What Do You Think Would Make You Happier?
What Do You Think You Would Choose?

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Abstract

Would people choose what they think would maximize their subjective well-being (SWB)? We present survey respondents with hypothetical scenarios and elicit both choice and predicted SWB rankings of two alternatives. While choice and predicted SWB rankings usually coincide in our data, we find systematic reversals. We identify factors—such as predicted sense of purpose, control over one's life, family happiness, and social status—that help explain hypothetical choice controlling for predicted SWB. We explore how our findings vary by SWB measure and by scenario. Our results have implications regarding the use of SWB survey questions as a proxy for utility.

All things considered, how satisfied are you with your life as a whole these days?

Taken all together, how would you say things are these days—would you say that you are very happy, pretty happy, or not too happy?

Much of the time during the past week, you felt you were happy. Would you say yes or no?[1]

Economists increasingly use survey-based measures of subjective well-being (SWB) as an empirical proxy for utility. In many applications, SWB data are used for testing or estimating preference models, or for conducting welfare evaluations, in situations where these are difficult to do credibly with choice-based revealed-preference methods. Examples include estimating the negative externality from neighbors' higher earnings (Erzo F.P. Luttmer, 2005), individuals' tradeoff between inflation and unemployment (Rafael Di Tella, Robert J. MacCulloch, and Andrew J. Oswald, 2003), and the effect of health status on the marginal utility of consumption (Amy Finkelstein, Luttmer, and Matthew J. Notowidigdo, 2008). Such work often points out that in addition to being readily available where choice-based methods might not be, SWB-based proxies avoid the concern that choices may reflect systematically biased beliefs about their consequences (e.g., George Loewenstein, Ted O'Donoghue, and Matthew Rabin, 2003; Daniel T. Gilbert, 2006). It hence interprets SWB data as revealing what people would choose if they were well-informed about the consequences of their choices for SWB, and uses SWB measures to proxy for utility under the assumption that people make the choices they *think* would maximize their SWB. This paper provides evidence for evaluating that assumption.

We pose a variety of hypothetical decision scenarios to three respondent populations: a convenience sample of 1,066 adults, a representative sample of 1,000 adult Americans, and 633 students. Each scenario has two alternatives. For example, one scenario describes a choice between a job that pays less but allows more sleep versus a job with higher pay and less sleep. We ask respondents which alternative they think they would choose. We also ask them under which alternative they anticipate greater SWB; we assess this "predicted SWB" using measures based on each of the three commonly-used SWB questions posed in the epigraph above. We test

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[1] The first of these three questions is from the World Values Survey; similar questions appear in the Euro-Barometer Survey, the European Social Survey, the German Socioeconomic Panel, and the Japanese Life in Nation survey. The second question is from the U.S. General Social Survey; similar questions appear in the Euro-Barometer survey, the National Survey of Families and Households, and the World Values Survey. The third question is from the University of Michigan's Survey of Consumers; similar questions appear in the Center of Epidemiologic Studies Depression Scale, the Health and Retirement Study, and the Gallup-Healthways Well-Being Index.

Electronic copy available at: http://ssrn.com/abstract=1896182

whether these two rankings coincide.[2] To the extent that they do not, we attempt to identify—by eliciting predictions about other consequences of the choice alternatives—what else besides predicted SWB explains respondents' hypothetical choices, and to quantify the relative contribution of predicted SWB and other factors in explaining these choices.

In designing our surveys, we made two methodological decisions that merit discussion. First, while the purpose of our paper is to help relate choice behavior to SWB measures, those measures are based on reports of respondents' general levels of realized SWB, whereas our survey questions elicit respondents' predictions comparing the SWB consequences of specific choices. To compare SWB rankings with choice rankings under the same information set and beliefs, however, we must measure *predictions* about SWB because it is only predictions that are available at the moment of choice. Moreover, to link SWB with choice, we must focus on the SWB consequences of *specific choices*.

Second, while economists generally prefer data on incentivized choices, our choice data consist of responses to questions about predicted choice in hypothetical scenarios. This is a limitation of our approach because the two may not be the same.[3] However, using hypothetical scenarios allows us to address a much wider variety of relevant real-world choice situations. It also allows us to have closely comparable survey measures of choice and SWB.[4] For brevity, hereafter we will sometimes omit the modifiers "predicted" and "hypothetical" when the context makes it clear that by "choice" and "SWB" we refer to our survey questions.

We have two main results. First, we find that overall, respondents' SWB predictions are a powerful predictor of their choices. On average, SWB and choice coincide 83 percent of the time in our data. We find that the strength of this relationship varies across choice situations, subject populations, survey methods, questionnaire structure variations, and measures of SWB, with

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[2] In the terminology of Daniel Kahneman, Peter P. Wakker, and Rakesh K. Sarin (1997), our work can be viewed as comparing "decision utility" (what people choose) with "predicted utility" (what people predict will make them happier). We avoid these terms, however, because our "decisions" are hypothetical; and because we ask respondents to predict their responses to common SWB survey questions, rather than the integral over time of their moment-by-moment affect.

[3] Although economists generally prefer data on incentivized choices, in some situations self-reports may be more informative about preferences, e.g., when temptation, social pressure, or family bargaining might distort real-world choices away from preferences. (As we mention below, our data are silent on which method best elicits preferences.)

[4] The advantage in having closely comparable (survey-based) measures is that when we find discrepancies between choice responses and SWB responses, these discrepancies can be attributed wholly to differences in question content rather than at least partially to differences in how respondents react to the perceived realness of the consequences of their response.

coincidence ranging from well below 50 percent to above 95 percent.

Our second main result is that discrepancies between choice and SWB rankings are systematic. Moreover, we can indeed identify other factors that help explain respondents' choices. As mentioned above, in addition to eliciting participants' choices and predicted SWB, in some surveys we also elicit their predictions regarding particular aspects of life other than their own SWB. The aspects that systematically contribute most to explaining choice, *controlling for own SWB*, are sense of purpose, control over life, family happiness, and social status. At the same time, and in line with our first main result above, when we compare the predictive power of own SWB to that of the other factors we measure, we find that across our scenarios, populations, and methods, it is by far the single best predictor of choice.

We use a variety of survey versions and empirical approaches in order to test the robustness of our main results to alternative interpretations. For example, while most of our data are gathered by eliciting both choice and predicted SWB rankings from each respondent, in some of our survey variations we elicit the two rankings far apart in the survey, or we elicit only choice rankings from some participants and only SWB rankings from others. As another example, we assess the impact of measurement error by administering the same survey twice (weeks or months apart) to some of our respondents. While these different approaches affect our point estimates and hence the relative importance of our two main results, both results appear to be robust.

As steps toward providing practical, measure-specific and situation-specific guidance to empirical researchers as to *when* the assumption that people's choices maximize their predicted SWB is a better or worse approximation, we analyze how our results differ across SWB measures and across scenarios. Comparing SWB measures, we find that in our data, a "life satisfaction" measure (modeled after the first question in the epigraph) is a better predictor of choice than either of two "happiness" measures (modeled after the second and third questions in the epigraph) that perform similarly to each other. Comparing scenarios, we find that in scenarios constructed to resemble what our student respondents judge as representative of important decisions in their lives, predicted SWB coincides *least* often with choice, and other factors add relatively more explanatory power. We also find that in scenarios where one alternative offers more money, respondents are systematically more likely to choose the money alternative than they are likely to predict it will yield higher SWB. Under some conditions, this last finding

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suggests that the increasingly common method of valuing non-market goods by comparing the coefficients from a regression of SWB on income and on the amount of a good[5] systematically estimates a higher value than incentivized-choice-based methods of eliciting willingness-to-pay (since the weight of money in predicted SWB understates its weight in choice).

Much previous research has studied the relationship between choice and happiness.[6] Our work is most closely related to experiments reported in Amos Tversky and Dale Griffin (1991), Christopher H. Hsee (1999), and Hsee, Jiao Zhang, Fang Yu, and Yiheng Xi (2003) that use methods similar to some of ours.[7] However, because our goal is to provide guidance for interpreting results from the empirical economics literature, our paper differs from these prior papers in two fundamental ways. First, both our scenarios and our SWB measures are tailored to be closely relevant to the economics literature. Thus, rather than primarily focusing on narrow affective reactions to specific consumption experiences (e.g., the "enjoyment" of a sound system), as in Hsee (1999) and Hsee et al. (2003), we purposefully model our measures on the SWB questions asked in large-scale social surveys, and we focus on a range of scenarios that we designed to be relevant to empirical work in economics as well as scenarios that are judged by our respondents to represent important decisions in their lives. Second, crucially, we elicit predictions about other valued aspects of the choice alternatives. Indeed, it has often been observed that factors beyond one's own happiness (in the narrow sense measured by standard

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[5] Recent examples have valued deaths in one's family (Angus Deaton, Jane Fortson and Robert Tortora, 2010), the social costs of terrorism (Bruno S. Frey, Simon Luechinger, and Alois Stutzer, 2009), and the social cost of floods (Luechinger and Paul A. Raschky, 2009).

[6] In a spirit similar to ours, Gary S. Becker and Luis Rayo (2008) propose (but do not pursue) empirical tests of whether things other than happiness matter for preferences in empirically-relevant choice situations. Relatedly, Ricardo Perez-Truglia (2010) tests empirically whether the utility function inferred from consumption choices is distinguishable from the estimated happiness function over consumption. In contrast to our approach, these tests and their interpretation are affected by whether individuals correctly predict the SWB consequences of their choices.

Our work is also related to a literature in philosophy that poses thought experiments in hypothetical scenarios in order to demonstrate that people's preferences encompass more than their own happiness (e.g., Robert Nozick, 1974, pp. 42-45), but that literature focuses on extreme situations, such as being hooked up to a machine that guarantees happiness, and focuses on an abstract conception of happiness that is broader than empirical measures.

[7] These papers find discrepancies between choice and predicted affective reactions, in hypothetical scenarios carefully designed to test theories about why the two may differ. Tversky and Griffin (1991) theorize that payoff levels are weighted more heavily in choice, while contrasts between payoffs and a reference point are weighted more heavily in happiness judgments. Hsee (1999) and Hsee et al. (2003) theorize that when making choices, individuals engage in "lay rationalism," i.e., they mistakenly put too little weight on anticipated affect and too much weight on "rationalistic" factors that include payoff levels as well as quantitatively-measured attributes. Our finding that factors other than SWB help predict choice provides a different possible perspective on the evidence from these earlier papers.

survey measures) may matter for choice.[8] As far as we are aware, however, our work is the first to quantitatively estimate the relative contribution of predicted SWB and these other factors in explaining choice.

