What Do Happiness Data Mean? Theory and Survey Evidence

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Abstract
What utility notion do self-reported well-being (SWB) questions measure? We clarify the assumptions that underlie existing applications regarding the (i) life domains, (ii) time horizons, and (iii) other-regarding preferences captured by SWB data. We ask survey respondents what they had in mind regarding (i)–(iii) when answering commonly used—life satisfaction, happiness, ladder—and new SWB questions. Respondents put most weight on the present and on themselves—but not enough to interpret SWB data as measuring notions of flow utility and self-centered utility. We find differences across SWB questions and across sociodemographic groups. We outline actionable suggestions for SWB researchers. [100 words]

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Web appendixes are available at the authors' websites.

Survey questions about one's well-being, such as questions about happiness and life satisfaction, are increasingly used in empirical work in economics. Most applications of the resulting data treat the survey responses as a measure of utility. Across different applications, however, such self-reported well-being (SWB)[1] responses are assumed, explicitly or implicitly, to capture *different* notions of utility. In some applications, SWB is assumed to capture the preference information that would be revealed by well-informed, deliberated choices, were they observed. On the time dimension, such utility is *forward looking*, and on the social dimension, it incorporates whatever *concern for others* individuals may have when making such choices. However, in other applications, SWB data is treated as a measure of "flow utility," i.e., the *contemporaneous* component of utility under the assumption of time-separable preferences; and, on the social dimension, of *self-regarding* utility or of *family-regarding* utility, i.e., excluding concern for all others or all except immediate family.

Which (if any) of these notions of utility is captured by SWB data? The answer typically matters for the interpretation of existing findings, and is sometimes crucial for an application of SWB data to be theoretically justified at all. Yet, despite how fundamental such assumptions are, to date little theoretical analysis and empirical evidence are available for evaluating them.[2]

This paper makes two contributions. In the first part, we adapt a simple, standard economic modeling framework to clarify the different assumptions that researchers often effectively make when using SWB data in applications. We use this framework to reinterpret several classes of existing applications, showing what can and cannot be learned from the data under different assumptions. In the paper's second part, to shed some empirical light on the extent to which these assumptions may hold for specific SWB questions, we conduct a survey where respondents introspect and report on how they construct their own answers to one of eight different SWB questions.

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[1] Following Bernheim (2016), we use the term *self-reported well-being* instead of the more standard term *subjective well-being* because Bernheim's term clarifies that we are studying a *measure* of well-being rather than well-being itself, which is inherently unobservable. (However, we retain the familiar abbreviation SWB, which could apply equally to both terms, rather than adopting Bernheim's abbreviation SRWB.)

[2] Moreover, different SWB questions could capture different notions of utility. Indeed, some prominent contributors to the SWB economics literature (e.g., Kahneman and Deaton, 2010) emphasize that different SWB measures have different sociodemographic correlates and argue that they capture different well-being notions. However, other prominent contributors (e.g., Frijters, Clark, Krekel, and Layard, 2020) emphasize the correlations across measures and argue that while some caveats remain, the different measures mostly measure the same underlying concept.

In Section I, we lay out our theoretical framework. Preferences are defined over one's own and others' lifetime consumption stream in different "life domains." These preferences are represented by expected discounted utility, possibly with altruism or spite toward others. We model the ways in which the utility notion captured by SWB data can deviate from these "full" preferences, either because it is limited to special (narrower) cases of this general framework, or because it integrates across domains, time, or others differently than preferences do. We focus on three particular classes of possible deviations: respondents may (i) put weights on various *life domains* when answering an SWB question that differ from the weights that would correspond to their preferences; or they may interpret the SWB question to be asking about (ii) a *time horizon* shorter than their entire life, corresponding to either forward-looking utility (i.e., ignoring past periods) or flow utility (i.e., ignoring all but the current period); or (iii) *social circles* smaller than everyone they may want to take into account in their choices, corresponding to either family-centered or self-centered utility.

In Section II, we consider the SWB literature from the point of view of our theoretical framework. We begin by briefly reviewing work that investigates whether SWB captures the same utility notion as choices (actual or hypothetical). Taken all together, that work concludes that SWB captures substantial preference information but is not identical to well-informed, deliberated choice-based utility. However, that work does not focus on asking to what extent (i), (ii), and (iii) are responsible for the deviations. We then document how applications that use SWB data, while routinely assuming away (i), make varying assumptions about (ii) and (iii)— including in some cases different papers making different assumptions about the *same* SWB data. Sometimes these assumptions are made explicitly, but more often there is no clear statement about how the SWB data are interpreted.

We also illustrate how in many common applications, these assumptions matter for the conclusions that can be drawn. For example, in economic applications, researchers often run a regression of current SWB on current income and current consumption of a "good" such as employment (e.g., Clark and Oswald, 2002), and calculate the money value of the good as the ratio of coefficients. We show that the theoretical interpretation of this empirical ratio depends on which utility notion is captured by SWB. For example, if SWB measures flow utility, then the estimated "dollar cost of unemployment" is a one-time cost, whereas if SWB measures lifetime utility, then (under some simplifying assumptions) it is an *annual* cost—so the total cost will be

many times higher. Which it is matters a great deal for use of the results in cost-benefit calculations. We also illustrate how assumptions about the SWB measure matter for drawing inferences from SWB data about whether people are making mistakes (as in, e.g., Dunn, Aknin, and Norton, 2008) and for interpreting SWB's increase with age later in life (e.g., Blanchflower and Oswald, 2008; Stone, Schwartz, Broderick, and Deaton, 2010). Returning to these points in the paper's concluding section, we call for SWB researchers to think carefully about, and explicitly state what utility notion—e.g., with respect to (i), (ii), and (iii)—they assume their SWB data capture.

Sections III–VI constitute the second part of our paper: in order to provide empirical evidence on (i), (ii), and (iii), we analyze a survey in which we elicit respondents' introspections on how they constructed their SWB responses. In Section III, we describe the design of our survey ($N \approx 3{,}000$), which we conducted among a demographically diverse (albeit not nationally representative) online sample of the U.S. adult population. Our survey begins by asking respondents an SWB question, either one of the three commonly asked questions that have been used in applied economics research—self-reports of happiness, life satisfaction, or where on a ladder of possible lives one would rank—or one of five new questions that we explore. The SWB question is followed immediately by a sequence of questions about how much weight respondents had put on various domains of life, time periods, and social circles when they answered the SWB question.

In Section IV, we analyze the weights respondents put on different life domains (such as physical health, income and financial security, and family life and relationships), related to (i). These weights also (a) allow us to compare the results from our introspective methodology with past results from revealed- and stated-preference methodologies about the relative marginal utilities across life domains, and (b) help us calibrate the response scales respondents use when assigning weights in our questions about time horizons and social circles. In Sections V and VI we use the questions about time horizons and social circles, respectively, to evaluate how well the SWB measures may correspond to notions of flow versus forward-looking versus lifetime utility (ii), and self-centered versus family-centered versus other-regarding utility (iii).

We report four main empirical findings. The first three, respectively corresponding with (i), (ii), and (iii), concern the relationship between different utility notions and respondents' introspections about how they answered the SWB question. The last addresses heterogeneity: the

extent to which the SWB questions relate to the *same* utility notion across sociodemographic groups. While all four main findings suggest caution when using existing SWB questions as proxies for *any* of the commonly assumed utility notions, each is accompanied by additional findings that also hint at ways to improve existing measures.

First, using the weights on life domains elicited in our survey, we broadly replicate past findings from the literature, discussed in Section II, that explores the relationship between choice (real or stated) and SWB. In particular, that literature finds that choice-based and SWB-based marginal rates of substitution (MRSs) are correlated yet different. Using our survey-elicited weights in place of the SWB-based MRSs used previously, we find a similar magnitude of correlation with stated-choice-based MRSs estimated in past work (Benjamin, Heffetz, Kimball, and Szembrot, 2014). This finding suggests that our survey-elicited weights may be reasonable proxies for the SWB-based MRSs. This and additional findings—e.g., that the weights are greater on domains that a SWB question explicitly asks about—make us more confident in our introspective methodology more generally.

Second, on average across respondents, we find that none of the SWB measures we examine corresponds closely to lifetime, forward-looking, or flow utility. The three commonly used SWB measures resemble flow more than lifetime or forward-looking utility, but they seem to also put weight on the past and future. We also find that the five new SWB measures we study evoke a variety of distinct time-horizon profiles, some more and some less flow-like than the three commonly used measures. Like some of our results about life domains, this finding again suggests that by rewording SWB questions, researchers may be able to nudge respondents in the direction of a desired utility notion (in this case, a desired time-horizon profile). One finding we did not anticipate is that, among the eight SWB questions we study, a new question we authored about "personal well-being" evokes the most flow-like time-horizon profile.

Third, regarding social circles, on average across respondents, the eight SWB measures we study look more similar to each other than they do with regard to time horizons. Respondents report putting the highest weight on themselves and second highest on their immediate family, with wider social circles receiving less weight. Thus, our results suggest that the SWB measures capture neither exclusively self-centered nor exclusively family-centered utility but may be consistent with other-regarding utility. We again find that small changes to SWB-question wording can be very effective in causing respondents to adjust the weights in a predictable

direction. For example, changing the wording of a SWB question from "personal" to "family" well-being yields dramatically more family-centered weight profiles. We also again have some unexpected findings, such as that the standard "ladder" SWB question yields more self-centered weights than other standard SWB questions (life-satisfaction and happiness).

Fourth, across sociodemographic groups, we find some heterogeneity in the extent to which the SWB questions resemble the above utility notions. For example, they resemble flow utility and family-centered utility more for women and the unemployed; men and the employed report putting higher relative weight on broader time horizons that cover their entire lives and on broader social circles that go far beyond their immediate family.

