, in favor of an SWB-based approach that avoids reliance on monetary valuations. The evidence is that although SWB rises with income for individuals, it does not rise, or does not rise much, with the

average income of groups such as the citizens of a nation. The evidence is incorporated into normative analyses, such as that of Oswald & Powdthavee (2006), which assume that money is not highly productive of SWB, and thus that a greater amount of money needs to be used to compensate for certain SWB-reducing injuries than might otherwise be thought.

However, the claim that the hedonic treadmill undermines CBA, or that it provides an additional reason for preferring SWB-base procedures, rests on a misunderstanding. The status-competition idea is consistent with the empirical and normative premises of CBA. If the idea is correct, it means that people have a preference for consuming goods that others cannot afford. In acting pursuant to this preference, an individual both increases his own utility and decreases the utility of others. In this way, status-based consumption is no different from other activities that create negative externalities. Just as manufacturing creates pollution that hurts third parties, so does conspicuous consumption create status costs for third parties.

The hedonic treadmill problem might justify taxation of luxury goods, redistribution of wealth, or other projects that suppress conspicuous consumption, but it does not undermine CBA. To the extent that conspicuous consumption-suppressing projects do not eliminate the problem, as they surely do not, it might make sense to make marginal adjustments to CBA's monetary valuations to reflect the consumption externality that arises from additional wealth (see Frank & Sunstein 2001). But we suspect that this would not be necessary. People also give additional wealth to charity, use it to educate their children, etc., and it is hard to see why we should assume that additional wealth causes more third-party costs than benefits (see also Kniesner and Viscusi 2005).

In sum, SWB-studies provide additional evidence for the theory that conspicuous consumption causes negative externalities, but the hedonic treadmill theory has no particular implication for CBA.

## 3. Cost-Benefit Analysis with SWB-Based Valuations

Let us briefly describe how CBA would work, as adjusted to reflect the happiness research. An agency considers a project that produces winners and losers. Consider, for example, a dam that reduces the cost of electricity but interferes with recreational use of a river. The reduction in the cost of electricity is a straightforward monetary gain for electricity users, which can easily be treated as aggregated CVs. On the cost side, the agency needs to estimate the loss to the losers. A contingent valuation survey might well result in exaggerated CVs: because of defects in hedonic forecasting, individuals underestimate their ability to adapt and thus overestimate their WTP to maintain the status quo. However, the survey could also reflect something different: the view that the dam would interfere with an important choice, wholly apart form its hedonic effect. If this is so, the WTP to maintain the status quo might not be exaggerated.

A parallel SWB analysis could provide a useful corrective. Suppose that surveys revealed that people with close access to a river for recreational use are slightly happier than those who do not. The happiness difference can then be converted to a monetary amount. This monetary amount corrects for the problem of affective forecasting but also reflects only the hedonic effect of the project, and not its effect on preferences or choices.

If the numbers are similar, then the agency can probably safely conclude that they are reliable. People correctly forecast how loss of access to a river affects their well-being, and in doing so they focus on the hedonic aspect of their well-being. If the numbers diverge, then there are two possible explanations. One is hedonic forecasting error; the other is divergence between well-being and SWB. In such a case, the agency will need to use its judgment and choose a number within the range. It is possible that more refined survey instruments can tease out the relative contribution of the two factors, but further research would be necessary to establish this.

C. CBA if SWB Were the Exclusive Social Maximand

We argued in Part I that SWB is not the exclusive social maximand; weak welfarism provides a better normative goal for government. However, it is worth nothing that even if SWB maximization were the appropriate goal, CBA might still be an appropriate decision procedure. There are two separate reasons for this.

First, an SWB-promoting government might use CBA as part of a two-step procedure for advancing SWB. In step one, CBA approves projects that enhance social wealth; in step two, the government taxes and spends its way toward greater SWB. Suppose that people strive to satisfy preferences rather than maximize their SWB. Thus, as noted above, a dam that passes a cost-benefit analysis makes people wealthier but not happier. Nonetheless, the dam could be justified on SWB grounds. The reason is that if people are wealthier, they can be taxed more; and if they can be taxed more, then the government has more revenue to spend on SWB-maximizing projects. For example, the government could use the extra revenue to improve health care, which results in SWB-increasing happiness and longevity.

This argument is analogous to the argument made by Shavell and Kaplow (2000) that a government that cares about redistribution should regulate efficiently and use taxes-and-transfers rather than issue inefficient but distributively attractive regulations. Here, the argument is that a government that cares about maximizing SWB should maximize revenue using efficient regulations and taxation, and then use the revenue to choose SWB-enhancing projects. As long as SWB-promoting projects are properly monetized, taking account that a lot of money is necessary to buy just a little SWB, CBA can be used for SWB-promoting ends.