The rest of the paper is organized as follows. Section I discusses the survey design and subject populations. Section II asks whether participants choose the alternative in our decision scenarios that they predict will generate greater SWB. Section III asks whether aspects of life other than SWB help predict choice, controlling for SWB, and compares the relative predictive power of the factors that matter for choice. Section IV presents robustness analyses. Section V characterizes the heterogeneity in choice-SWB concordance across SWB measures, scenarios, and respondent characteristics. Section VI concludes and discusses other possible applications of our methodology and implications of our findings. For example, while our paper focuses on testing measures that are based on existing SWB survey questions, our methodology can be used to explore whether alternative, novel questions could better explain choice. And while our data cannot inform us regarding the best way to elicit preferences, if one assumes that hypothetical choices reveal preferences, then our findings may imply that individuals do not exclusively seek to maximize SWB as currently measured. The Appendix lists our decision scenarios. For longer discussions, as well as detailed information on all survey instruments, pilots, robustness analyses, and additional results, see our working paper, Daniel J. Benjamin, Ori Heffetz, Miles S. Kimball, and Alex Rees-Jones (2010) with its Web Appendix (hereafter BHKR).

I. Survey Design

While our main evidence is based on 29 different survey versions, they all share a similar core that consists of a sequence of hypothetical pairwise-choice scenarios. To illustrate, our 'Scenario 1' highlights a tradeoff between sleep and income. Followed by its SWB and choice questions, it appears on one of our questionnaires as follows:

> Say you have to decide between two new jobs. The jobs are exactly the same in almost every way, but have different work hours and pay different amounts.
>
> **Option 1:** A job paying $80,000 per year. The hours for this job are reasonable, and you would be able to get about 7.5 hours of sleep on the average work night.

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[8] For a few recent examples, see Ed Diener and Christie Scollon (2003), Loewenstein and Peter A. Ubel (2008, pp. 1801-1804), Hsee, Reid Hastie, and Jingqui Chen (2008, p. 239), and Marc Fleurbaey (2009).

Option 2: A job paying $140,000 per year. However, this job requires you to go to work at unusual hours, and you would only be able to sleep around 6 hours on the average work night.

Between these two options, taking all things together, which do you think would give you a happier life as a whole?

	Option 1: Sleep more but earn less			Option 2: Sleep less but earn more	
definitely happier	*probably happier*	*possibly happier*	*possibly happier*	*probably happier*	*definitely happier*
X	X	X	X	X	X
Please circle one X in the line above					

If you were limited to these two options, which **do you think you would choose**?

	Option 1: Sleep more but earn less			Option 2: Sleep less but earn more	
definitely choose	*probably choose*	*possibly choose*	*possibly choose*	*probably choose*	*definitely choose*
X	X	X	X	X	X
Please circle one X in the line above					

In within-subject questionnaires, respondents are asked both the SWB question and the choice question above. In between-subjects questionnaires, respondents are asked only one of the two questions.

I.A. Populations and Studies

We conducted surveys among 2,699 respondents from three populations: 1,066 patients at a doctor's waiting room in Denver who participated voluntarily; 1,000 adults who participated by telephone in the 2009 Cornell National Social Survey (CNSS) and form a nationally representative sample;[9] and 633 Cornell students who were recruited on campus and participated for pay or for course credit. The Denver and Cornell studies include both within-subject and between-subjects survey variants, while the CNSS study is exclusively within-subject.

Table 1 summarizes the design details of these studies. It lists each study's respondent population, sample size, scenarios used (see I.B below), types of questions asked (see I.C below),

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[9] The CNSS is an annual survey conducted by Cornell University's Survey Research Institute. For details: https://sri.cornell.edu/SRI/cnss.cfm.

and other details such as response scales, scenario order, and question order.[10] The rest of this section explains the details summarized in the table.

I.B. Scenarios

Our full set of 13 scenarios is given in the Appendix. Table 1 reports which scenarios are used in which studies, and in what order they appear on different questionnaires. As detailed in the Appendix, some scenarios are asked in different versions (e.g., different wording, different quantities of money, etc.) and some scenarios are tailored to different respondent populations (e.g., while we ask students about school, we ask older respondents about work). In constructing the scenarios, we were guided by four considerations.

First, we chose scenarios that highlight tradeoffs between options that the literature suggests might be important determinants of SWB. Hence, respondents face choices between jobs and housing options that are more attractive financially versus ones that allow for: in Scenario 1, more sleep (Kahneman et al., 2004; William E. Kelly, 2004); in Scenario 12, a shorter commute (Stutzer and Frey, 2008); in 13, being around friends (Kahneman et al., 2004); and in 3, making more money *relative* to others (Luttmer, 2005; see Heffetz and Robert H. Frank, 2011, for a survey).

Second, since some of us were initially unsure we would find any divergences between predicted choice and SWB, in our earlier surveys we focused on choice situations where one's SWB may not be the only consideration. Hence, in Scenario 4 respondents choose between a career path that promises an "easier" life with fewer sacrifices versus one that promises posthumous impact and fame, and in Scenarios 2 and 11 they choose between a more convenient or "fun" option versus an option that might be considered "the right thing to do."

Third, once we found divergences between predicted SWB and choice, in our later surveys (the Cornell studies) we wanted to assess the magnitude of these divergences in scenarios that are representative of important decisions faced by our respondent population. For this purpose we asked a sample of students to list the three top decisions they made in the last day, month, two years, and in their whole lives.[11] Naturally, decisions that were frequently

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[10] The median age in our Denver, CNSS, and Cornell samples is, respectively, 47, 49, and 21; the share of female respondents is 76, 53, and 60 percent. For summary statistics, see BHKR table A3.

[11] The sample included 102 University of Chicago students; results were subsequently supported by surveying another 171 Cornell students. See BHKR for details and classification of responses.

mentioned by respondents revolved around studying, working, socializing and sleeping. Hence, in the resulting Scenarios 7-10, individuals have to choose between socializing and fun versus sleep and schoolwork; traveling home for Thanksgiving versus saving the airfare money; attending a more fun and social college versus a highly selective one; and following one's passion versus pursuing a more practical career path. To these scenarios we added Scenario 6, which involves a time-versus-money tradeoff tailored for a student population.

Fourth, as an informal check on our methods, we wanted to have one falsification-test scenario where we expected a respondent's choice and SWB ratings to coincide. For this purpose, we added Scenario 5, in which respondents face a choice between two food items (apple versus orange) that are offered for free and for immediate consumption. Since we carefully attempted to avoid any non-SWB differences between the options, we hypothesized that in this scenario, predicted SWB would most strongly predict choice. This scenario has the additional attraction of being similar to prevalent decisions in almost everyone's life, which is our third consideration above.

I.C. Main Questions

Choice question. In all studies, for each scenario, the choice question is worded as in our example above. In our analysis, we convert the horizontal six-point response scale into an intensity-of-choice variable, ranging from 1 to 6, or into a binary choice variable. CNSS responses are elicited as binary choices.[12]

SWB question. While the choice question is always kept the same, we vary the SWB question in order to examine how choice relates to several different SWB measures. In our Denver within-subject study we ask three versions of the SWB question, modeled after what we view as three "families" of SWB questions that are commonly used in the literature (see examples in the epigraph):

(i) life satisfaction: "Between these two options, which do you think would make you more satisfied with life, all things considered?";

(ii) happiness with life as a whole: "Between these two options, taking all things together, which do you think would give you a happier life as a whole?"; and

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[12] CNSS responses are elicited as binary because in telephone interviews the binary format is both briefer for interviewers to convey and easier for respondents to understand.

(iii) felt happiness: "Between these two options, during a typical week, which do you think would make you feel happier?"

As in the example above, there are six possible answers, which we convert into either a six-point variable or a binary variable.

In the CNSS study, where design constraints limited us to one version of the SWB question, we ask only version *(ii)*. As with the choice question, response is binary.

As described shortly, in our Cornell studies we ask respondents about twelve different aspects of life, of which (one's own) happiness is only one. In those studies we use versions of *(ii)* and *(iii)* that are modified to remain meaningful, with fixed wording, across aspects. The modified *(ii)* and *(iii)* result in these two new versions:

(iv) own happiness with life as a whole: "Between these two options, taking all things together, which option do you think would make your life as a whole better in terms of … [your own happiness]"; and

(v) immediately-felt own happiness: "Between these two options, in the few minutes immediately after making the choice, which option do you think would make you feel better in terms of … [your own happiness]."[13]

The modified response scale now includes a middle "no difference" response, and has seven possible answers (*Option 1 definitely better; Option 1 probably better; Option 1 possibly better; no difference; Option 2 possibly better*, etc.). We allow respondents to indicate "no difference" because we anticipated that in some of the scenarios, it would make little sense to force respondents to predict that all aspects would differ across the two options (e.g., "sense of purpose" in Scenario 5, "apple vs. orange").

On the spectrum between more cognitive, evaluative SWB measures and more affective, hedonic ones (e.g., Diener et al., 2009), we view version *(i)* as the most evaluative, versions *(iii)* and *(v)* as the most affective, and versions *(ii)* and *(iv)* as intermediate.

Other questions. For completeness, let us briefly mention, first, that in all questionnaires of the Denver and Cornell within-subject studies, the choice question is followed by what we refer to as a meta-choice question: "If you were limited to these two options, which **would you want yourself to choose**?" Also, recall that the SWB question in all Cornell studies is modified

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[13] Since our between-subject tests have less statistical power than our within-subject tests, we ask only version *(i)* in our Denver between-subjects surveys and only version *(iv)* in our Cornell between-subjects surveys.

to elicit rankings of the two scenario options in terms of eleven additional aspects of life as well as "own happiness." For example, in versions (*iv*) and (*v*) of the SWB question, [your own happiness] may be followed by [your family's happiness], [your health], [your romantic life], etc.[15] We discuss these additional questions and the data they yield in later sections.

II. Do People Respond to the Choice and SWB Questions in the Same Way?

In this section we look at respondents' binary ranking of Option 1 versus Option 2 in terms of hypothetical choice compared with their binary ranking in terms of predicted SWB.