In Section VII we summarize results from an analysis (fully reported in Web Appendix Section 2) that illustrates how this heterogeneity in utility notions across sociodemographic groups may matter empirically. We focus on a common application of SWB data: regressions of SWB on respondent characteristics, often called "happiness regressions." We first estimate a typical happiness regression. We then re-estimate it with additional control variables, which are constructed from our survey-elicited weights to quantify respondent-level differences in weight profiles. We find that some sociodemographic coefficients are sensitive to the inclusion of self-versus-others-profile controls (but not time-profile controls, possibly due to measurement error in these controls). Our results imply that prioritizing policies based on comparing SWB coefficient magnitudes—including, e.g., pricing unemployment in dollars, as mentioned above—could be meaningfully impacted by accounting for weight-profile heterogeneity. While the heterogeneity itself implies that the coefficient magnitudes cannot be interpreted as corresponding to any particular (even if non-standard) utility notion, the sensitivity of the coefficients further implies that their magnitudes would change if respondents shared a SWB-question weight profile.

Section VIII concludes, briefly describes other introspective questions that we explored in our survey, and discusses broader implications of our findings. While our findings suggest caution in using SWB data for applications that require certain assumptions (e.g., that SWB captures flow utility or self-centered utility), they also suggest some readily applicable practical advice for the governmental agencies and research institutions that collect SWB data: rather than taking the wording of SWB questions as given, try to tailor them to correspond more closely to the purpose for which they will be used. Among the eight SWB questions we study, a newly

phrased Personal Well-Being question—"On a scale from 0 to 10, how would you rate your overall personal well-being?"—comes closest to eliciting self-centered flow utility and thus may be a useful point of departure for further refinements. More generally, our findings point toward a research agenda: existing SWB questions—originally designed more than half a century ago for different purposes—should be redesigned to fit their current uses by economists and policymakers as utility proxies.

While our theoretical contribution stands on its own—we think it is important to formally sort out the implications of the different assumptions made, often only implicitly, about SWB data—our empirical methodology has two main limitations. First, we rely on respondents' *reports* regarding *introspections*; both present challenges. Second, weights are reported (with noise) on a 0–100 scale with no clear cardinal interpretation. We discuss these limitations in Section IV.D, after describing our survey (in Section III) and analyzing the life-domain weights (in Sections IV.A–IV.C). As we explain there, our survey design and analysis take these limitations into account: we embed several falsification tests in our survey, cross-check our results against published results obtained with alternative methodologies, and explicitly state when our conclusions rely on more than an ordinal interpretation of the 0–100 scale.

We are aware of four prior papers that, while not using a formal framework as we do, use empirical methodologies similar to ours, asking one of several SWB questions and then asking respondents how they answered it. These papers report a rich set of findings from open-ended questions and interviews (Ross, Eyman, and Kishchuk, 1986; Ralph, Palmer, and Olney, 2011; Junghaenel et al., 2018) or brief questionnaires (Steffel and Oppenheimer, 1999) that study topics such as the frames of reference respondents use (e.g., comparisons to other people or an earlier time in life) when selecting an answer to a SWB question. Ralph et al. (2011) also study various other aspects of respondents' reactions to and interpretations of the SWB question. Our survey and analysis differ in our focus on utility notions used by economists and, in particular, our interest in the time-horizon and social-circle dimensions of utility.

I. Theoretical Framework

Our theoretical framework clarifies different possibilities regarding what preference information might be captured by an SWB question. This framework underlies our discussion of the literature in Section II and our survey design and analysis in the rest of the paper.

I.A. Preferences

Consider an individual who lives for T periods and has preferences over a stream of consumption vectors, $(c_0, c_1, \ldots, c_T)$. We assume time separability because most applications involving SWB data ignore intertemporal dependencies. Under this and other standard assumptions, preferences can be represented as expected discounted utility: for every period t,

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(1) \qquad U_t = E_t \sum_{\tau=0}^{T} \delta_{t,\tau} u(c_\tau),
$$

where $u(c_\tau)$ is period τ's *flow utility* and $\delta_{t,\tau} \geq 0$ is the discount factor used in period t for weighting the flow utility from period τ. For convenience, we normalize the discount factors so that $\delta_{t,t} = 1$. In most applications, economists assume exponential discounting ($\delta_{t,\tau} \equiv \delta^{\tau-t}$). We allow for more general discount functions to accommodate realistic alternatives, such as present-biased preferences (e.g., Laibson, 1997), and to nest different utility notions as restrictions on the $\delta_{t,\tau}$'s. In economic applications focused on choice behavior, past consumption is irrelevant, so past periods are omitted: $\delta_{t,\tau} = 0$ for $\tau < t$ but $\delta_{t,\tau} > 0$ for $\tau \geq t$. In that case, we refer to U_t as *forward-looking utility*. When past consumption is included—i.e., $\delta_{t,\tau} > 0$ for all τ—we refer to U_t as *lifetime utility* (as evaluated given beliefs in period t). In social welfare evaluation, a focus on forward-looking utility is problematic when comparing individuals who differ in age or have different discount functions (e.g., Jackson and Yariv, 2015; Millner and Heal, 2018); for this and other reasons (see, e.g., Adler, 2012, ch. 6), there is a strong tradition in welfare economics of using lifetime utility.

To model preferences over others' well-being, we first decompose each period-t consumption vector into the individual's own consumption vector, $c_{t,0}$, and the consumption vectors of each of K others whom the individual may care about: $c_t = (c'_{t,0}, c'_{t,1}, \ldots, c'_{t,K})'$. We then make the traditional assumption (as in Edgeworth, 1881) that the individual's utility is a weighted sum of the "internal" utilities of each person, and because we are also modeling intertemporal preferences, we apply this model to flow utilities:

$$(2) \qquad u(\mathbf{c}_t) = \sum_{k=0}^{K} \lambda_k u_k(\mathbf{c}_{t,k}),$$

where the internal flow utility functions, $u_k(\mathbf{c}_{t,k})$, have standard properties, the weight on self is normalized to $\lambda_0 = 1$, and $\lambda_k \in \mathbb{R}$ is the weight of person k's internal flow utility in the individual's (overall) flow utility. This formulation implies that λ_k is also the weight of person k's lifetime utility in the individual's lifetime utility, and similarly for forward-looking utility (because it assumes that the same discount function is applied to the internal flow utilities of oneself and other people). Many authors have argued that for welfare analysis—for example, for use as inputs into a social welfare function—at least some components of other-regarding preferences should be ignored (e.g., racism); see, e.g., Adler (2013) for a recent review. Indeed, the relevant component of preferences for welfare economics is often considered to be exclusively the self-regarding component (e.g., Hausman, 2012, ch. 8).

Substituting equation (2) into equation (1), our model of preferences is thus:

$$(3) \qquad U_t = E_t \sum_{\tau=0}^{T} \delta_{t,\tau} \sum_{k=0}^{K} \lambda_k u_k(\mathbf{c}_{\tau,k}).$$

Finally, the consumption vectors consist of D domains of life: $\mathbf{c}_{t,k} = \left(c_{t,k,1}, c_{t,k,2}, \ldots, c_{t,k,D} \right)'$.[3]

I.B. SWB

The preference information elicited by an SWB question depends on how respondents interpret what factors are relevant for answering the question and on how they weight those factors for the purpose of choosing an SWB response. To capture various possibilities, we model an individual's response to an SWB question asked in period t as:

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[3] Note that for certain aspects of preferences, such as status concerns, it may be observationally equivalent, or nearly so, to model them as domains of life or as other-regarding preferences. We return to this point in footnote 10 in Section IV when discussing how our survey handles status concerns.

$$(4) \qquad \widetilde{U}_t = E_t \sum_{\tau=0}^{T} \tilde{\delta}_{t,\tau} \sum_{k=0}^{K} \tilde{\lambda}_k \tilde{u}_k(c_{\tau,k}),$$

where we normalize $\tilde{\delta}_{t,t} = 1$ and $\tilde{\lambda}_0 = 1$, but the other SWB discount factors $\tilde{\delta}_{t,\tau}$, the weights on others $\tilde{\lambda}_k$, and the internal flow functions $\tilde{u}_k(\cdot)$ for $k \in \{0,1,2,\dots,K\}$ may or may not be the same as their preference counterparts $\delta_{t,\tau}$, λ_k, and $u_k(\cdot)$. We refer to $\widetilde{U}_t$ as the *SWB function*.

While equation (4) is rather general, applications in the SWB literature (discussed in Section II) typically make assumptions on how $\tilde{u}_k(\cdot)$, $\tilde{\delta}_{t,\tau}$, and $\tilde{\lambda}_k$ relate to $u_k(\cdot)$, $\delta_{t,\tau}$, and λ_k. Note that such assumptions are mutually independent: different assumptions about the three components can co-exist in equation (4). We now formalize some common assumptions.

Life Domains. Although we are unaware of it ever being made explicit, most applications in the SWB literature implicitly assume that the SWB function aggregates consumption across life domains in the same way that the utility function does: $\tilde{u}_k(\cdot)$ is implicitly assumed to be a positive affine transformation of $u_k(\cdot)$ (the same transformation for all $k \in \{0,1,2,\dots,K\}$). Contrary to this assumption, some researchers have argued on theoretical (e.g., Kimball and Willis, 2006; Becker and Rayo, 2008; Bernheim, 2016) or empirical (e.g., Benjamin, Heffetz, Kimball, and Rees-Jones, 2012, 2014; Glaeser, Gottlieb, and Ziv, 2016) grounds that people may weigh domains differently when answering an SWB question and when making well-informed, deliberated choices.