Second, a government that sought to advance SWB would still need a decision procedure that allowed it to compare projects using a common metric. Again, the use of the money metric is not inconsistent with policy oriented toward maximizing aggregate

SWB. As long as SWB gains and losses are properly transformed into dollars, projects' SWB effects, and their monetary costs and benefits, can be properly evaluated.

Of course, one could produce an alternative procedure that avoided dollars and instead used SWB units as the common metric. Then the dollar effects of projects would be transformed into SWB units rather than vice versa. There is no reason in principle why such an alternative would not be adequate in a world where the government advances SWB alone, but, as we have seen, researchers have not yet come up with a plausible SWB-based decision procedure.

## Conclusion

The happiness literature does not undermine CBA—at least, not yet. The implicit normative claim in that literature—that government should maximize aggregate SWB and nothing else—is implausible and should be rejected. The government should advance a measure of well-being based on the satisfaction of fully informed preferences, which reflect only partly, not fully, a desire for enhanced SWB.

The empirical results of the SWB literature pose a more serious challenge to CBA. If money does not advance well-being because of affective forecasting and similar problems, the case for CBA is significantly weakened.

However, the literature does not establish the Extreme View that money has no impact on well-being. Its findings with respect to adaptation and status competition have no particular implications for CBA. Its findings with respect to affective forecasting imply that, in some cases, it will be necessary to launder preferences for CBA purposes. This might involve informing or debiasing people before asking for valuations in contingent valuation studies, or using the results of SWB studies when WTPs are, because of affective forecasting problems, unreliable. Finally, the literature in some ways strengthen the case for CVs by showing that SWB data can be used to value non-market goods where contingent valuation studies have been unsuccessful.

Proposals to depart from CBA entirely and use an SWB-based procedure have not received adequate theoretical justification. Workable proposals (other than intuitive balancing which gives too much discretion to agencies) have not been specified and, more fundamentally, the proposals all ignore that SWB is only one part of well-being.

**References**


Adler, Matthew D. 2000. Beyond Efficiency and Procedure: A Welfarist Theory of Regulation. *Florida State University Law Review* 28:241-338.

Adler, Matthew D. 2006. Welfare Polls: A Synthesis. *New York University Law Review* 81:1875-1969.

Adler, Matthew D. and Eric A. Posner. 2006. *New Foundations of Cost-Benefit Analysis*. Cambridge, Mass.: Harvard University Press.

Alkire, Sabina. 2005. *Valuing Freedoms: Sen's Capability Approach and Poverty Reduction.* New York, NY: Oxford University Press.

Argyle, Michael. 2003. Causes and Correlates of Happiness. Pp. 353-373 in *Well Being: The Foundations of Hedonic Psychology,* edited by Daniel Kahneman, Ed Diener, and Norbert Schwarz. New York, NY: Russel Sage Foundation Publications.

Blanchflower, David and Andrew Oswald. 2004. Well-Being Over Time in Britain and the USA. *Journal of Public Economics* 88:1359-1386.

Brickman, Philip, Dan Coates and Ronnie Janoff-Bulman. 1978. Lottery Winners and Accident Victims: Is Happiness Relative? *Journal of Personality and Social Psychology* 36:917-927.

Cantril. 1965. *The Pattern of Human Concerns*. Piscataway, NJ: Rutgers University Press.

Clark, Andrew E. and Andrew J. Oswald. 2002. A Simple Statistical Method for Measuring How Life Events Affect Happiness. *International Journal of Epidemiology* 31:1139-1144.

Cummins, Robert A. 1996. The Domains of Life Satisfaction: An Attempt to Order Chaos. *Social Indicators Research* 38:303.

Diener, Ed and Robert Biswas-Diener. 2002. Will Money Increase Subjective Well-Being? A Literature Review and Guide to Needed Research. *Social Indicators Research* 57:119-169.

Diener, Ed and Oishi, S. 2000. Money and happiness: Income and subjective well-being across nations. In (Eds.). Pp. 185-218, in *Culture and subjective well-being*, edited by E. Diener & E. M. Suh. Cambridge, MA: MIT Press.

Diener, Ed and Eunkook M. Suh. 1997. Measuring Quality of Life: Economic, Social, and Subjective Indicators. *Social Indicators Research* 40:189.

Diener, Ed, Eunkook M. Suh, Richard E. Lucas, and Heidi L. Smith. 1999. Subjective Well-Being: Three Decades of Progress. *Psychological Bulletin* 125:276-302.

Diener, Ed and Christie Scollon. 2003. Subjective Well-Being is Desirable, But Not the Summum Bonum. Unpublished Manuscript. University of Minnesota Workshop on Well-Being.