II.A. Within-Subject Results

Table 2 reports the distribution of binary responses to our within-subject surveys' choice and SWB questions by study and scenario, along with *p*-value statistics from equality-of-proportions tests. The table pools responses across SWB question variants (see I.C and table 1 above); we discuss results by specific SWB measure below.[16]

The left-most column in the top section of the table reports Scenario 1 figures from the Denver within-subject questionnaires (our "sleep vs. income" scenario from the example in section I). The column's top four cells report a vertically-stacked 2×2 contingency matrix, consisting of the joint binary distribution of subjects who favor an option in the choice question and those who favor it in the SWB question. Looking at these four cells, we point out two facts that illustrate this section's two main findings. First, the top two cells reveal that the SWB response is highly predictive of the choice response: between the two cells, 87 percent of respondents rank Option 1 versus Option 2 in the choice question the same as they do in the

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[15] In some questionnaire versions, we separate "own happiness" from the other eleven aspects, and ask respondents first only about own happiness in each scenario, and then, re-presenting the scenarios, we ask about the other aspects. In these versions, we refer to the question on own happiness as an "isolated" measure of SWB (see table 1). In other versions, where the twelve aspects appear together, we refer to the own happiness question as a "first/last in series" measure. When own happiness is "first in series," the twelve aspects appear together in the order they are listed as regressors in table 3 below. When own happiness is "last in series," the twelve aspects appear together in reverse order.

[16] Non-response in our surveys was generally low. In the Cornell studies, virtually all questions had a non-response rate below 2 percent (one Cornell respondent was excluded due to obvious confusion with instructions). In the CNSS, fewer than 5 percent of respondents answered "Do not know" or refused to answer in any of the questions. Due to the less-structured recruiting method used in our Denver doctor's office studies, some questions from those studies had non-response rates as high as 20 percent. However, the majority of this non-response is driven by respondents being called in for their appointments, alleviating concerns of selection bias. Comparing the completed responses of subjects who did not finish the survey to the responses of those who finished the entire survey, we find no evidence of a difference in average responses.

SWB question. Second, the next two cells reveal systematic differences across the two questions among the remaining 13 percent of respondents: while 12 percent rank Option 1 (sleep) above Option 2 (income) in the SWB question and reverse this ranking in the choice question, only 1 percent do the opposite. This asymmetry suggests that on average, respondents react to the two questions systematically differently. The fifth cell reports the *p*-value from a Liddell exact test, a nonparametric, equality-of-proportions test for paired data (Douglas K. Liddell, 1983). The null hypothesis—namely, that the proportion of respondents who rank Option 2 above Option 1 is the same across the choice and the SWB questions—is easily rejected.

Examining the top five rows in table 2 for the rest of the Denver columns verifies that the two main findings above are not unique to Scenario 1: in the remaining five scenarios, 81 to 90 percent of respondents rank the two options identically across the choice and SWB questions; yet in four out of five cases, choice-SWB reversals among the remaining 10 to 19 percent of respondents are asymmetric, and the equality-of-proportions null hypothesis across the two questions is easily rejected. In these cases, respondents rank income above legacy, concert above duty, low rent above short commute, and income above friends in higher proportions in the choice question than in the SWB question. There appears to be a systematic tendency among respondents to favor money in the choice question more than in the SWB question, a point we return to below. (The results for the absolute vs. relative income scenario are discussed below.)

Similarly, the CNSS column suggests that, qualitatively, Scenario 1's findings carry over from our Denver study—a pencil-and-paper survey with six-point response scales administered to a convenience sample—to the CNSS study—a telephone survey with binary response scales administered to a nationally representative sample. While the proportion of participants with no choice-SWB reversals increases to 92 percent, almost all of the rest—7 out of the remaining 8 percent—favor Option 1 (sleep) in the SWB question and Option 2 (income) in the choice question. The direction of this asymmetry is hence the same as in the Denver sample, and equality of proportions is again easily rejected.

Last among our within-subject data, results from the Cornell surveys are reported at the bottom section of table 2. The structure of this portion of the table is similar to the corresponding Denver and CNSS portions, with the following three differences that result from the fact that the Cornell questionnaires allow for an additional "no difference" response in the SWB question: (a) an additional row below the top four rows reports the proportion of respondents who choose the

"no difference" response; (b) the top four rows report vertically-stacked contingency matrices as before, only here they exclude these "no difference" responses (their sum is normalized to 100 percent); and (c) the "no difference" responses are excluded from the Liddell tests.[17]

Starting again with Scenario 1 in the left-most column, choice-SWB reversals (in the third and fourth rows, 24 percent together) are still a minority, although they are almost twice to three times more common in the Cornell sample than in the Denver and CNSS samples. Nonetheless, consistent with the Denver and CNSS data, in virtually all of these reversals—23 of the 24 percent—Option 1 (sleep) is ranked above Option 2 (income) in the SWB question and below it in the choice question. Equality of proportions is, again, strongly rejected for this scenario.[18]

Moving to the rest of the Cornell columns reveals a similar story. Equality of proportions is strongly rejected for all the remaining nine scenarios (2-10) as well, with the exception of Scenario 5. Recall that we constructed Scenario 5 ("apple vs. orange") as a falsification test, where—barring problems with our methods—choice and SWB should largely coincide. The results support this prediction. Indeed, only 5 percent of responses exhibit reversals in this scenario, by far the lowest fraction among the ten scenarios. Furthermore, we find no evidence that these reversals are in one systematic direction.[19] As to the two other scenarios that are used in both the Denver and Cornell studies—Scenarios 3 and 4—choice-SWB reversals maintain their direction: in both studies, (absolute) income is ranked above relative income (Scenario 3) and above legacy (Scenario 4) in the choice questions more often than in the SWB questions. While equality of proportions is rejected in the Cornell data but not in the Denver data in Scenario 3, it is rejected in both studies in Scenario 4.

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[17] The distribution of choice-responses among individuals indicating "no difference" for SWB mirrors the distribution of choice-responses among the rest of the respondents reasonably closely (BHKR table A5), and, hence, the choice proportions in table 2 are virtually unaffected by excluding these individuals. Moreover, under the null hypothesis that choice is determined solely by predicted SWB, the distribution of choice-responses should be closer to 50-50 for individuals indicating SWB "no difference." Hence, the responses of these respondents actually provide additional suggestive evidence against the null hypothesis.

[18] Comparing each of the top four cells in the scenario 1 column across the three within-subject samples reveals that the reported proportions differ dramatically between the samples. Given the very different populations and, in the CNSS study, the very different survey methods, this finding in itself is not surprising. (For example, we speculate that since a telephone survey is harder to understand, more respondents answered the two questions in the same way, taking the "artificial consistency" mental shortcut discussed in II.B below.)

[19] At the same time, a sizeable 37 percent of respondents indicate "no difference" in the SWB question in scenario 5—by far the highest. This may suggest that scenario 5 is "cleaner" than we intended it to be: not only non-SWB aspects of life, but even own happiness is deemed by many respondents irrelevant in what they may perceive as a context of *de gustibus non est disputandum*.

Finally, in Scenarios 6 and 8, which are used only in the Cornell studies and include a "money" option, we once again find that respondents favor money in the choice question more than in the SWB question. That this tendency holds in all seven scenarios that trade off more money/income for something else—be it more sleep, higher relative income, a legacy, a shorter commute, being around friends, having more time, or visiting family—suggests that predicted SWB understates the weight of money and income in hypothetical choice.[20] Of course, predicted SWB is not the same as experienced SWB, and hypothetical choice is not the same as incentivized choice. Nevertheless, unless the difference between those gaps is sufficiently negatively correlated with the systematic gap we find between hypothetical choice and predicted SWB, our results suggest that survey measures of experienced SWB do not fully capture the weight of money and income in choice.

Our two main findings—that the ranking of the two options is identical across the choice and SWB questions for most respondents and in most scenarios, but that respondents react to the two questions systematically differently—hold not only in the pooled data, but also for each SWB question variant (*i*)-(*v*) separately. We show this in BHKR table A4, which reports versions of table 2 by SWB measure. Interestingly, we find some differences across the measures in the prevalence of choice-SWB reversals. In the Denver sample, the life satisfaction question variation (*i*) comes closest to matching choice, with only 11 percent reversals, averaged across all scenarios. In comparison, happiness with life as a whole (*ii*) and felt happiness (*iii*) yield more reversals—17 percent each. In the Cornell sample, own happiness with life as a whole (*iv*) and immediately felt own happiness (*v*) both yield 22 percent reversals. We return to the comparison between different SWB measures in section V.A below.

II.B. Between-Subjects Results

Our within-subject analysis above is based on both choice and SWB responses elicited from each individual. However, empirical work that uses SWB data relies on surveys that measure SWB alone, not together with choice. Thus, two potential biases could compromise the relevance of our findings to existing SWB survey data and their applications. On the one hand,

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[20] Reassuringly, this tendency in our data is consistent both with the data of Tversky and Griffin (1991) and Hsee et al. (2003), who use a scenario similar to our Scenario 3 (absolute income vs. relative income), and with their psychological theories (e.g., "lay rationalism") mentioned in footnote 7.

asking a respondent both questions might generate an "artificial consistency" between the two responses. For example, respondents might think they ought to give consistent answers, or might give consistent answers as an effort-saving mental shortcut. On the other hand, an "artificial inconsistency" bias is also possible if respondents infer from being asked more than one question that they ought to give different answers, or if the presence of the other question focuses respondents' attention on the contrast between the wordings.

To assess these concerns, we compare the above results from the Denver and Cornell within-subject studies with their counterpart between-subjects studies, in which respondents are asked only the choice or only the SWB question. Three of the six Denver scenarios analyzed above, and all ten of the Cornell scenarios, are repeated with identical wording in their between-subjects counterparts (see table 1). Across these thirteen comparable scenarios and including only the within-subject respondents who faced the SWB measure used in the between studies (i.e., variant (*i*) in Denver and (*iv*) in Cornell), the median within-versus-between absolute difference in the proportion of respondents favoring each option is 5 percentage points in the choice question (a statistically significant difference in two scenarios) and is 8 percentage points in the SWB question (statistically significant in four scenarios).[21] Overall, then, the within and between response distributions sometimes differ. Moreover, the direction of the differences in the choice compared to the SWB data suggests that on average, artificial inconsistency might indeed explain some of the choice-SWB reversals in the within data: in the within data, the average choice-SWB difference in proportions is 10.8 percentage points; in the between data, it is 7.4 percentage points—about two-thirds of the within difference.