Time Horizon. Three different assumptions are commonly made in the literature regarding the time horizon over which preference information is captured by SWB data:

- *Lifetime utility*: $\tilde{\delta}_{t,\tau} = \delta_{t,\tau} > 0$ for all τ.
- *Forward-looking utility*: $\tilde{\delta}_{t,\tau} = \delta_{t,\tau} > 0$ for all $\tau \geq t$ and $\tilde{\delta}_{t,\tau} = 0$ otherwise.
- *Flow utility*: $\tilde{\delta}_{t,\tau} = 0$ for all $\tau \neq t$.

For completeness, we note that another possibility would be *backward-looking utility*: $\tilde{\delta}_{t,\tau} = \delta_{t,\tau} > 0$ for all $\tau \leq t$ and $\tilde{\delta}_{t,\tau} = 0$ otherwise. Although it does not correspond to any standard utility notion, and therefore is not a focus of our paper, backward-looking utility might be natural for survey respondents asked to reflect upon their lives. Indeed, one might conjecture that SWB questions, such as life satisfaction, would have a substantial backward-looking component. However, with the exception of a single new SWB question directly asking about the past, we do

not find strong support for this possibility in our analysis in Section V.B: asked the standard SWB questions we study, respondents put relatively little weight on their past few years and their entire lives so far.[4]

Social Circles. As to which other-regarding-preference information is captured by SWB data, we again view applications in the literature as making one of three assumptions:

- *Other-regarding utility*: $\tilde{\lambda}_k = \lambda_k$ for all k.
- *Family-centered utility*: $\tilde{\lambda}_k = \lambda_k$ for family members k and $\tilde{\lambda}_k = 0$ otherwise.
- *Self-centered utility*: $\tilde{\lambda}_k = 0$ for all $k \neq 0$.

Note that we do *not* require $\lambda_k \neq 0$ when assuming that the SWB function captures other-regarding or family-centered utility. For example, it could be that SWB data capture other-regarding utility, but the SWB function puts zero weight on person k ($\tilde{\lambda}_k = 0$) because one's preferences put zero weight on that person ($\lambda_k = 0$).

We note that even if some of the assumptions above hold such that the SWB function $\tilde{U}_t$ captures some utility notion U_t, and even if it is the same utility notion across survey respondents, there is a separate question of whether $\tilde{U}_t$ is the same monotonic transformation of U_t across survey respondents. Existing work on scale-use differences in SWB responses includes, e.g., Oswald (2008) and Kapteyn, Smith, and van Soest (2009). In this paper, we focus instead on the distinct question of whether $\tilde{U}_t$ can be interpreted as *any* monotonic transformation of a standard utility notion U_t.

I.C. Identification Strategy

Our survey aims to shed light on whether, and to what extent, responses to an SWB question satisfy some of the necessary conditions for the above assumptions to hold. As we detail below, we ask respondents how they weighted different life domains, time horizons, and social circles when they answered an SWB question. The survey can therefore inform us about the

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[4] Some SWB questions (which we do not study) are explicitly backward-looking. Examples include questions about happiness and other emotions yesterday or in the past week (as in many surveys, including the Gallup-Healthways Well-Being Index) or during a particular episode of the day (as in the Day Reconstruction Method; Kahneman, Krueger, Schkade, Schwarz, and Stone, 2004). The use of such SWB questions is not motivated by some backward-looking utility notion, but rather by their potential to be convenient measures of just-experienced flow utility, or of the integral of flow utility over a recent period of time. When the flow of hedonic experiences or its integral is measured, the object of measurement is sometimes referred to as "experienced utility" (Kahneman, Wakker, and Sarin, 1997).

components $\tilde{u}_k(\cdot)$, $\tilde{\delta}_{t,\tau}$, and $\tilde{\lambda}_k$ of the SWB function $\tilde{U}_t$ of each SWB question we study.

However, the survey provides no information about the components $u_k(\cdot)$, $\delta_{t,\tau}$, and λ_k of the utility function U_t. Thus, we cannot *directly* test $\tilde{u}_k(\cdot) = u_k(\cdot)$, $\tilde{\delta}_{t,\tau} = \delta_{t,\tau}$ and $\tilde{\lambda}_k = \lambda_k$.

Our survey is informative, however, about whether $\tilde{\delta}_{t,\tau} \neq 0$ for particular time periods τ and whether $\tilde{\lambda}_k \neq 0$ for particular groups of other people k. This allows us to draw certain conclusions about the assumptions above under certain conditions, as we describe in more detail in Sections IV–VI. For example, finding $\tilde{\delta}_{t,\tau} \neq 0$ for $\tau < t$ provides evidence against the assumption that SWB captures flow or forward-looking utility, while finding $\tilde{\lambda}_k \neq 0$ for any $k \neq 0$ provides evidence against a self-centered-utility assumption. Our survey also provides some information about how $\tilde{\delta}_{t,\tau}$ varies with τ and how $\tilde{\lambda}_k$ varies with k. Finally, because—as we detail in Section III—respondents are randomly assigned into one of eight groups, each answering a different SWB question, preferences are on average the same across the groups; any differences in weights found across the eight SWB questions must therefore reflect differences across SWB functions. This point underlies our falsification tests, which look for sensible changes in weights in response to changes in question wording. It also means that when we find differences in weights across SWB questions, we can reject the assumption that the SWB questions *all* capture the same utility notion.

In the next section, we discuss existing work in the SWB literature in light of our theoretical framework before turning to our survey and results in the remainder of the paper.

II. Assumptions About Utility in the SWB Literature
II.A. SWB = Preferences

According to some leading philosophical conceptions of well-being (e.g., Railton, 1986), preferences are identified with the choices a person would make after deliberation when well informed about the consequences of her options. In our framework, SWB would be a measure of such preferences—i.e., the utility function that is maximized by well informed, deliberated choices—if the SWB responses capture (i) the same function of the different life domains as utility, (ii) a utility notion whose forward-looking component coincides with forward-looking utility (any backward-looking component is irrelevant for choice, as long as preferences are time-separable), and (iii) other-regarding preferences.

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One approach to evaluating the extent to which SWB is a good measure of preferences is based on the theory of spatial equilibrium: in equilibrium, across any two geographic locations, there is a marginal resident who is indifferent between staying and moving. Assuming equilibrium and other strong assumptions (which we do not evaluate here), if SWB captures preferences, then mean SWB should be equal across locations. Using a variety of datasets with different SWB measures, a number of papers find evidence of non-trivial differences in mean SWB across locations in the U.S. (e.g., Glaeser and Redlick, 2009; Oswald and Wu, 2010; Glaeser, Gottlieb, and Ziv, 2016). Although their paper mainly focuses on changes over time, Glaeser, Gottlieb, and Ziv (2016) point out that this finding is evidence against SWB being a good measure of preferences. Interestingly, Oswald and Wu (2010) find that mean SWB in a U.S. state is correlated with the state's "quality of life" (the dollar value of amenities predicted from state-level regressions on amenities of wages, rents, and prices). Glaeser et al. interpret this finding as suggesting that SWB captures the utility benefits from local amenities but not the utility costs of foregone consumption due to lower wages relative to local living costs. In our notation, this hypothesis means that $\widetilde{U}_t$ is not a positive monotonic transformation of U_t and, in particular, $\widetilde{U}_t$ is more impacted by local amenities, while U_t is more impacted by purchasing power. The difference between them could be driven by differences between any of $\tilde{u}_k(\cdot)$, $\tilde{\delta}_{t,\tau}$, and $\tilde{\lambda}_k$ and, respectively, $u_k(\cdot)$, $\delta_{t,\tau}$, and λ_k.[5]

The other approach is based on survey data on people's predictions of the SWB consequences of different possible choices. Researchers ask whether people's (hypothetical or actual) choices coincide with what they believe would maximize their SWB (Benjamin, Heffetz, Kimball, and Rees-Jones, 2012, 2014; Fleurbaey and Schwandt, 2016; Adler, Dolan, and Kavetsos, 2017; Szabó and Ujhelyi, 2017). For example, Benjamin, Heffetz, Kimball, and Rees-Jones (2014) ask graduating medical students to report their just-submitted ranking over residency programs, and to predict their SWB under each program. While the students usually choose the option they anticipate would maximize their SWB, there are systematic discrepancies. Other perceived aspects of the residency programs—including stress, the quality of social life,

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[5] Here are examples: the MRS of consumption of local parks relative to private consumption may be greater in $\tilde{u}_k(\cdot)$ than in $u_k(\cdot)$; the foregone future consumption (from higher living costs) may matter less for SWB than for utility if the SWB discount factors $\tilde{\delta}_{t,\tau}$ weight the future less than the utility discount factors $\delta_{t,\tau}$; and community members' enjoyment of local amenities may affect SWB more than utility if their weights in the SWB function, $\tilde{\lambda}_k$ for community members k, are greater than their corresponding weights in the utility function, λ_k.

desirability of the location, prestige, and future career prospects—help explain respondents' choices, controlling for anticipated SWB.

In our reading, the general finding from this literature is that standard SWB measures capture substantial information about preferences, but do not coincide with the utility that well-informed, deliberated choices aim to maximize. Some of the work specifically aims to rule out, to the extent possible, a $\tilde{\delta}_{t,\tau} \neq \delta_{t,\tau}$ explanation, by carefully controlling the time-horizon interpretation of anticipated-SWB questions.[6] The SWB-choice discrepancies that remain are thus likely driven by differences between $\tilde{u}_k(\cdot)$ and $u_k(\cdot)$ or between $\tilde{\lambda}_k$ and λ_k.