Dolan, Paul and Tess Peasgood. 2006. Valuing Non-Market Goods: Does Subjective Well-Being Offer a Viable Alternative to Contingent Valuation? (Imperial College London, unpublished).

Easterlin, Richard A. 2001. Income and Happiness: Towards a Unified Theory. *The Economic Journal.* 111:465-484

Frank, Robert. 2005. Does Absolute Income Matter? Pp. 65-90 in *Economics and Happiness: Framing the Analysis,* edited by Luigino Bruni and Pier Luigi Porta. Oxford: Oxford University Press.

Furnham, Adrian and Michael Argyle. 1998. *The Psychology of Money*. New York, NY: Routledge.

Gardner, Jonathan and Andrew J. Oswald. 2007. Money and Mental Well-Being: A Longitudinal Study of Medium-Sized Lottery Wins. *Journal of Health Economics* 26:49-60.

Hagerty, Michael R. and Ruut Veenhoven. 2003. Wealth and Happiness Revisited: Growing National Income *Does* Go With Greater Happiness. *Social Indicators Research* 64:1-27.

Kahneman, Daniel, et al. 1997. Back to Bentham? Explorations of Experienced Utility, *Quarterly Journal of Economics* 112: 375.

Kahneman, Daniel. 1999. Objective Happiness. P. 3 in *Well Being: The Foundations of Hedonic Psychology,* edited by Daniel Kahneman, Ed Diener, and Norbert Schwarz. New York, NY: Russel Sage Foundation Publications.

Kahneman, Daniel. 2000. Experienced Utility and Objective Happiness: A Moment Based Approach. P. 673 in *Choices, Values, and Frames*, edited by Daniel Kahneman and Amos Tversky. Cambridge: Cambridge University Press.

Kahneman, Daniel, Ed Diener, and Norbert Schwarz, eds. 2003. *Well Being: The Foundations of Hedonic Psychology.* New York, NY: Russel Sage Foundation Publications.

Kahneman, Daniel and Robert Sugden. 2005. Experienced Utility as a Standard of Policy Evaluation. *Environmental and Resource Economics* 32:161-181.

King, Laura A. and Christie K. Napa. 1998. What Makes a Life Good? *Journal of Personality and Social Psychology* 75:156-165.

Kniesner, Thomas J. and W. Kip Viscusi. 2005. Value of a Statistical Life: Relative Position Versus Relative Age. *Papers and Proceedings of the American Economic Association* 95(2):142–146.

Loewenstein, George, and Peter Ubel. 2007. Pain and Suffering: It's Not (Just) about Pain and Suffering. *Journal of Legal Studies* (this volume).

Nozick, Robert. 1974. *Anarchy, State and Utopia*. New York, NY: Basic Books.

Nussbaum, Martha C. 2000. *Women and Human Development*. Cambridge: Cambridge University Press.

Oswald, Andrew J. and Nattavudh Powdthavee. 2006. Does Happiness Adapt? A Longitudinal Study of Disability with Implications for Economists and Judges. Discussion Paper No. 2208. Institute for the Study of Labor, Bonn.

Oswald, Andrew J. and Nattavudh Powdthavee. 2007. Death and the Calculation of Hedonic Damages. *Journal of Legal Studies* (this volume).

Ryff, Carol D. 1989. In the Eye of the Beholder: Views of Psychological Well-Being Among Middle-Aged and Older Adults. *Psychology and Aging* 4:195-210.

Schwarz, Norbert and Fritz Strack. 2003. Reports of Subjective Well-Being: Judgemental Processes and Their Methodological Implications. Pp. 74-77 in *Well Being: The Foundations of Hedonic Psychology,* edited by Daniel Kahneman, Ed Diener, and Norbert Schwarz. New York, NY: Russel Sage Foundation Publications.

Sen, Amartya. 1987. *On Ethics and Economics*. Oxford: Blackwell Publishers.

Shavell, Steven and Louis Kaplow. 2000. Should Legal Rules Favor the Poor? Clarifying the Role of Legal Rules and the Income Tax in Redistributing Income. *Journal of Legal Studies* 29:821-835.

Smith, Dylan M., Kenneth M. Langa, Mohammed U. Kabeto, Peter A. Ubel. 2005. Health, Wealth, and Happiness: Financial Resources Buffer Subjective Well-Being After the Onset of a Disability. *Psychological Science* 16:663-666.

Sunstein, Cass. 2007. Illusory Losses. *Journal of Legal Studies* (this volume).

Van Praag, Bernard M.S. and Barbara E. Baarsma. 2005. Using Happiness Surveys to Value Intangibles: The Case of Airport Noise. *The Economic Journal* 115:224-246.

Veenhoven, Ruut. 2005. Apparent Quality-of-Life in Nations: How Long and Happy People Live. *Social Indicators Research* 71:61-86.