While choice-SWB reversals are on average of smaller magnitudes in the between data, they remain sufficiently large to yield statistical results comparable to those in the within data. In the between data, we can reject the null hypothesis of no difference between choice and SWB proportions in four scenarios, which is fewer than in the within data discussed in section II.A. However, one important reason is that, mechanically, the unpaired test on the between data has much less statistical power than the paired test on the within data: even with an equal number of

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[21] Using Fisher tests and a 5 percent significance level, we reject the null hypothesis that equal proportions choose Option 2 in the within and between data for the Denver sleep vs. income scenario (1) and the Cornell interest vs. career scenario (10). We reject the null hypothesis that equal proportions anticipate higher SWB under Option 2 in the within and between data for the Denver friends vs. income scenario (13) and the Cornell money vs. time, education vs. social life, and interest vs. career scenarios (6, 9, and 10). We report the full details of the between-subjects data analysis, including all the relevant distributions and statistical tests mentioned in this subsection, in BHKR (section II.B, table 2, and table A4).

respondents, each responds to only one question instead of two, and we cannot partial out correlated individual effects on choice and SWB in analyzing the between data. To compare the within and between data controlling for power differences, we "unpaired" our within data, matched sample sizes as closely as possible, and simulated unpaired equality-of-proportion tests that treat these data as if they were between data. We find that we can reject the no-difference null in four scenarios, exactly the same as what we find using the between data.

Our overall interpretation is that while there are differences across the between- and the within-subject studies—in particular, choice-SWB reversals are on average less pronounced in the between-subjects studies—either set of studies supports our two main findings.

II.C. Measurement Error

Our analysis above suggests that in many scenarios, individuals do not respond to the choice and SWB questions as if they were responding to the same question. However, in a given scenario, such rejection of the null hypothesis could be explained by differences in measurement error across the two questions—for example, because it is easier to introspect about choice than about SWB, or vice versa. An individual whose "true" ranking of the options is identical across the questions is more likely to mistakenly rank the "wrong" option higher in a question with greater measurement error, leading to ranking proportions closer to 50-50 for that question.

Looking across table 2's columns reveals that cross-question differences in the measurement error for choice and SWB in the same direction in all scenarios in a study cannot explain our data. For example, in the Denver data, choice proportions are closer to 50-50 in Scenarios 1, 11, and 13, but SWB proportions are closer to 50-50 in Scenarios 4 and 12.

To summarize, the two main findings in this section are (a) that most respondents in most scenarios do not exhibit choice- versus SWB-ranking reversals, and (b) that when they do, their pattern of reversals is systematic. Overall, the two findings hold up well—although with differences in relative strength—across scenarios, populations, and designs. Furthermore, these findings cannot be explained by a measurement error structure that is stable across scenarios.

III. Do Other Factors Help Predict Choice, and by How Much?

In this section we ask: Can we identify other factors that help explain hypothetical

choices, controlling for predicted own SWB? We also analyze *to what extent* respondents'

choices in our data can be explained by their predicted SWB and other aspects of life together,

compared with their predicted SWB alone.

We address these questions using data from the Cornell sample, where we ask respondents

to rank the options on a set of eleven additional aspects of life, in addition to ranking them on

choice and own SWB (see section I.C). Specifically, in addition to being asked about "your own

happiness," respondents are also asked about: your family's happiness, your health, your

romantic life, your social life, your control over your life, your life's level of spirituality, your

life's level of fun, your social status, your life's non-boringness, your physical comfort, and your

sense of purpose. While still a limited list, it is intended to capture "functionings" proposed by

economists and philosophers (Amartya K. Sen, 1985; Martha Nussbaum, 2000); non-hedonic

and eudaimonic components of well-being proposed by psychologists (e.g., Matthew P. White

and Paul Dolan, 2009) that are not fully captured by measures of SWB (Carol D. Ryff, 1989); as

well as other factors that we thought might matter for choice besides own happiness.

The design of our Cornell between-subjects surveys allows us to also elicit within-subject

data from our 201 participants. This is done by presenting subjects with the between-subjects

part of the survey, followed by an additional, within-subject part.[22] When discussing the

between-subjects results in section II.B we used only data from the first, between-subjects part.

In contrast, in this section we pool data from both parts, treating them as within-subject data.

Further pooling these data with the original Cornell within-subject data (432 respondents) yields

an augmented sample of 633 Cornell within-subject respondents, which we analyze here. As we

report in section IV, our main results hold in the constituent subsamples.

III.A. Response distributions

Figure 1 displays, by scenario, the histograms of raw, multi-point responses to the choice,

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[22] To be specific, we present the entire sequence of ten scenarios three times. First, each scenario is presented and is followed by only a choice question (for half the respondents) or only a SWB question (for the other half). Second, after respondents finish answering that question for each of the ten scenarios, the ten scenarios are presented again, each followed by only the question (SWB or choice) respondents had not seen yet. Finally, the ten scenarios are presented for a third time, with each scenario followed by the eleven additional questions about other aspects of life. Respondents are specifically instructed to answer the surveys in exactly the order questions are presented, and the experimenters verify that they do (in the rare cases where a respondent was observed to flip through the pages, she/he was promptly reminded of this instruction). With this design, excluding data collected after the first round of scenario-presentation yields between-subjects data.

(own) SWB, and eleven other aspect questions. Note first that the choice responses—and also the SWB responses, although to a lesser extent—tend to be bimodal with most of the mass on "definitely" or "probably," suggesting that the choice-SWB reversals discussed in section II are *not* the result of widespread near-indifferences. Second, notice that we were rather successful in constructing Scenario 5 (apple vs. orange): almost everyone indicates "no difference" in the bottom eleven cells in this column. While 37 percent also indicate "no difference" on SWB, the low count of reversals in Scenario 5 suggests that for the other respondents, variation in choice is strongly related to variation in SWB. Finally, note that in many other scenarios, there is substantial variation in the eleven other aspect rankings, and that the histogram of choice responses sometimes looks rather different from the histogram of SWB responses.

III.B. Explaining the variation in choice

Table 3 presents a variety of specifications in which we regress choice on SWB and other aspects of life, aggregating data across the ten scenarios (we discuss regressions by scenario in section V.B below). We want to estimate the relationship from the within-scenario—rather than the between-scenario—variation in responses. For this purpose, in the probit and ordered probit specifications, we include scenario fixed effects. In the OLS specifications, we demean all variables at the scenario level. Doing so yields coefficients identical to those in a fixed-effects OLS specification, but has the advantage that the R^2's reflect only the within-scenario explanatory power of the regressors.

The first column of table 3 reports an OLS regression of six-point choice on seven-point SWB. The R^2 shows that 0.38 of the variation in choice is explained by own happiness alone. In comparison, a regression of the same choice measure on our eleven other aspects (each as a seven-point variable) yields an R^2 of 0.21 (second column of table 3). Hence, we find that own SWB predicts choice substantially better than all of the other aspects combined. In the third column we regress choice on both own SWB and the eleven other aspects. The R^2 of 0.41 is substantially higher than that in the second column but is only slightly higher than that in the first column.[23] The pattern in these three columns is similar when we relax the linear functional form, replacing each regressor with a set of six dummy variables (not reported). In summary, when we

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[23] Bootstrapped standard errors yield the following 95-percent confidence intervals around the three respective R^2's: [0.36, 0.40], [0.19, 0.23], and [0.39, 0.43].

pool data across scenarios we find that adding eleven additional aspects to the regression of choice on own SWB increases explanatory power, but the increase is rather modest. (The increase is substantial, however, in some of the individual scenarios, as we report in section V.B.)

III.C. Comparing the coefficients

In order to compare and interpret the coefficients in table 3, we assume that hypothetical choices in our data can be represented as maximizing a utility function $U(H(X), X)$, where H is own SWB and X is a vector of other factors that might affect choice both directly and indirectly through H.[24] If people choose what they think would maximize their SWB alone (as opposed to trading off their SWB for other factors), then the (vector) partial derivative $\partial U / \partial X$ will be identically zero. To a first-order approximation, this would require that all eleven coefficients other than that on own happiness in table 3's third column be zero—a hypothesis we can easily reject (F-test $p < 0.0001$). This result is robust to treating the choice measure as ordinal or as binary (table 3's fifth and sixth columns); to relaxing the linearity of our SWB measure by replacing it with a set of six dummy variables; and to combinations of these specifications. Furthermore, with the exception of Scenario 8 (where F-test $p = 0.086$), the result holds in each individual scenario.[25] All this suggests that not all the marginal utilities $\partial U / \partial X$ are zero, even if the first-order approximation is imperfect.

Moving from testing the null hypothesis to interpreting the magnitudes of coefficients requires additional assumptions—both standard econometric assumptions and psychological ones. Econometrically, for example, if X includes aspects we did not measure, the coefficients might be biased due to omitted variables. Psychologically, the coefficients are comparable only if respondents respond to the seven-point scales similarly across the twelve aspects.

Comparing the coefficients in the third column of table 3, the coefficient on own happiness is by far the largest. A one-point increase in our seven-point measure of predicted SWB is associated with a highly significant 0.46-point increase in our six-point choice measure.

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[24] For a more thorough treatment of our empirical framework within this simple model, see BHKR.

[25] See tables A7-A10 in BHKR for these and other specifications. Table A10 shows that this result holds by scenario even when the regressions include only aspects for which more than a trivial fraction of respondents (e.g. 15 percent) indicate answers other than "no difference." In other words, it holds even when we include only the most reliably-estimated coefficients. Interestingly, table A10 shows that the only large and robust non-SWB coefficient in the "apple vs. orange" scenario is that on "physical comfort"; this seems consistent with the *de gustibus* interpretation of this scenario.