II.B. Time Horizon

Few papers that apply SWB data explicitly discuss which intertemporal preference information is captured by the SWB measure. Exceptions include Gruber and Mullainathan (2005) and Blanchflower and Oswald (2004), both of whom analyze the General Social Survey (GSS) happiness question ("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?"). In their 2002 working paper, Gruber and Mullainathan (pp. 24, 28–29) argue that their evidence is most consistent with forward-looking utility. In contrast, Blanchflower and Oswald (p. 1362) state that the *same* question is "more naturally interpreted as a flow rather than a stock." Another exception is Alesina, Di Tella, and MacCulloch (2004), who also analyze this same GSS happiness question, as well as a life satisfaction question from the Euro-barometer Survey. Referencing Kahneman, Wakker, and Sarin's (1997) concept of "experienced utility" as a flow of affective experiences, Alesina et al. appear to interpret their SWB questions as capturing flow utility: "Our paper, and we believe much of the happiness literature, can be understood as an application of experienced utility, a concept that emphasizes the pleasures derived from consumption" (their footnote 7). Yet later, after finding that greater national inequality reduces individuals' SWB, they argue that

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[6] For example, in addition to asking the students to predict SWB during each residency program, Benjamin, Heffetz, Kimball, and Rees-Jones (2014) also ask for predicted happiness during a sequence of explicitly defined future periods ("during the first ten years of your career," "for the remainder of your career before retirement," "after retirement"). They then construct from these predictions a best linear predictor of choice, and use it to rank the residency programs. When comparing this ranking with respondents' just-submitted (choice) rankings, they find slightly smaller discrepancies than when comparing a single happiness question (with a more limited time horizon) with choice, but the discrepancies remain—largely ruling out time-horizon ambiguity as the only reason for the discrepancies.

a plausible mechanism is beliefs about how national inequality affect one's own future prospects—a mechanism that presupposes that SWB captures forward-looking or lifetime utility.

The other two papers we are aware of that make explicit statements about their time-horizon assumptions are Finkelstein, Luttmer, and Notowidigdo (2013) and Aghion, Akcigit, Deaton, and Roulet (2016). Finkelstein et al. (2013) study the Health and Retirement Study happiness question ("Much of the time during the past week I was happy. Would you say yes or no?") and write (p. 234): "As is standard in the happiness literature, we interpret the happiness question as a proxy for von Neumann–Morgenstern (flow) utility." Aghion et al. (2016) treat the Cantril (1966) ladder question from the Gallup Healthways Well-Being Index and the life satisfaction question from the Behavioral Risk Factor and Surveillance System (BRFSS) survey as measures of forward-looking utility: "Life satisfaction is captured by the expected discounted valuation of an individual's future earnings" (p. 3870).

In most applications of SWB data, including the many in which the time-horizon interpretation of the SWB question is not discussed, it nonetheless matters for the conclusions that can be drawn. Here we give three examples.

First, it is common in economic applications to calculate the money valuation of a good. Specifically, researchers run a regression of current SWB on current income y_t and current consumption of a "good" x_t (one component of the vector of life domains $\boldsymbol{c}_t$), and calculate the money value of the good as the ratio of coefficients. The interpretation of the resulting value depends on what preference information is captured by the SWB data. For example, if SWB measures flow utility $\widetilde{U}_t = u(\boldsymbol{c}_t) \equiv u_t$, then this coefficient ratio is $\frac{\text{Cov}(u_t, x_t)/\text{Var}(x_t)}{\text{Cov}(u_t, y_t)/\text{Var}(y_t)}$. If SWB measures a broader notion of utility $\widetilde{U}_t = U_t$, such as lifetime or forward-looking utility, then the coefficient ratio is $\frac{\text{Cov}(U_t, x_t)/\text{Var}(x_t)}{\text{Cov}(U_t, y_t)/\text{Var}(y_t)}$. These ratios are equal if and only if $\frac{\text{Cov}(U_t - u_t, x_t)}{\text{Cov}(u_t, x_t)} = \frac{\text{Cov}(U_t - u_t, y_t)}{\text{Cov}(u_t, y_t)}$. In words, current x_t and y_t must have the same ratio of covariance with non-current utility, $U_t - u_t$, to covariance with current utility, u_t. This condition is not likely to hold in many applications.

We illustrate with the example of calculating the money valuation of unemployment status (e.g., Blanchflower and Oswald, 2004). Consider three assumptions that dramatically simplify a more complicated reality but help make the point clear: (a) cross-sectional variation in

current income y_t mostly reflects cross-sectional variation in permanent income, (b) the effect of current income y_t on current flow utility u_t is similar across periods t, and (c) unemployment occurs randomly, is temporary, and only affects current flow utility. Under assumptions (a) and (b), y_t's correlations with $U_t - u_t$ and with u_t will be similar, and therefore the ratio $\frac{\text{Cov}(U_t-u_t,y_t)}{\text{Cov}(u_t,y_t)}$ will approximate the ratio of non-current-utility discounting to current-utility discounting ($\frac{\sum_{\tau \neq t} \delta_{t,\tau}}{1}$ for lifetime utility or $\frac{\sum_{\tau=t+1}^{T} \delta_{t,\tau}}{1}$ for forward-looking utility). In contrast, given assumption (c), unemployment status x_t's correlation with $U_t - u_t$ will be much smaller than with u_t, and therefore the ratio $\frac{\text{Cov}(U_t-u_t,x_t)}{\text{Cov}(u_t,x_t)}$ will be much smaller than this discounting ratio. Even in applications where cross-sectional variation in x_t may capture more of the permanent variation—e.g., when x_t is the death of a family member (e.g., Deaton, Fortson, and Tortora 2010)—the effects on flow utility often diminish over time due, for example, to hedonic adaptation, keeping the x_t covariance ratio substantially lower than the y_t covariance ratio. Finally, in cases of costly investment—e.g., living through difficult years of schooling in order to increase utility in future years—the numerator of the x_t covariance ratio may be positive while the denominator is negative.

In all of these cases, the pricing exercise will give different answers depending on whether SWB is measuring flow utility, forward-looking utility, or lifetime utility (or something else). It may even give answers with the opposite sign.

Second, another common application of SWB data, especially in the psychology literature, is to infer that people are making mistakes when a deviation from usual behavior is found to increase SWB. For example, Dunn, Aknin, and Norton (2008) find that experimental participants randomly assigned to spend money on someone else rather than on themselves were happier when surveyed later the same day. This and related findings, together with survey evidence that people expect spending on themselves to make them happier than spending on others, lead Dunn et al. to conclude that "policy interventions that promote prosocial spending…may be worthwhile." However, the inference that people are making a mistake is only warranted if the forward-looking component of the SWB function represents forward-looking utility. Otherwise, apparent "mistakes" could instead reflect optimal intertemporal tradeoffs. Indeed, consistent with this possibility, Falk and Graeber (2020) find that experimental

participants randomly assigned to donate money to charity rather than receive money themselves were *less* happy four weeks later (possibly due to the foregone consumption on self), despite being happier at the end of the lab session.

Finally, there is a growing literature on how SWB varies with age. Much of the evidence points to a U-shape, with SWB reaching a nadir in middle age, but there is no consensus on the reason for this pattern (e.g., Blanchflower and Oswald, 2008; Blanchflower, 2020). While people might change how they use the SWB response scale with age (as suggested by Stone, Schneider, Junghaenel, and Broderick, 2019), few analyses account for this possibility; therefore, consistent with the literature, our discussion here assumes that, with age, the SWB function $\tilde{U}_t$ remains the same monotonic transformation of the utility notion U_t that a particular paper focuses on.

In the only discussion we know of relating age to the intertemporal preference information that is captured by the SWB measure, Finkelstein et al. (2013, footnote 15) write: "[Forward-looking utility] seems inconsistent with the empirical finding that happiness increases with age for older people (unless one believes growing older means fewer future years with negative flow utility)." Using our notation, if SWB is forward-looking utility, then $\tilde{U}_{t+1} - \tilde{U}_t = \sum_{\tau=t+1}^{T}[E_{t+1}\delta_{t+1,\tau}u(c_\tau) - E_t\delta_{t,\tau}u(c_\tau)] - u(c_t)$. The sign of this expression is less clear than Finkelstein et al. suggest because standard discount functions (such as exponential) imply $\delta_{t+1,\tau} > \delta_{t,\tau}$, so the summation term may generally be expected to be positive. Finkelstein et al.'s argument relates to the other term, which is only positive if $u(c_t) < 0$.

Moreover, the interpretation of the SWB measure is relevant for what mechanisms may explain the U-shape. If it is lifetime utility, then the change in SWB from age t to $t + 1$ is $\tilde{U}_{t+1} - \tilde{U}_t = \sum_{\tau=0}^{T}[E_{t+1}\delta_{t+1,\tau}u(c_\tau) - E_t\delta_{t,\tau}u(c_\tau)]$. In that case, changes in SWB with age are due to differences between $\delta_{t+1,\tau}$ and $\delta_{t,\tau}$ and to unanticipated shocks to flow utility.[7] In contrast, if SWB measures flow utility, then variation with age is unrelated to both discount factors and beliefs: $\tilde{U}_{t+1} - \tilde{U}_t = u(c_{t+1}) - u(c_t)$, implying that the quantity or quality of consumption in at least some domains of life increases with age.

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[7] Schwandt (2016) studies unanticipated shocks directly, with data on predicted and subsequently realized SWB. Note that for lifetime utility, it may be natural to discard our normalization $\delta_{t,t} = 1$ and instead assume that the discount factor that applies to a particular age does not depend on current age: $\delta_{t,\tau} = \delta_{t',\tau} \equiv \delta_\tau$ for all t, t', τ (a special case is equal weighting of each period τ). In that case, $\tilde{U}_{t+1} - \tilde{U}_t = \sum_{\tau=0}^{T}\delta_\tau[E_{t+1}u(c_\tau) - E_t u(c_\tau)]$, so changes in SWB with age are *entirely* due to unanticipated shocks to flow utility.

II.C. Social Circles

Just as with intertemporal preferences, few SWB applications discuss which other-regarding preference information is captured by the SWB measure. While we are not aware of papers that are explicit and unambiguous, Ludwig et al.'s (2012) discussion of the GSS happiness question suggests that they treat responses as a measure of family well-being: "Another reason we focus on adults is because more is known about measuring SWB of adults than youth … [SWB] was added to the long-term survey to be one of the key summary measures of the net impacts on families …." (p. 1507). Easterlin (1995) studies this same GSS happiness question and a variety of international life satisfaction data sources and offers an interpretation that is ambiguous: "Formally, this model corresponds to a model of interdependent preferences in which each individual's utility or subjective well-being varies directly with his or her own income and inversely with the average income of others" (p. 36). Easterlin's mention of "interdependent preferences" sounds like other-regarding utility, but the rest of the sentence sounds more like SWB is capturing self-centered utility that depends on relative income, as in Frank's (1985) model of status concerns. Similarly, Alesina, Di Tella, and MacCulloch (2004) treat this same GSS happiness question, as well as a life satisfaction question from the Eurobarometer Survey, as measuring some notion of utility but do not specify if the utility notion is other-regarding or self-regarding (with respondents concerned about how inequality affects their own future prospects): "In this paper, we explore whether and why inequality negatively affects individual utility even after controlling for individual income. We measure 'utility' in terms of survey answers about 'happiness'" (p. 2010).

Again, as with time horizon, the social-circle interpretation of the SWB question often matters in SWB applications even when it is not discussed. For example, consider the finding mentioned above that giving to others increases short-run happiness (e.g., Dunn, Aknin, and Norton, 2008). How much this can be attributed to altruistic preferences, as opposed to self-signaling (e.g., Bénabou and Tirole, 2006) or warm glow (Andreoni, 1989), depends on the extent to which the SWB data capture other-regarding preference information. As another example, a number of papers compare SWB between men and women (e.g., Stevenson and Wolfers, 2009). If SWB is capturing family well-being rather than self-centered utility, then for individuals who love their opposite-sex family members, the SWB difference between men and

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women may understate the self-centered well-being difference. Moreover, if men interpret the SWB question as applying to a broader or narrower social circle than women do, and especially if such interpretational differences vary over time, then these interpretational differences confound conclusions from SWB data about self-centered well-being differences between men and women. As a final example, consider papers that compare SWB between people with and without children (e.g., Deaton and Stone, 2014). Such comparisons are usually construed in terms of self-centered utility; they are much harder to understand if SWB captures family well-being and hence includes a concern for the children.

To shed some empirical light on how respondents *actually* interpret different SWB questions, in the remainder of the paper we turn to the design and analysis of our new survey.

III. Survey Design

In our survey, respondents are first asked a SWB question, presented as it would be in a standard survey. Respondents are then faced with a series of follow-up questions that ask them to introspect about how they constructed the response to the SWB question they have just answered. These follow-up questions appear on subsequent screens, with the original SWB question and answer (e.g., "You answered: 8") always appearing highlighted at the top of the screen as an easily accessible reminder. The survey ends with standard sociodemographic questions, followed by questions soliciting feedback regarding the survey. See Web Appendix Section 5 for screenshots.

In this section, we begin by providing detail on the design of the SWB question that respondents answer. We then discuss the setting of the survey, some general information on our respondents, and their answers to the SWB question. We defer describing the follow-up questions to subsequent sections, where we discuss the design of these questions, their links to the theory from Section I, and the empirical findings from those questions.

III.A. SWB question

After a short "Welcome" screen—where respondents are greeted and asked to take their time, think carefully, and answer each survey question the best they can—each respondent is presented with one of the following eight SWB questions, selected at random:

Ladder:

Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top.

The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you.

On which step of the ladder would you say you personally feel you stand at this time?

Please give a number from 0 to 10: _____

Life Satisfaction:

All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied): _____

Happiness:

Taking all things together, how happy would you say you are? Please give a number between 0 (extremely unhappy) and 10 (extremely happy): _____

Family Well-Being:

On a scale from 0 to 10, how would you rate the overall well-being of you and your family? Please give a number between 0 (lowest rating) and 10 (highest rating): _____

Personal Well-Being:

On a scale from 0 to 10, how would you rate your overall personal well-being? Please give a number between 0 (lowest rating) and 10 (highest rating): _____

Meaning & Value:

On a scale from 0 to 10, to what extent do you feel that your life is meaningful and has value? Please give a number between 0 (not meaningful and has no value) and 10 (extremely meaningful and has lots of value): _____

Options & Possibilities:

On a scale from 0 to 10, to what extent do you feel that your life is full of options and possibilities that you are free to choose from? Please give a number between 0 (extremely limited options to choose from) and 10 (very many options to choose from): _____

Dealing Well:

People's situation in life depends on both the circumstances they have been given and how they deal with these circumstances. To what extent do you feel that you have dealt well so far with the circumstances you have been given in life? Please give a number between 0 ("I have dealt extremely poorly with the circumstances I have been given") and 10 ("I have dealt extremely well with the circumstances I have been given"): _____

The first three questions—Ladder, Life Satisfaction, and Happiness—closely resemble standard SWB questions from large-scale surveys such as the European Social Survey, the

General Social Survey, the Gallup World Poll, and the Office for National Statistics Integrated Household Survey. The Ladder and Life Satisfaction questions are considered all-purpose evaluative measures. While happiness could be primarily an emotional state, the specific "Taking all things together" Happiness question above also likely has an evaluative component. The three questions, or close variations on them, have been widely used by economists (as in much of the work cited earlier).

The remaining five questions are new questions that, to the best of our knowledge, have not been previously used in applied work. We include them in the survey with the general aim of exploring the potential of new SWB questions to "do better" for our purposes than currently used questions. By "do better" we mean that they may (1) more closely track a clear utility notion or (2) be interpreted more comparably across respondent groups. SWB questions meeting these criteria would make it easier to interpret the kinds of applied work discussed in the previous section.

The fourth question—Family Well-Being—has been chosen in light of evidence of its potential to satisfy criterion (1). Benjamin, Heffetz, Kimball, and Szembrot (2014) find that a version of this question does best as a predictor of hypothetical choice among 113 questions they study, in a survey design and regressions that attempt to control for all other questions. It may therefore correspond most closely to stated preferences.

The fifth question—Personal Well-Being—is a version of Family Well-Being that takes "family" out of the picture, replacing it with "personal." Like Family Well-Being, it is included, first, because of its potential to satisfy criterion (1): a measure that uses the phrase "personal well-being" may better capture a more self-centered utility notion, exclusive of any other-regarding preferences (even towards immediate family). Second, we include it in order to explore to what extent an explicit reference to "family" versus "personal" well-being affects how respondents construct their answer.

The sixth and seventh questions—Meaning & Value, and Options & Possibilities—are included for three purposes. First, we explore whether they better satisfy criterion (2) above: Are they interpreted more similarly across respondents than standard SWB questions? Second, related to criterion (1) above, since the specific dimensions elicited by these "eudaimonic" SWB questions may not be fully captured in standard evaluative SWB questions (e.g., Ryff, 1989), there have been proposals to include them in a multiple-question SWB index that may more

closely capture preferences (e.g., Benjamin, Heffetz, Kimball, and Szembrot, 2014). In order for such an index to correspond to a clear utility notion, each question in the index would have to be interpreted similarly in terms of time horizon and social circle—a precondition we can test by including the questions in our survey. Third, these questions serve as falsification-test questions: unlike the first five main SWB questions, these two ask about specific domains of life; since a follow-up question asks about the weights a respondent gave to domains that include these, these questions allow us to investigate whether respondents have attentively read and understood the SWB question.

Finally, the eighth question—Dealing Well—attempts to capture the difference between respondents' evaluation of their *situation*, and their evaluation of the way they have *dealt* with the (exogenous) circumstances life threw at them. Standard evaluative SWB questions, including versions of the Ladder, Life Satisfaction, and Happiness questions above, are typically understood as evaluating an individual's situation. The switch to evaluating how an individual has responded to circumstances may help satisfy criterion (2), by focusing on something that may be more comparable across individuals who face different circumstances and by specifying the question's time horizon: the past. At the same time, it may interfere with attempting to satisfy criterion (1), because it is not likely to elicit a (comprehensive) utility notion.

III.B. Survey Setup and Respondents

The survey was conducted during June 13–30, 2014. Our respondents were recruited by Clear Voice Research, a private firm that invites individuals to "get paid to take surveys and share your opinions about the products and services you use every day" (see http://www.clearvoicesurveys.com). To complete the survey, respondents were required to answer the SWB question (on the second survey screen) and to go through the rest of the screens, although they were allowed to skip all subsequent questions. 3,926 respondents started our survey, and 3,040 completed it, resulting in between 359 and 397 complete responses for each of the main eight SWB questions. We aimed at a sample that, while not a random sample, resembles the adult (18+) U.S. population on basic sociodemographic characteristics. Web Appendix Section 1 compares our 3,040 respondents with the U.S. population as described by the U.S. Census and other official sources. While our respondents roughly match the population on sex and marital status, they are more educated and middle-aged, with household income that

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is more concentrated in the $40,000–$80,000 range, more Northeast and less South, more White, with somewhat larger households, and with higher participation in the labor force. Median survey completion time was 14 minutes (5th- and 95th percentiles were 6 and 57 minutes).