After own happiness, the largest coefficients are on sense of purpose (0.12), control over one's life (0.08), family happiness (0.08), and social status (0.06). The relative sizes of the coefficients are similar in alternative specifications (e.g., the ordered probit column), but remember that the data are pooled across surveys that use two opposite orders in which aspects are presented, and order matters for the coefficient estimates (see section IV). While the rejection of $\partial U/\partial X = \mathbf{0}$ suggests that own SWB is not the only argument in the "hypothetical-choice utility function," a comparison of the coefficients suggests that the marginal utility of own happiness is several times larger than the marginal utilities of even the most significant among the other aspects we measure.[26]

III.D. Measurement error

Measurement error in our measures of own happiness and the other aspects will bias the coefficient estimates and potentially also invalidate our test of the null hypothesis $\partial U/\partial X = \mathbf{0}$. In order to address these concerns, we collected repeated observations on a sub-sample (of 230) of our Cornell respondents. This enables us to estimate measurement-error-corrected regressions. In particular, we use Simulation-Extrapolation (SIMEX) (J. R. Cook and Leonard A. Stefanski, 1994), a semi-parametric method that assumes homoskedastic, additive measurement error but does not make assumptions about the distribution of the regressors.[27] As shown in table 3, relative to the OLS results, the SIMEX coefficient on own happiness increases, and remains by far the most predictive regressor. However, the other aspects with largest coefficients and statistical significance in the OLS regressions remain statistically significant and also increase, suggesting that our main results in this section are not due to measurement error.

IV. Robustness

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[26] However, we believe that the most plausible bias from unmeasured factors exaggerates the coefficient on own happiness. In particular, an unmeasured factor whose effect on H has the same sign as its direct effect (i.e., not through H) on U will bias upward the coefficient on own happiness.

[27] Intuitively, the SIMEX method proceeds in two steps. First, it simulates datasets with additional measurement error and uses them to estimate the function describing how the regression coefficients change with the amount of measurement error. Then the algorithm extrapolates in order to estimate what the coefficients would be if there were no measurement error in the original data. We choose this method over several more common measurement error correction methods (such as IV or regression disattenuation) for several reasons. Primarily, the other methods are much less efficient in this setting. Moreover, the SIMEX method is flexible in its treatment of the measurement error structure, it accommodates misclassified categorical data, and it easily accommodates non-linear models such as probit or ordered probit regressions. For additional discussion of SIMEX see BHKR, and for IV results see table A12 there.

To examine the robustness of our results from sections II and III, we conduct a long list of additional analyses. Full details, including all tables and statistics, are reported in BHKR. In this section we briefly summarize our findings. Unless stated otherwise, they are based on our within-subject data from either the Denver or Cornell samples.

Are results driven by only a few individuals? We find that most respondents (both in Denver and Cornell) exhibit at least one reversal and that very few exhibit reversals in half or more of the scenarios. Moreover, to explore whether some of the respondents who do not exhibit a choice-SWB reversal in a given scenario *would have* done so if that scenario's tradeoff between SWB and other factors had assigned a different "price" to SWB, some Denver respondents face three versions of Scenario 4 (legacy vs. income), with three different income levels in the income option (see details in the Appendix). Ninety-one percent of these respondents monotonically rank the income option higher in both choice and SWB as the amount of income increases. Of those, 22 percent exhibit a choice-SWB reversal for at least one income level, compared to an average of 12 percent reversals at a given income level. This suggests that the fraction of reversals we observe in other scenarios is a lower bound on the fraction who would exhibit a reversal in those scenarios with *some* "price of SWB."

Scenario-order effects and participant fatigue. We investigate the effects of scenario order on responses with our Denver sample, where respondents face the six scenarios in one of two opposite orders (see table 1). Scenario-order effects could arise, for example, due to increasing fatigue or boredom among respondents. While we indeed find evidence of scenario-order effects on response patterns, they do not systematically affect the degree of choice-SWB concordance we find.

Respondents' explanations for their choice-SWB reversals. After our Cornell respondents finish responding to all the decision scenarios, we directly ask all of them additional questions, including: whether any choice-SWB reversals they might have made were a mistake (only 7 percent respond "Yes"); whether they think they would regret any choice-SWB reversal they might have made (23 percent respond "Yes"); and whether they were trying to make their choice and SWB responses consistent (20 percent respond that they were). Our results from section III remain largely the same when the analysis excludes groups of respondents based on their responses to these questions. We also ask respondents to explain their reasoning for any choice-SWB reversals, and we view the resulting qualitative data as roughly consistent with our

main results.[28]

Self-control. To assess whether choice-SWB reversals merely reflect a self-control problem (as in David Laibson, 1997), in addition to asking participants what they would choose, we also ask some of them what they would want themselves to choose (the meta-choice question mentioned in Section I.C). Aggregating across all surveys that include the meta-choice question (see table 1), we find reversals between choice and meta-choice in 28 percent of the cases. While self-control problems may be relevant in these cases, our main conclusions from section III are robust to either excluding these observations or to replacing choice with meta-choice as the dependent variable.

Context of choice, SWB, and other-aspect questions. Respondents' interpretations of the questions or their understanding of the meaning of the related concepts may be context-dependent.[29] As mentioned in sections I (see table 1) and III, different versions of our surveys vary in whether the choice and SWB questions are asked close together or far apart, and in the order the questions are asked; they also vary in the distance between own happiness and the other eleven aspects, and in the order of the aspects. Repeating our analysis in section III by questionnaire organization indicates that order and context effects do indeed matter. For example, aspects listed earlier have larger coefficients, and own happiness as part of a twelve-aspects list has a smaller coefficient than as a stand-alone question. Yet, in all designs, aspects other than own happiness are statistically significant, and the coefficient on own happiness has the highest point estimate among the aspects.

V. Heterogeneity in Choice-SWB Concordance

We have thus far focused on characterizing the average concordance between our choice and SWB measures. However, the averages mask substantial heterogeneity: across our questionnaires (see table 1) and scenarios, choice-SWB coincidence ranges from well below 50 percent to above 95 percent. To provide information that may be useful for researchers and policy makers, we conduct our main analysis separately across SWB measures, scenarios, and

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[28] For example, many respondents mention tradeoffs between their own happiness and the happiness of family and friends, or mention tradeoffs between short-lived happiness and goals like long-term career success. The full text of these responses, along with the rest of the data, will be made available online upon this paper's acceptance at a journal.

[29] Notice the important difference between this possibility and the possibility of cross-respondent differences in the interpretations or understanding of the *scenarios*. The latter possibility is a lesser concern as long as a respondent's interpretation or understanding of a scenario remains the same across the choice and SWB questions.

respondent characteristics. This section briefly summarizes a more thorough treatment in BHKR.

V.A. Comparing SWB measures

We compare how well our different SWB question variants predict choice by comparing R^2's from univariate OLS regressions of our multiple-point choice variable on each of our multiple-point SWB measures. As in section III, we demean our variables at the scenario level. In the Denver sample, the life satisfaction question variant (*i*) is the best predictor of the choice question, with $R^2 = 0.65$. Happiness with life as a whole (*ii*) and felt happiness (*iii*) come second and third, respectively, with $R^2 = 0.59$ and 0.55. The felt happiness R^2 is statistically significantly lower than the life satisfaction R^2 ($p = 0.02$ calculated using bootstrapped standard errors), and the R^2 for happiness with life as a whole is not statistically distinguishable from the other two. In the Cornell sample, own happiness with life as a whole (*iv*) and immediately felt own happiness (*v*) have $R^2 = 0.39$ and 0.37, not statistically distinguishable from each other.

These R^2's and our findings in II.A paint a consistent picture. While in the Denver data the life-satisfaction-type SWB question is more predictive of choice than the happiness-type SWB questions, in both Denver and Cornell the felt happiness and the happiness with life as a whole questions predict choice similarly. On the evaluative-versus-affective spectrum of SWB measures (see I.C above), these results lend partial support to the notion that more evaluative measures may generate rankings more similar to hypothetical choice.[30]

V.B. Comparing scenarios

For applied work, it is useful to know in *which* situations the assumption that people's choices maximize their predicted SWB is a better or worse approximation. Table 4 shows the benchmark OLS specification from table 3, conducted separately for each of the ten scenarios in the Cornell data. The "Incremental R^2" row reports the difference between the R^2's from the reported multivariate regressions and R^2's from *univariate* regressions of choice on only own happiness (which are not reported).

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[30] One possible hypothesis as to why some SWB measures are better predictors of choice is that they induce participants to more accurately report the present value of instantaneous SWB flows over time. Our data do not allow us to directly test this hypothesis because we have no direct evidence on how respondents aggregate SWB over time. However, our finding that variant (*v*)—about happiness "in the few minutes immediately after making the choice"—is as predictive of choice as variant (*iv*)— about happiness in "life as a whole"—seems inconsistent with this view.

As discussed above, Scenario 5 (apple vs. orange)—which was designed to minimize choice-SWB reversals—has little variance in aspects other than own SWB and the fewest reversals (see figure 1 and table 2). As expected, the R^2 in a univariate regression of choice on SWB is the highest (at 0.56) in Scenario 5, and the incremental R^2 from adding all other aspects is the lowest (at 0.02). If this type of minor decision—which possibly comprises most decisions in life—generally features low variance in aspects other than own SWB, then the assumption that people's choices maximize their predicted SWB might be a good approximation in such settings.

Interestingly, at the other extreme, the four scenarios we designed to be representative of typical important decisions (see section I.B) facing our college-age Cornell sample—Scenarios 7-10 (socialize vs. sleep, family vs. money, education vs. social life, and interest vs. career)—are among the scenarios with the lowest univariate R^2 and, correspondingly, the highest incremental R^2. Indeed, in Scenarios 7 and 10, where univariate R^2 is the lowest—at 0.25 and 0.24, respectively—incremental R^2 is 0.07 and 0.13. Here, the additional eleven aspects increase predictive power (as measured by R^2) substantially, by 28 and 54 percent. This in turn suggests that one should be especially cautious in assuming that people's choices maximize their predicted SWB in empirical applications that focus on important life decisions.

The rest of the scenarios lie somewhere in between. They include the scenarios that were designed to explore common themes from the happiness literature and, surprisingly, those designed as situations where we most expected to find tensions between SWB and other factors.

V.C. Comparing respondents

Across the Denver, CNSS, and Cornell samples, we find relatively little evidence for differences in the frequency of choice-SWB reversals across demographics that include gender, age, race, education, and income, with the exception that in the Cornell sample, black respondents are more likely than others to exhibit reversals. In the Cornell within-subject sample, we measured the "Big 5" personality traits using Oliver P. John and Sanjay Srivastava's (1999) BFI scale. We find that a one standard deviation increase in conscientiousness is associated with a 2 percent lower likelihood of a reversal, while a one standard deviation increase in neuroticism (i.e., moody, tense) is associated with a 2 percent higher likelihood of a reversal.