III.C. Responses to SWB question

Figure 1 reports histograms summarizing responses to the main SWB questions, by SWB question and (at the bottom right) pooled. The overall median response is 8 on a 0–10 scale (5th and 95th percentiles are 2 and 10). Looking question by question, the median response is 8 in all but the Ladder (median = 6) and the Meaning & Value (9) questions. For each question, 5th and 95th percentiles are 1–4 and 10.[8] The median time to answer the SWB question was 12.6 seconds (5th and 95th percentiles were 5.4 and 57.6 seconds).[9]

IV. Weights on Life Domains and Tests of Introspective Methodology

We begin by analyzing reports of the importance, or weight, respondents thought different life domains had on their SWB answer. (Following past research, our survey refers to life domains as "aspects of [people's] life / situation.") The results are useful in assessing our introspective method, both by comparing them across different SWB questions and by comparing them with aspect-weight findings from past research. We also use the range of numbers assigned as weights to calibrate what is a relatively "low" and "high" weight in responses to other introspective questions we study in subsequent sections.

Specifically, we examine our survey respondents' answers to the following question:

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[8] To the extent that top-coding is a worry, Ladder has an advantage over other questions, with the lowest share of respondents reporting 10. On the other hand, these results suggest that the Meaning & Value question—a new question that we authored (see previous section)—should perhaps have been phrased, if possible, in a way that would push responses away from 10.

[9] Median time to answer each of the eight SWB questions ranged from 10.1 seconds (henceforth, s) to 19.7s, and the variation is almost entirely explained by question length: a regression (with eight observations) of median response time on number of words (or letters) in each SWB question yields an estimated median response time = 5.5s + 0.18s per word (or 5.5s + 0.04s per letter), with $R^2 > 0.96$. We are not sure what to conclude from these relatively quick responses to complex questions. It is consistent with respondents answering in accordance with a heuristic (such as relying on current feelings; Schwarz and Strack, 1999), but it is also consistent with respondents already having a rough sense of the answer to the question before being asked. Relatedly, we also find that none of the SWB questions is judged difficult to answer. The first survey question after the main SWB question was: "How difficult was it to answer the [Life Satisfaction] Question?" (with "[Life Satisfaction]" replaced with the title of the SWB-question version that each respondent answered). Overall median and mean response were 11 and 28.0 on a 0–100 scale; by SWB question, median and mean response were in the ranges 8–21 and 24.3–31.5, respectively, with the Happiness and Ladder (and perhaps also the Life Satisfaction) questions being rated on average as slightly easier to answer than the Dealing Well (and perhaps also the Family Well-Being) question.

People often attribute unequal importance to various aspects of their life. When answering the [Life Satisfaction] Question, how much weight do you think the following aspects of your situation had on your answer?

Here and in other parts of the survey, "[Life Satisfaction]" was replaced by one of the other seven SWB-question titles when relevant. Other elements of the survey screen, including the highlighted SWB question and answer, were held fixed throughout the survey. The question was followed by fifteen domains of life[10] in random order, and a sixteenth "Other (please specify)" entry (always at the bottom), each with a slider labeled from "Not at All" to "A lot."[11] Due to relatively few responses to the "Other" slider on this and other survey screens, here and in the rest of the paper we do not include the "Other" option in the analysis.

IV.A. Mean responses by SWB question: general patterns

Figure 2 Panel A shows the average weights assigned by respondents to the domains (calculated by dividing the unnumbered slider scales into 101 equidistant points), ordered from highest to lowest, separately across the eight SWB questions (leftmost graph) or smaller subsets of questions (middle and rightmost graphs). Each point estimate is based on roughly the same number of observations (359–397), resulting in similar standard errors (the capped bars).

We note three general observations regarding the leftmost graph ("All SWB questions"). First, the means vary widely across domains and SWB questions, from around 35 to around 75.

Second, across the eight SWB questions the vectors of mean domain weights are highly correlated, with correlations ranging from 0.89 to 0.99 (in the next subsection we discuss outliers, such as the "Purpose & meaning" domain in the Meaning & Value question). Our respondents thus report, on average, a similar domain weighting scheme across a wide range of

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[10] We include "Social status" among the domains of life, even though, as noted in footnote 3, status concerns could alternatively be modeled as other-regarding preferences. The reason we do so is that we do not think respondents' concerns about social status are likely to be reflected in their responses to our social-circles questions (described in Section VI below). Note, however, that in order to accommodate concerns about relative consumption, our model would need to be extended to allow the internal flow utility for oneself, u_0, to depend on $c_{t,0} - c_{t,k}$. We do not pursue this extension because the exposition of the model in Section I is clearer without it.

[11] We considered, but ultimately decided against, assigning numerical values to the slider locations and constraining the sum of the numbers across sliders to be 100. We decided to use the "Not at All" to "A lot" scale because we believed respondents would find it more intuitive and thus be able to introspect more accurately.

SWB questions in our survey. The domains "Income & financial security," "Family life & relationships," "Physical health," "Mental health & emotional life," and "Security regarding life & the future"—in this order—dominate the top of the figure.

Finally, the domains' relative weights appear to broadly replicate conclusions from the literature discussed in Section II.A above. Exploring the "SWB = preferences" hypothesis, that literature generally finds that standard SWB measures are closely related, but are not identical, to preferences. For example, looking at nine domains related to medical residencies (e.g., prestige), the Benjamin, Heffetz, Kimball, and Rees-Jones (2014) study discussed in Section II.A finds correlations of 0.69–0.85 (depending on the SWB question) between anticipated-SWB-based and choice-based MRS estimates (where the MRSs are relative to the average domain); using our notation from section II.B above, those correlations are between $\widetilde{U}_t$ MRSs and U_t MRSs.[12] To investigate the information captured by our slider-based domain weights, we similarly compare them with MRS estimates for U_t from Benjamin, Heffetz, Kimball, and Szembrot (2014, henceforth BHKS)—mentioned in III.A above—who use a hypothetical-choice survey to estimate the MRSs of 113 aspects of life. While the 15 domains in our survey do not all perfectly match aspects on BHKS's list, 12 have reasonably similar BHKS counterparts. For these, the correlation between the weights in our survey (averaged across all SWB questions) and BHKS's MRS estimates is 0.77 (the rank correlation is 0.80)—well within the above range and remarkably high, given that the two studies have entirely different designs.[13]

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[12] Formalizing these in terms of our theoretical framework requires some additional assumptions. The simplest such assumptions would be: when a respondent is asked about a change in a life domain, the respondent imagines the change (i) occurs only in the current period t, and (ii) only affects the respondent herself. Assumptions (i) and (ii) would allow us to ignore possible differences across U_t and $\widetilde{U}_t$ on the time-horizon and social-circle dimensions when analyzing MRSs across life domains. Specifically, under (i) and (ii), the relevant MRSs for U_t and $\widetilde{U}_t$ when analyzing a small change in domain d relative to domain d' are simply the corresponding MRSs for oneself, u_0 and $\tilde{u}_0$, respectively: $\frac{\partial U_t}{\partial c_{t,0,d}} \Big/ \frac{\partial U_t}{\partial c_{t,0,d'}} = \frac{\partial u_0}{\partial c_{t,0,d}} \Big/ \frac{\partial u_0}{\partial c_{t,0,d'}}$ and $\frac{\partial \widetilde{U}_t}{\partial c_{t,0,d}} \Big/ \frac{\partial \widetilde{U}_t}{\partial c_{t,0,d'}} = \frac{\partial \tilde{u}_0}{\partial c_{t,0,d}} \Big/ \frac{\partial \tilde{u}_0}{\partial c_{t,0,d'}}$. We think assumption (i) is reasonable given the wording used in prior surveys (e.g., Benjamin, Heffetz, Kimball, and Szembrot (2014) ask respondents to imagine a change "over the next four years"). Assumption (ii), however, is likely violated for most of the domains we study. For example, a change in a respondent's domains "income and financial security" or "family life and relationships" entails a change in these domains for her family too. For such a domain, its MRS with respect to another domain could differ across U_t and $\widetilde{U}_t$ even if $u_k = \tilde{u}_k$ for all k, due to the weight on family members in the SWB function (the $\tilde{\lambda}_k$'s for family members) differing from their weight in the utility function (the corresponding λ_k's). More generally—if neither assumption (i) nor (ii) holds—as we emphasize in Section II.A above, the MRSs across life domains for U_t and $\widetilde{U}_t$ could differ due to differences in any of the components $u_k(\cdot)$, $\delta_{t,\tau}$, or λ_k, relative to $\tilde{u}_k(\cdot)$, $\tilde{\delta}_{t,\tau}$, or $\tilde{\lambda}_k$, respectively.

[13] BHKS's closest 12 "private-good" aspects, in an order corresponding to the domains in Figure 2 Panel A, are: Your financial security (relative marginal utility estimate = 0.34); The quality of your family relationships (0.37);

We conclude that on average, the domains' relative weights from our survey are as related to existing estimates of the domains' MRSs for U_t as past estimates of their MRSs for $\widetilde{U}_t$, estimated using a different methodology. In the rest of this paper, we therefore proceed under the working assumption that our slider-based domain weights capture substantial information about the MRSs for $\widetilde{U}_t$, and that similarly, our slider-based time-horizon and social-circles weights provide substantial information about $\tilde{\delta}_{t,\tau}$ and $\tilde{\lambda}_k$.

IV.B. Comparing across SWB questions

The outliers within the high correlations across the eight SWB questions are best seen in Panel A's rightmost graph. They suggest that we pass the falsification test outlined in section III.A. Specifically, three of the clearest visual outliers suggest that respondents react to the wording of both the domains and the SWB questions as one would expect from attentive respondents: the domains "Purpose & meaning" and "Live personal values" get unusually high weights in the Meaning & Value question; and the domain "Possibilities in life" gets an unusually high weight in the Options & Possibilities question. (The Meaning & Value question stands out in lying to the right of the rest of the pack not only on these two domains but also on others that could reasonably be thought of as related to meaning and value, such as "Volunteering, activism" and "Family life & relationships.")