VI. Discussion

Throughout this paper, we have remained agnostic as to which survey question, if any, best elicits a person's preferences.[31] However, if one assumes that hypothetical choices reveal preferences, our results could help in reconciling two opposing theoretical views regarding the relationship between SWB data and preferences. The first, reflected at least implicitly in much of the economics of happiness literature, is that SWB data represent idealized revealed-preference utility in the sense of what individuals would choose if their predictions of the SWB conse-quences of their choices were not biased. The second view, explicitly laid out in, e.g., Kimball and Robert Willis (2006) and Becker and Rayo (2008), is that even well-informed agents will be willing to trade off SWB for other things they care about, making SWB and preferences distinct. Our results suggest that people do not seek to maximize SWB exclusively, at least as it is currently measured, *but* that SWB is a uniquely important argument of the utility function.

Since hypothetical choices maximize predicted SWB (especially "life satisfaction") for most of our respondents in most of our scenarios, our results might be interpreted as comforting for applied researchers who use SWB as a proxy for utility. We caution that the amount of choice-SWB concordance we find overstates the justification to treat SWB as a proxy for utility; applications always require additional assumptions that we do not test. For example, typical assumptions are that SWB measures are comparable and can be aggregated across individuals.[32]

When comparing scenarios, our results suggest that, first, researchers should be especially cautious when interpreting SWB data as indicating what well-informed individuals would choose in settings that are perceived by those individuals to involve personally-important decisions. Second, in settings where one alternative involves higher income or more money, our survey respondents are systematically more likely to choose the money alternative than they are likely to predict it will yield higher SWB. Unless this systematic gap is sufficiently negatively correlated with the difference between the predicted-experienced SWB gap and the hypothetical-

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[31] Note that while economists often assume that incentivized choice reveals preferences, which in turn defines economic welfare, psychologists instead often equate experienced SWB with welfare (see, e.g., Kahneman, Wakker, and Sarin, 1997). Taking this latter perspective, Hsee (1999) and Hsee et al. (2003) interpret reversals between hypothetical choice and predicted SWB as evidence of mistakes in choice behavior. For careful discussions of the appropriate notion of welfare, see, e.g., Tversky and Griffin (1991), Loewenstein and Ubel (2008), and Fleurbaey (2009).

[32] Our results may also overstate the extent to which standard SWB questions provide a good measure of preferences because standard questions are asked absolutely ("How satisfied are you with your life?"), while our SWB questions are asked relatively ("Between these two options, which do you think would make you more satisfied with life?"). Different individuals may apply different scales to a greater extent for an absolute measure, making it more difficult to translate an absolute SWB measure into a meaningful utility number than might be suggested by our results.

incentivized choice gap, this finding in turn suggests that the increasingly-common practice of estimating implicit willingness to pay for non-market goods by comparing the coefficient on income with that on another variable in multivariate SWB regressions may bias these estimates upwards relative to incentivized-choice-based estimates.

Our scenario-based methodology could be usefully applied in several new directions. First, the method of assessing choice-SWB correspondence could be used to assess new SWB measures that might predict hypothetical choice better than existing SWB measures. Our findings suggest that responses to existing measures do not fully capture the weight that factors such as sense of purpose have in explaining choice. Additionally, existing SWB measures may primarily reflect current feelings, rather than also reflecting anticipated future SWB flows. In BHKR we describe pilot data we collected on two novel measures aimed at addressing these issues, neither of which appears to predict choice any better than existing measures. Nonetheless, developing new measures seems an especially promising area for further research.[33]

Second, our method could be used to provide more tailored guidance for applied work by asking about scenarios that are intended to address specific issues of interest. To illustrate this point, we pilot four such scenarios at the end of our Cornell repeat-survey. For example, to reconcile the intuition that Americans today are better off than in the past with the finding that average SWB has remained flat in the U.S. over the past decades (Richard A. Easterlin, 1974, 1995; see Betsey Stevenson and Justin Wolfers, 2008, for a recent assessment), we ask respondents to rank being born in 1950 versus being born in 1990 in both choice and SWB questions. Although our respondents overwhelmingly favor being born in 1990 in both questions, more choose 1990 despite believing that they would be happier in 1950 than the reverse. This result indeed suggests that some people prefer being born later even if it does not make them happier. For another example, to reconcile the intuition that expanding political and economic freedoms for women have made women better off with the finding that average SWB among women has declined in the U.S. since the 1970s, both absolutely and relative to men (Stevenson and Wolfers, 2009), we ask respondents to rank living in a world with or without these expanded freedoms for women. Again, significantly more respondents choose a world with these expanded

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[33] Since different SWB questions seem to capture distinct dimensions of well-being that correlate differently with income and other variables (e.g., Kahneman and Deaton, 2010), future research could also explore whether a combination of SWB questions predicts choice better than any individual SWB question alone (including ladder- or mountain-type SWB questions, which we do not study in this paper).

freedoms for women in spite of believing that a world without them would make them happier than the reverse. For further examples and full details, see BHKR.

Finally, some researchers have attempted to identify the key non-SWB aspects of life that are associated with greater welfare (e.g., Sen, 1985). Others have called for an SWB-based "national well-being index" to provide a measure of welfare that captures factors not represented in economic indicators such as GDP (e.g., Diener et al., 2009). To the best of our knowledge, our paper is the first attempt to empirically estimate weights on SWB and other factors in a way that might be useful for combining them into an overall index for predicting what *individuals themselves* would choose. If hypothetical choices are assumed to reveal preferences that are relevant for evaluating welfare, then our method could be applied more systematically for the purpose of developing a well-being index.

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Table 1: Study-Specific Information

Study Location	Denver		CNSS	Cornell	
Choice vs. SWB: Within- or Between-Subjects	Within	Between	Within	Within	Between
Sample Population	Volunteers at a doctor's waiting room		Nationally representative	Cornell students	
Observations	497	569	1000	432[†]	201
Scenarios used	1, 3, 4, 11, 12, 13	1, 2, 3, 4 (version 2), 12 (v2), 13	1	1-10 (with v2 for scenario 4)	
SWB Question Format	Observations for each SWB question format				
(*i*) Life Satisfaction					
(Isolated)	164	569			
(*ii*) Happiness with Life as a Whole					
(Isolated)	162		1000		
(*iii*) Felt Happiness					
(Isolated)	171				
(*iv*) Own Happiness with Life as a Whole					
Isolated				107	201
First/Last In Series				107	
(*v*) Immediately Felt Own Happiness					
Isolated				110	
First/Last In Series				108	
SWB Response Scale	6-point		Binary	7-point	
Choice Response Scale	6-point		Binary	6-point	
Meta-Choice Question?	Yes	No	No	Yes	No
Order variations					
Scenario order	4-1-11-12-13-3	1-2-12-13-3-4	1	1-2- … -9-10	
	3-13-12-11-1-4	3-13-12-2-1-4[‡]			
Question order	Choice-Meta-SWB SWB-Choice-Meta		SWB-Choice	Choice-SWB	
Aspects of life order				Two opposite orderings of aspects	
Summary: number of questionnaire versions	12	4	1	8	4

Notes: See section I for the framing of the choice, SWB, and meta-choice questions. See the Appendix for a full description of each scenario. The scenarios corresponding to the scenario-numbers above are: (1) sleep vs. income, (2) concert vs. birthday, (3) absolute income vs. relative income, (4) legacy vs. income, (5) apple vs. orange, (6) money vs. time, (7) socialize vs. sleep, (8) family vs. money, (9) education vs. social life, (10) interest vs. career, (11) concert vs. duty, (12) low rent vs. short commute, (13) friends vs. income.
† Of these, 230 were surveyed twice, allowing us to conduct measurement-error-corrected estimation.
‡ Scenario 4 is always presented last because it is followed by both a choice and a SWB question. In order to have a clean between-subjects design, we did not want subjects to know we were interested in both choice and SWB until after subjects were done with the rest of the scenarios. We also note that this scenario is presented in four different order-versions, so strictly speaking, the Denver between-subjects study includes the four questionnaire versions reported in the table's bottom row, times four (sixteen versions in total).

Table 2: Choice and SWB Responses Across Studies and Scenarios (Within-Subject Data)

	Denver							**CNSS**
Choice Scenario	1	3	4	11	12	13		1
For exact phrasing see Appendix	Sleep vs Income	Abs. Inc. vs Rel. Inc.	Legacy vs Income	Concert vs Duty	Low Rent vs Short Commute	Friends vs Income		Sleep vs Income
Higher SWB: Option 1 Chosen: Option 1	58%	48%	24%	16%	52%	50%		74%
Higher SWB: Option 2 Chosen: Option 2	29%	42%	60%	65%	32%	34%		18%
Higher SWB: Option 2 Chosen: Option 1	1%	6%	2%	12%	11%	2%		1%
Higher SWB: Option 1 Chosen: Option 2	12%	4%	14%	7%	5%	14%		7%
p-value from Liddell Exact Test	0.000	0.350	0.000	0.024	0.002	0.000		0.000
	n = 425	n = 420	n = 422	n = 422	n = 425	n = 422		n = 972

	Cornell									
Choice Scenario	1	2	3	4	5	6	7	8	9	10
For exact phrasing, see Appendix	Sleep vs Income	Concert vs Birthday	Abs. Inc. vs Rel. Inc.	Legacy vs Income	Apple vs Orange	Money vs Time	Socialize vs Sleep	Family vs Money	Education vs Social life	Interest vs Career
					Version 2					
Higher SWB: Option 1 Chosen: Option 1	29%	29%	41%	44%	45%	44%	62%	68%	53%	27%
Higher SWB: Option 2 Chosen: Option 2	46%	49%	43%	31%	50%	37%	15%	15%	22%	35%
Higher SWB: Option 2 Chosen: Option 1	1%	7%	14%	8%	2%	14%	17%	5%	22%	3%
Higher SWB: Option 1 Chosen: Option 2	23%	15%	2%	17%	3%	5%	6%	12%	3%	35%
Indifference for SWB	8%	14%	13%	10%	37%	22%	10%	5%	6%	6%
p-value of Liddell Exact Test	0.000	0.002	0.000	0.001	0.424	0.000	0.000	0.001	0.000	0.000
	n = 397	n = 368	n = 375	n = 387	n = 270	n = 333	n = 385	n = 409	n = 402	n = 402

Notes: Response distribution by study and scenario. For the complete text of each scenario, see the Appendix. If a scenario's phrasing changed meaningfully between surveys, the version of the scenario is indicated in the first row of the study block. The Liddell Exact Test is a paired equality-of-proportions test of the null hypothesis that mean response to choice question = mean response to SWB question. In the Cornell data, where respondents could indicate SWB indifference, responses indicating indifference were dropped before conducting the test.