Finally, the middle graph highlights the three traditional SWB questions. They effectively coincide on almost all domains, suggesting that overall, respondents assign similar weights across these questions. The few exceptions seem largely consistent with the view that the Life Satisfaction and Ladder questions capture a less emotional notion of well-being than Happiness. For example, for the Ladder and Life Satisfaction questions, respondents give higher weight to "Income and financial security" than "Mental health & emotional life," while for the Happiness question, respondents give them essentially identical weights.

IV.C. Comparing across respondent sociodemographics

Your health (0.42); Your mental health and emotional stability (0.34); Your sense of security about life and the future in general (0.33); Your sense that your life is meaningful and has value (0.32); You being a good, moral person and living according to your personal values (0.40); You having many options and possibilities in your life and the freedom to choose among them (0.32); Your physical safety and security (0.28); The overall quality of your experience at work (0.10); Your social status (–0.06); Your sense that you are making a difference, actively contributing to the well-being of other people, and making the world a better place (0.29).

Figure 3 Panel A is based on the same data as Figure 2 Panel A, but responses are pooled across all eight SWB questions[14] and are then split by respondents' age (three groups), sex (two), income (three), and employment status (two, for labor-force participants only). We focus on these four sociodemographic dimensions because they have received much attention in the SWB literature cited above.

It is important to remember that unlike in Figure 2, where the SWB-question-specific curves are based on respondents who are randomly assigned into one of the eight SWB questions, in Figure 3 assignment into sociodemographic groups is likely to be correlated with other observable and unobservable characteristics of the respondents. As a result, the groups may systematically differ, for example, in how they use the slider response scales, or in how honestly they respond to our questions. When interpreting the figure—and all other sociodemographics-based comparisons in the rest of this paper—we therefore focus on cross-group differences that could not be explained by biases that could be characterized as merely stretching and shifting the response scale (in the same way across question items). We instead focus on differences between groups in the ordinal ranking of items.

We begin, in Figure 3 Panel A, by noting the overall (ordinal) similarity across sociodemographic groups: while some groups systematically use a wider range of the 0–100 scale than others, in all four graphs the relative ranking of domains is generally maintained across the groups. This too appears consistent with BHKS's finding of limited cross-group variation in relative marginal-utility rankings. The exceptions, however, again suggest that respondents respond meaningfully to our introspective survey. "Physical health" is the most important domain for those above 55, while for the rest, "Income and financial security" and "Family life and family relationships" are both more important. Women report significantly less weight on "Work and relationships with co-workers" than on "Quality of the environment," while men report essentially the same weights on both. Most dramatically, "Work and relationships with co-workers" drops in reported weight among unemployed respondents relative

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[14] Web Appendix Figures I–III reproduce Figure 3 three times, for three disjoint subsets of the eight questions: (a) Ladder, Life Satisfaction, and Happiness; (b) Personal and Family Well-Being; and (c) Meaning & Value, Options & Possibilities, and Dealing Well. While standard errors are wider than in Figure 3, the appendix figures suggest that the new SWB questions in subsets (b) and (c) do not differ in sociodemographic heterogeneity of weights from the standard SWB questions in subset (a)—see our criterion (2) in Section III.A above. The similarity of patterns across subsets (a)–(c) motivates our decision to pool the SWB questions when comparing across sociodemographic groups here and in subsequent sections.

to employed ones.

IV.D. Introspective Methodology

Having illustrated our methodology in the context of life domains, we now discuss in more detail its two main limitations mentioned in the introduction, and our approaches to dealing with them.

First, since our data are respondents' reported introspections regarding the response they have just given to an SWB question, our analysis may miss influences on SWB responses that respondents are unaware of or are unwilling to truthfully report. We highlight, however, that using SWB data in the first place relies on the assumption that people can introspect accurately and do report truthfully about their internal state. Indeed, the considerations that led to one's SWB response—which are what we aim to measure with our introspective questions—are arguably *more* cognitively accessible than the overall evaluation of one's situation on a 0–10 scale required for generating the SWB response. Furthermore, we validate our introspective methodology in two ways, both illustrated above: (a) we conduct falsification tests to verify attentiveness and understanding (as in IV.B above, and throughout the paper), and (b) we cross-check results against related past results obtained with different methodologies (in IV.A above).

Second, while we can ordinally compare the weights respondents put on various considerations, we need to be careful when drawing conclusions regarding their magnitudes. Although we anchor the 0–100 response scale for the self-reported weights by labeling 0 as "Not at all" and 100 as "A lot," there is no clear cardinal interpretation of the scale, and response noise would drive mean weights away from the extremes even if many respondents truly assigned weights of 0 or 100. We do sometimes draw inferences that magnitudes are non-zero but only when we see that respondents' mean weights are substantially larger than mean weights on other introspective questions. For example, we conclude in the next section that none of the SWB measures has a time-horizon profile corresponding to flow utility because the weights on time periods other than the present are all larger than the scale midpoint of 50 and therefore larger than around one-third of the weights on life domains in this section. We also make comparisons that, instead of a cardinal interpretation of the weights, rely on weaker assumptions. For example, we compare mean weights across (randomly assigned) SWB questions, which only requires that the SWB question does not affect respondents' use of the scale for answering the

introspective questions. As another example, we compare ordinal rankings of the mean weights assigned by different groups of respondents (which suggests, but does not straightforwardly translate to, an ordinal ranking at the individual level).

The structure of the next two sections parallels this section (excluding the present subsection, IV.D). We discuss Panel B (time horizon) of Figures 2 and 3 in Section V, and Panel C (social circles) in Section VI.

V. Weights on Time Horizons

To investigate the time period over which respondents evaluated their situation when answering the SWB question, we ask them:

> When you answered the [Life Satisfaction] Question, did you evaluate your situation as it is right this moment or over a longer period of time, in the past or in the future? To what extent did you evaluate your situation…

followed by ten sliders, in the same order, labeled from "Right this moment (while answering the survey)" to "Over your entire life, including your expectations for the future," and followed by "Other (please specify)."

An SWB question that captured flow utility, $u(c_\tau)$, would have the respondent evaluate her situation in the "present period" $\tau = t$.[15] Depending on the economic application, the theoretical construct "present period" (or "period t") may be interpreted as including different possible time intervals around the moment of answering the SWB question, from a few minutes (e.g., in a laboratory experiment) to many years (e.g., in a lifecycle model). In principle, we could define a period's length and include a slider for every period since the respondent's birth.

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[15] Here and in our theoretical framework in Section I, to keep things simple, we write flow utility as a function of consumption in the current period, but our framework could be extended to allow flow utility to depend also on past consumption or expectations about future consumption, e.g., due to habit formation (for recent analyses, see Havranek, Rusnak, and Sokolova, 2017; Zhou, 2020), reference-dependence on past or future reference points (for a recent review, see O'Donoghue and Sprenger, 2018), or utility from memory or anticipation (e.g., Elster and Loewenstein, 1992; Morewedge, 2015). Because of the wording of our introspective question ("…did you evaluate your situation as it is right this moment or over a longer period of time…"), we believe that even if past consumption or expectations about future consumption affect flow utility, as long as SWB captures only flow utility, then respondents would report that they evaluate their situation in the present period. We similarly believe that respondents would report that they evaluate their situation in the present period if they evaluate their situation relative to their life in the past or to an important past event, as found by Ross, Eyman, and Kishchuk (1986), Ralph, Palmer, and Olney (2011), and Junghaenel et al. (2018).

In practice, in order to keep the number of sliders reasonable and the response options intuitive, we instead opted for a limited number of naturally parsed periods, of different lengths. Thus, to shed light on whether the different SWB questions capture something that resembles a flow-utility concept and, if so, of what length, our survey question has sliders labeled "Right this moment," "Today" and "In the last few [days]/[months]/[years]" (three different sliders, in this order).[16]

An SWB question that captured forward-looking or lifetime utility U_t would have the respondent evaluate their situation not only in the present but also in all future periods (as expected at t) and, for lifetime utility, also in all past periods. To capture various possibilities, our survey question includes sliders labeled "In the next few [months]/[years]" (in this order, two different sliders that may also capture an extended "present period" interpretation), as well as "Entire life so far" and "Entire life including your expectations for the future." A pure measure of lifetime utility should put the most weight on this last timeframe.

V.A. General patterns

Figure 4 provides three (selected) example individual-level responses; all 3040 individual responses are reported in the Individual Responses Web Appendix. Respondent #2559 pushed the "Right this moment" and "Today" sliders to the extreme right and kept all other sliders at the extreme left (we later coded these as 100 and 0, respectively). We view such a response pattern as consistent with flow utility with period-t duration around a single day. Alternatively, it is also consistent with lifetime or forward-looking utility with extremely myopic preferences, but (as we argue below) we think that is unlikely. Respondent #2162, on the other hand, pushed the "Entire life including your expectations for the future" slider to 100, and left all other sliders at 0, consistent with lifetime utility. Of course, one should not expect such clean patterns in mean responses or, indeed, for most single respondents. For example, on neither extreme, respondent #1175 reports a more complex combination of weights that suggests more focus on the present

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[16] We let these naturally parsed periods overlap. Alternatively, we could have eliminated overlap by replacing "Today" with "Today, excluding this moment"; replacing "In the last few days" with "In the last few days excluding today"; etc. We decided against adding these explicit exclusions because we worried that respondents would be less able to accurately respond to such sliders (and, more generally, would find them cumbersome and confusing). (Moreover, from a theoretical point of view, avoiding overlap is not necessary. For example, any combination of relative weights for "This moment" and "Today, excluding this moment" can be replicated as a combination of "This moment" and "Today" (including this moment).)

and the past than on the future and that does not naturally fit into one of the main utility notions in economic applications.