Table 3: Regressions of Choice on Aspects of Life

| Measurement error correction	OLS				Ordered Probit	Probit	
	None	None	None	SIMEX Corrected Additive	None	None	SIMEX Corrected Additive
Own happiness	0.54***		0.46***	0.59***	0.37***	0.37***	0.48***
	(0.009)		(0.010)	(0.014)	(0.009)	(0.012)	(0.019)
Family happiness		0.15***	0.08***	0.11***	0.06***	0.09***	0.13***
		(0.017)	(0.015)	(0.026)	(0.012)	(0.017)	(0.032)
Health		0.07**	0.00	0.00	0.01	0.01	0.02
		(0.021)	(0.019)	(0.031)	(0.016)	(0.022)	(0.042)
Life's level of romance		-0.00	-0.01	0.01	-0.00	-0.00	0.04
		(0.024)	(0.021)	(0.033)	(0.018)	(0.025)	(0.045)
Social life		-0.01	-0.03	-0.05	-0.02	-0.02	-0.04
		(0.020)	(0.018)	(0.028)	(0.015)	(0.021)	(0.036)
Control over your life		0.17***	0.08***	0.11***	0.06***	0.09***	0.13***
		(0.017)	(0.015)	(0.025)	(0.012)	(0.017)	(0.028)
Life's level of spirituality		-0.08**	-0.02	-0.04	-0.02	-0.04	-0.05
		(0.024)	(0.021)	(0.036)	(0.018)	(0.025)	(0.047)
Life's level of fun		0.13***	0.05*	0.03	0.04*	0.04*	0.03
		(0.021)	(0.018)	(0.031)	(0.015)	(0.021)	(0.036)
Social status		0.07***	0.06***	0.07**	0.05***	0.07***	0.10***
		(0.016)	(0.014)	(0.023)	(0.012)	(0.016)	(0.027)
Life's non-boringness		0.07***	-0.01	-0.01	0.00	0.00	0.01
		(0.020)	(0.017)	(0.030)	(0.014)	(0.020)	(0.037)
Physical comfort		0.09***	0.04**	0.03	0.04**	0.05**	0.04
		(0.017)	(0.014)	(0.023)	(0.012)	(0.017)	(0.030)
Sense of purpose		0.21***	0.12***	0.13***	0.10***	0.12***	0.14***
		(0.015)	(0.013)	(0.022)	(0.011)	(0.015)	(0.025)
Observations	6217	6217	6217	6217	6217	6217	6217
(pseudo) R^2	0.38	0.21	0.41		0.19	0.35	

Notes: Standard errors in parentheses. In the OLS and ordered probit regressions, the dependent variable is 6-point choice. In the probit regressions the dependent variable is binary choice. All regressions use 7-point ratings of aspects. Based on 633 Cornell respondents. Each observation is a respondent's choice and aspect ratings for one scenario; there are 10 observations per respondent corresponding to the 10 scenarios in the questionnaires. Probit and ordered probit regressions include (unreported) scenario fixed effects. OLS regressions' variables are demeaned at the scenario level, generating coefficients equivalent to those generated by including scenario fixed effects. Measurement error corrections are done using the Simulation-Extrapolation method described in section III, under the assumption of additive measurement error. Observations with missing data in any variable are excluded from all regressions. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: OLS Regressions of Choice on All Aspects of Life, by Scenario

Choice Scenario *For exact phrasing, see Appendix*	All scenarios pooled	1 Sleep vs Income	2 Concert vs Birthday	3 Abs. Inc. vs Rel. Inc.	4 Legacy vs Income	5 Apple vs Orange	6 Money vs Time	7 Socialize vs Sleep	8 Family vs Money	9 Education vs Social life	10 Interest vs Career
Own happiness	0.46***	0.38***	0.44***	0.52***	0.44***	0.73***	0.53***	0.31***	0.53***	0.35***	0.27***
	(0.010)	(0.031)	(0.031)	(0.032)	(0.031)	(0.036)	(0.036)	(0.032)	(0.033)	(0.029)	(0.030)
Family happiness	0.08***	0.07*	0.01	0.16***	0.05	0.16	0.15*	-0.09	0.05	0.14***	0.21***
	(0.015)	(0.032)	(0.071)	(0.046)	(0.041)	(0.159)	(0.059)	(0.053)	(0.050)	(0.037)	(0.041)
Health	0.00	-0.05	-0.07	-0.11	-0.04	0.05	0.06	0.18***	0.05	-0.03	-0.06
	(0.019)	(0.055)	(0.076)	(0.077)	(0.058)	(0.065)	(0.075)	(0.054)	(0.057)	(0.044)	(0.063)
Life's level of romance	-0.01	0.08	-0.02	0.07	-0.00	-0.67**	-0.10	0.02	-0.03	0.01	0.01
	(0.021)	(0.059)	(0.064)	(0.078)	(0.066)	(0.228)	(0.086)	(0.054)	(0.068)	(0.053)	(0.072)
Social life	-0.03	-0.02	0.02	-0.01	0.00	0.02	0.04	-0.00	-0.05	-0.04	0.01
	(0.018)	(0.055)	(0.043)	(0.056)	(0.058)	(0.225)	(0.071)	(0.065)	(0.053)	(0.053)	(0.054)
Control over your life	0.08***	0.02	0.05	0.04	0.08*	-0.00	0.07	0.15***	0.05	0.06	0.07*
	(0.015)	(0.042)	(0.053)	(0.056)	(0.039)	(0.093)	(0.052)	(0.043)	(0.049)	(0.038)	(0.035)
Life's level of spirituality	-0.02	-0.04	-0.00	-0.16	0.13*	0.31	-0.15	-0.01	-0.15*	-0.00	-0.01
	(0.021)	(0.049)	(0.061)	(0.090)	(0.055)	(0.221)	(0.091)	(0.076)	(0.062)	(0.054)	(0.068)
Life's level of fun	0.05*	0.06	0.15**	0.04	0.05	-0.08	0.13	-0.03	0.03	0.06	-0.00
	(0.018)	(0.042)	(0.051)	(0.066)	(0.047)	(0.127)	(0.068)	(0.073)	(0.059)	(0.057)	(0.057)
Social status	0.06***	-0.00	0.04	0.05	0.04	-0.27	-0.01	0.06	0.11	0.06*	0.16***
	(0.014)	(0.036)	(0.045)	(0.040)	(0.036)	(0.227)	(0.061)	(0.059)	(0.060)	(0.029)	(0.043)
Life's non-boringness	-0.01	0.05	-0.03	0.22**	-0.01	0.09	-0.03	0.18**	-0.05	-0.02	0.05
	(0.017)	(0.037)	(0.054)	(0.078)	(0.047)	(0.121)	(0.060)	(0.062)	(0.061)	(0.055)	(0.055)
Physical comfort	0.04**	0.09*	0.00	-0.05	0.00	0.21**	-0.00	0.05	-0.10*	0.06	-0.02
	(0.014)	(0.036)	(0.060)	(0.054)	(0.042)	(0.066)	(0.049)	(0.048)	(0.041)	(0.040)	(0.049)
Sense of purpose	0.12***	0.17***	0.12**	0.12**	0.12**	0.29*	0.05	0.04	0.09*	0.17***	0.17***
	(0.013)	(0.038)	(0.047)	(0.044)	(0.041)	(0.119)	(0.050)	(0.044)	(0.046)	(0.037)	(0.029)
Observations	6217	615	621	620	624	624	619	622	625	626	621
R^2	0.41	0.46	0.43	0.53	0.41	0.58	0.42	0.32	0.38	0.43	0.37
Incremental R^2	0.03	0.06	0.03	0.04	0.04	0.02	0.02	0.07	0.02	0.08	0.13

Notes: Standard errors in parentheses. OLS regressions of 6-point choice on 7-point aspects of life. Based on 633 Cornell respondents. The left-most column aggregates data across choice scenarios; each of the other columns corresponds to a specific scenario. Each observation is a respondent's choice and aspect ratings for one scenario; there are 10 observations per respondent corresponding to the 10 scenarios in the questionnaires. All variables are demeaned at the scenario level, generating coefficients equivalent to those generated by including scenario fixed effects. "Incremental R^2" is the difference in R^2 between the reported multivariate regression and a univariate regression of choice on own happiness; it represents the increased percentage of variation in choice that can be explained by including the additional aspects. Observations with missing data in any variable are excluded from the regression. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1: Raw Response Distributions (Choice and Aspects of Life)
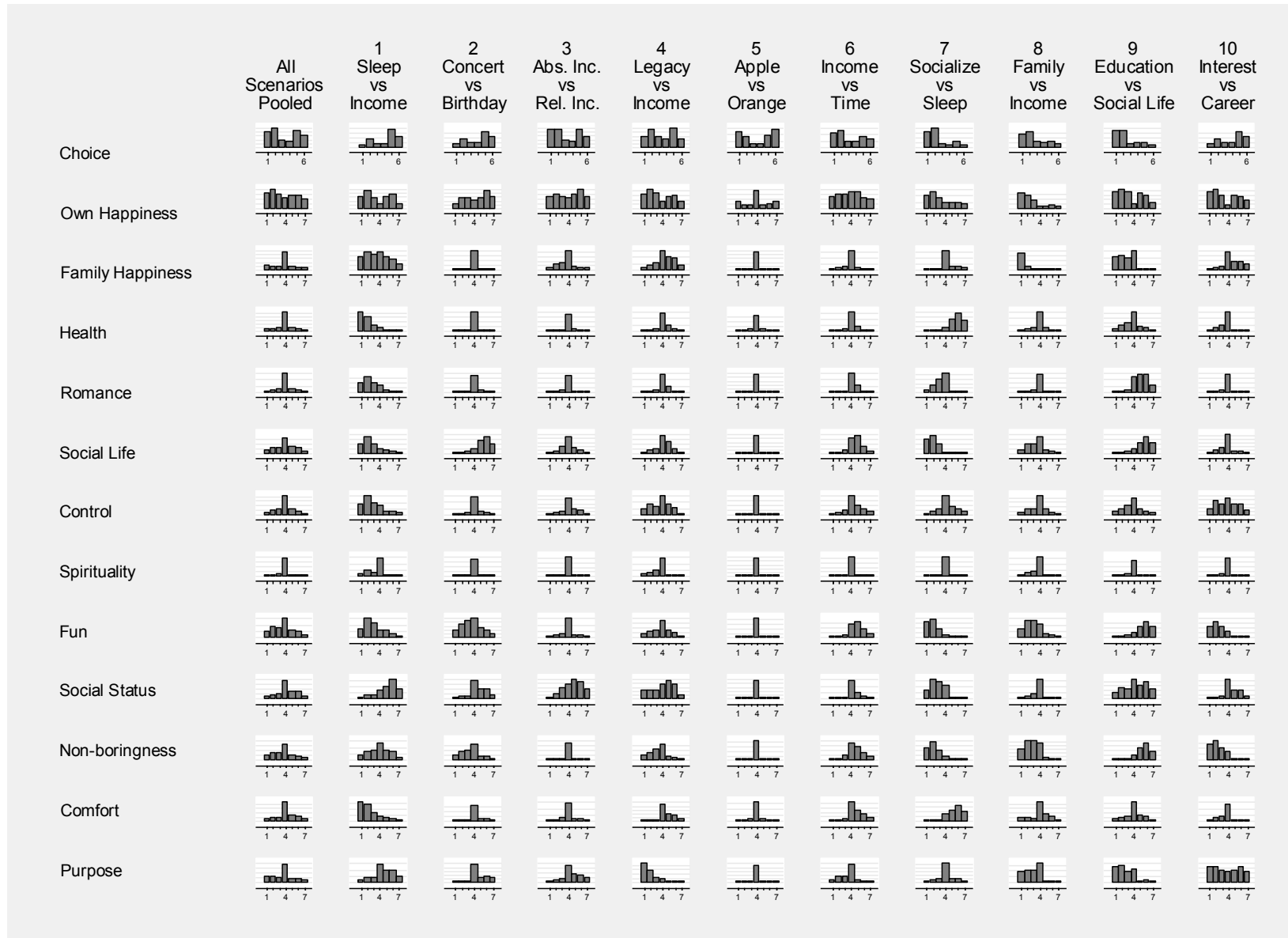
Notes: Based on 633 Cornell respondents. The histograms show the distribution of 6-point responses to the choice question (top row) and 7-point responses to the aspect questions (bottom twelve rows). The left-most column aggregates data across choice scenarios; each of the other columns corresponds to a specific scenario.

Appendix: Scenarios Presented in Surveys

Scenario 1: Sleep vs. Income

Say you have to decide between two new jobs. The jobs are exactly the same in almost every way, but have different work hours and pay different amounts.

Option 1: A job paying $80,000 per year. The hours for this job are reasonable, and you would be able to get about 7.5 hours of sleep on the average work night.

Option 2: A job paying $140,000 per year. However, this job requires you to go to work at unusual hours, and you would only be able to sleep around 6 hours on the average work night.

Scenario 2: Concert vs. Birthday

Suppose you promised a close friend that you would attend his or her 50th ["21st" in student samples] birthday dinner. However, at the last minute you find out that you have won front row seats to see your favorite musician, and the concert is at the same time as the dinner. This is the musician's last night in town. You face two options:

Option 1: Skip your friend's birthday dinner to attend the concert.

Option 2: Attend your friend's birthday dinner and miss the concert.

Scenario 3: Absolute Income vs. Relative Income

Suppose you are considering a new job, and have offers from two companies. Even though all aspects of the two jobs are identical, employees' salaries are different across the two companies due to arbitrary timing of when salary benchmarks happened to be set. Everyone in each company knows the other employees' salaries. You must choose one of the two companies, which means you must decide between the following two options:

Option 1: Your yearly income is $105,000, while on average others at your level earn $120,000.

Option 2: Your yearly income is $100,000, while on average others at your level earn $85,000.

Scenario 4: Legacy vs. Income

(*Phrasing in Denver within-subject study*): Suppose you are a skilled artist, and you have to decide between two career paths for your life.

Option 1: You devote yourself to your own style of painting. This would require a number of sacrifices, such as having less time for friends and family, and making less money. For example, you expect that selling your paintings will give you an income of $40,000 a year. If you choose this path, you don't expect that your work will be appreciated in your lifetime, but posthumously you will make an impact on the history of art, achieve fame, and be remembered in your work.

Option 2: You become a graphic designer at an advertising company. This would give you more money and more time with friends and family than Option 1. The company is offering you a salary of $60,000 a year, which will afford you a much more comfortable lifestyle, but you will have no impact and leave no legacy to be remembered.

(Version 2: *Phrasing in Denver between-subjects study and Cornell studies*): Suppose you are a skilled artist, and you have to decide between two career paths for your life. There are two styles of painting that you consider to be your own style, and you enjoy both equally. Style 1 happens to be much less popular than Style 2 today, but you know it will be an important style in the future.

Option 1: You devote yourself to Style 1. You expect that selling your paintings will give you an income of $40,000 a year. If you choose this path, you don't expect that your work will be appreciated in your lifetime, but posthumously you will make an impact on the history of art, achieve fame, and be remembered in your work.

Option 2: You devote yourself to Style 2. You expect that selling your paintings will give you an income of $60,000 a year, but you will have no memorable impact.

[In the Denver between-subjects study, each subject saw this question three times, with different

income levels in Option 2. Income levels could be $42,000, $60,000, $80,000, or $100,000.]

Scenario 5: Apple vs. Orange

Suppose you are checking out a new supermarket that just opened near where you live. As you walk by the fresh fruit display, you are offered your choice of a free snack:

Option 1: A freshly sliced apple.

Option 2: A freshly sliced orange.

Scenario 6: Money vs. Time

Suppose that due to budget cuts, the school implements a "student activities fee" of $15 dollars a week to help pay for maintenance of facilities used for extracurricular student activities. However, the school allows you to not pay the fee if instead you put in 2 hours of service a week shelving books at the library. You face two options:

Option 1: Spend 2 hours a week shelving books.

Option 2: Pay $15 a week.

Scenario 7: Socialize vs. Sleep

Say you are hanging out with a group of friends at your friend's room. You are having a really good time, but it is getting to be late at night. You have to decide between two options.

Option 1: Stay up another hour. It is likely you will feel tired all day tomorrow, but this particular evening you are having an especially fun time.

Option 2: Excuse yourself from the group, and go to bed. You will be disappointed to miss the fun, but you know you will feel better the next day and be more productive at paying attention in class and doing your homework.

Scenario 8: Family vs. Money

Imagine that for the first time in three years, your parents (or if your parents are gone, your closest relatives who are older than you) have arranged for a special family gathering that will happen the day after Thanksgiving, with everyone also invited to Thanksgiving dinner. You face two options. Would you choose to go to the family gathering the day after Thanksgiving (and maybe to Thanksgiving dinner) if getting there required a $500 roundtrip plane ticket for plane flights that were 5 hours each way?

Option 1: Go to the thanksgiving gathering, which requires a $500 round trip plane ticket.

Option 2: Miss the thanksgiving gathering, but save the money.

Scenario 9: Education vs. Social Life

Suppose you have decided to leave Cornell, and are transferring to a new school. You have been accepted to two schools, and are deciding where to go. The first school is extremely selective and high quality, but is in a small town out in the country with a less active social scene. The second school is in a major city with a great social scene, but is slightly less renowned. Which would you choose?

Option 1: Highly selective school, isolated socially and geographically.

Option 2: Less selective school, socially active and in a major city.

Scenario 10: Interest vs. Career

Suppose you are considering two summer internships. One is extremely interesting and involves work you are passionate about, but does not advance your career. The other will likely be boring, but will help you get a job in the future. Which would you choose?

Option 1: Interesting internship which does not advance career.

Option 2: Boring internship which will help you get a job.

Scenario 11: Concert vs. Duty

Say you are driving by yourself to see your favorite musician in concert on their last day in town. You are five minutes away, and the concert starts in ten minutes. On the drive, you witness a truck hit a parked car, causing roughly $500 in damages, and then drive away without leaving their information. You notice the truck's license plate, and you are the only witness. You face two options:

Option 1: Keep driving and get to the concert on time.

Option 2: Call the police, in which case you will have to wait around the parked car to give a testimony. This would take about half an hour. You would have trouble finding a seat and might miss the whole concert.

Scenario 12: Low Rent vs. Short Commute

(*Phrasing in Denver within-subject study*): Say you are moving to a new town. You are trying to decide between two similar apartments which you could rent. The two apartments are identical in almost everything – including floor plan, amenities, neighborhood character, schools, safety, etc. However, they have different rents and are located at different distances from your work.

Option 1: An apartment which requires a 45-minute drive to work. The rent is about 20% of your monthly income.

Option 2: A similar apartment, with only a 10-minute drive. The rent is about 40% of your monthly income.

(Version 2: *Phrasing in Denver between-subject study*): Say you are moving to a new town. The new town is known for its terrible traffic jams, and driving there is widely considered to be unpleasant. You are trying to decide between two similar apartments which you could rent. The two apartments are identical in almost everything – including floor plan, amenities, neighborhood character, schools, safety, etc. However, they have different rents and are located

at different distances from your work.

Option 1: An apartment which requires a 45-minute drive each way to work. The commute has heavy traffic almost the whole way. The rent is about 20% of your monthly income.

Option 2: A similar apartment which requires a 10-minute drive each way to work. The commute has heavy traffic almost the whole way.   The rent is about 40% of your monthly income.

Scenario 13: Friends vs Income

Say you have been reassigned at your job, and will be moved to a new location. There are two offices where you could request to work. One office is in a city where many of your friends happen to live, and pays 20% less than your current salary. The other office is in a city where you don't know anyone, and pays 10% more than your current salary. Your job will be exactly the same at either office. You must decide between the following two options:

Option 1: Make 20% less than your current salary and move to the city with your friends.

Option 2: Make 10% more than your current salary and move to a city where you do not know anyone.