Aggregating across all respondents, Figure 2 Panel B reports the mean weights respondents assigned to each time period, by SWB question. The standard error for each data point is roughly 1.7. The range of mean weights for time periods, between around 50 and around 70, is narrower than the range for life domains discussed in the previous section (roughly 35 to 75), and lies entirely to the right of the scale's midpoint of 50. We interpret this to mean that for all the SWB questions, on average, respondents put positive weight on all the time periods— implying that none of the SWB questions cleanly captures flow utility or forward-looking utility.

At the same time, although the SWB questions fit our formal definition of lifetime utility (which merely requires positive weight on all periods of life), they do not correspond to a plausible version of lifetime utility. For six of the eight questions (the exceptions are Dealing Well and Meaning & Value, discussed below), "Right this moment" and "Today" rank higher than "Entire life so far" and "Entire life including your expectations for the future"; and for all questions, "Right this moment" ranks higher than "Today." Even with present-biased time preferences, it is implausible that someone's preferences would put more weight on a few minutes in the immediate present, or even on the rest of one's day, than on one's entire life (the extreme myopia mentioned above).

V.B. Comparing across SWB questions

Despite the narrower range of mean responses for the time-horizon questions, we observe substantial differences across the eight SWB questions. Correlations (which ranged from 0.89 to 0.99 for the eight domain vectors) range from –0.17 to 0.96, with median = 0.52 (Web Appendix Section 3). The rightmost graph highlights three notable examples. At one extreme, the Personal Well-Being question gets the highest weight for "Right this moment" and "Today" and the lowest weight for "Entire life so far" and "Entire life including your expectations for the future," making it the most flow-like among the eight questions—something we did not anticipate when formulating this question.

At the other extreme, the Dealing Well question, which explicitly asks about the past, gets the lowest weight for both "Right this moment" and "Today," the highest for "Entire life so far," and second-highest for both "Entire life including your expectations for the future" and

"Last few years." This profile is negatively correlated with those of six of the other SWB questions, and again suggests that respondents react in sensible ways to the wording of both the SWB question in the beginning of the survey and the introspective questions that follow it.

A third distinctive pattern is offered by the Meaning & Value question, with relatively high weights on "Right this moment" and "Today," *and* on "Entire life including expectations" and "Entire life so far." This unique combination (correlated 0.10–0.74 with other profiles) does not cleanly correspond to any utility notion we are aware of.

As seen most clearly in the center graph, the three standard SWB questions cannot, for the most part, be distinguished from each other in their time-horizon weights (correlations among the three are 0.94–0.96). All three get more weight on "Right this moment" and "Today" than on other time periods, with the Happiness question perhaps more so than the others. Overall, none of the three shows a pattern consistent with forward-looking or lifetime utility, nor do they exhibit the more flow-like pattern of Personal Well-Being.

In summary, we read our findings in this subsection as cautionary yet hopeful. On the one hand, the three traditional SWB questions appear not to have time profiles that cleanly capture flow, forward-looking, or lifetime utility. On the other hand, respondents react to the wording of SWB questions in sensible ways, suggesting that changing question wording may be effective at directing respondents towards a desired timeframe.

V.C. Comparing across Respondents

Figure 3 Panel B again aggregates responses across the eight SWB questions, and reports means by age, sex, income, and employment status of labor-force participants. Interestingly, we find that men and the employed introspect about the SWB questions in a somewhat less flow-like way than women and the unemployed, respectively: they report putting more weight on their entire life so far (with or without explicitly including future expectations) relative to the present. We again see these findings as cautionary, this time about SWB comparisons across these groups without explicitly taking into account the possibility, suggested by our data, that different groups may perceive the same SWB questions as asking about different time horizons.

VI. Weights on Social Circles

To explore *whose* well-being respondents considered in answering the SWB question, our respondents were first asked:

> When you answered the [Life Satisfaction] Question, to what extent did you evaluate your own, personal situation relative to evaluating the situation of a larger group that includes you and others?

A single slider, with a default initial value at the midpoint, was labeled "Personal situation" on its left end, and "Larger Group" on its right end. Respondents who allocated a positive weight to the latter (i.e., respondents who did not move the pointer all the way to the left), saw a follow-up screen with a more detailed set of sliders. They were asked:

> When you answered the [Life Satisfaction] Question, to what extent did you evaluate the situation of …

followed by eight sliders, in fixed order, labeled "Yourself," "Your immediate family (parents, children, siblings, spouse)," "Other relatives," "Your friends," "Your community," "Your country, "The world," and "Other (please specify)." As with our time-horizon question, while in principle we could have included a slider for every person in the world, in practice we opted for a limited number of naturally parsed groups.

VI.A. General patterns

The "Larger group" row of Figure 2 Panel C shows that for all SWB questions, respondents allocated, on average, less weight to "Larger group" than to "Personal situation." The mean weight varies from just below 30 (out of 100) for Happiness to above 40 for Family Well-Being. At the same time, as shown in the "% (Larger group > 0)" row, in all SWB questions a large majority of respondents allocated at least some (non-zero) weight to "Larger group," ranging from 75% of respondents for Happiness to 90% for Family Well-Being. These findings suggest that for most respondents, none of the SWB questions is purely a measure of self-centered well-being. Formally, the $\tilde{\lambda}_k$'s for $k \neq 0$ are not all 0. We cannot draw strong conclusions from these data alone, however, since noise in responses would drive mean weights away from zero.

The rest of the rows show the results for the follow-up screen that was presented to the respondents who allocated positive weight to "Larger group."[17] Across SWB questions, the range of weights assigned to the response categories, 35 to 80, is wider than the range observed for life domains and time horizon. Correlations are higher too, ranging from 0.93 to 1.00. For each of the eight SWB questions, "Yourself" was allocated the most weight—always above 70—with "Immediate Family" an unambiguous second—always above 60, with the single exception of Personal Well-Being discussed below. All other social categories were allocated less weight, with relatively little variation across them. These findings more strongly rule out the hypothesis, mentioned above, that some SWB questions elicit a fully self-centered well-being notion: all eight SWB questions seem to contain a substantial immediate-family component.

VI.B. Comparing across SWB questions

As seen in the rightmost graph, the comparison between Personal Well-Being ("your overall personal well-being") and Family Well-Being ("the overall well-being of you and your family") again suggests that respondents react sensibly to the wording of the SWB questions. The two questions are nearly identical except for the mention of family. Consistent with this one difference, we find that they virtually coincide on all sliders other than "Yourself" and "Immediate Family," while they differ dramatically on these two: the respective weights are 80 and 60 for Personal Well-Being, compared with 73 and 72 (not statistically distinguishable) for Family Well-Being. Formally, while we do not know the utility weights λ_k, these findings suggest that for Family Well-Being, $\tilde{\lambda}_k = 1$ for k corresponding to family members.

The center graph shows that the three traditional SWB questions appear similar to each other, with nearly identical profiles for Life Satisfaction and Happiness. For Ladder, respondents assign a slightly lower weight on everything other than "Yourself," a pattern that we did not anticipate. As with time horizon, these three questions appear to occupy a middle ground among

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[17] In the remainder of Section VI, we focus on analyzing responses to this follow-up screen. As explained above, it was not presented to respondents who gave 0 weight to "Larger Group" in the initial screen. In addition, due to a coding error, it was also not presented to respondents who did not move the slider on the initial screen from its default value at the midpoint between "Personal situation" and "Larger Group." In Section VII we combine, at the individual level, responses from the two screens (the initial Personal-situation-vs.-larger-group screen and the follow-up social-circles screen). Web Appendix Section 2 provides full details, and shows that results remain very similar across alternative specifications, including specifications that include all respondents by imputing values for the missing follow-up-screen responses.

the eight questions, neither centered more on self nor on the larger social circles. Their higher weight on larger social circles than other questions is consistent with other-regarding preferences: $\tilde{\lambda}_k > 0$ for all k.

Finally, for Meaning & Value, and to a lesser extent for Options & Possibilities, respondents assign higher weights on individuals outside the immediate family (leftmost graph). This pattern is consistent with these SWB questions capturing more of the other-regarding components of preferences. It is also consistent with the finding from Section IV.B above that these SWB questions are associated with higher weights on the domains "Volunteering, activism" and "Family life & relationships."

VI.C. Comparing across respondents' sociodemographics

Averaging across SWB questions, Figure 3 Panel C shows few differences across sociodemographic groups in the ordinal ranking of mean weights, with the possible exception of the age groups, which may differ on the ranking of the wider social circles (beyond self and immediate family) relative to each other. However, we note that relative to men, younger, and employed respondents, women, older, and unemployed respondents have higher or equal mean weights on one's self and immediate family but lower mean weights on wider social circles. We also see corresponding ordinal differences at the *individual* level, with a smaller fraction of men, younger, and employed respondents ranking one's self and immediate family higher. We analyze the (ordinal) individual-level metrics of closeness to flow and family-centered notions in the next section.

VII. How are cross-group SWB comparisons affected by differences in weights?

Much of the SWB literature in economics focuses on cross-group comparisons of responses to SWB questions. Such comparisons assume that SWB responses capture the same utility notion across the groups. However, in Sections V.C and VI.C, we record evidence of cross-group weighting differences for time horizons and social circles, which suggests that this assumption may not hold.

In this section, we summarize results from Web Appendix Section 2, where we explore how these weighting differences may affect conclusions about cross-group SWB comparisons. In the earlier sections, we studied the entire profile of slider responses but examined only univariate

sociodemographic splits one at a time (age, sex, income, and employment status) averaged across respondents. To facilitate comparisons with the literature, in this section we switch to a multivariate regression framework for the sociodemographics and summarize the slider responses with respondent-level summary indexes, as described below.

Conceptually, our approach has three steps (the same steps as in a mediation analysis, albeit with a somewhat different interpretation): (a) run a standard regression of respondents' SWB responses on a full set of available sociodemographics in our survey data; (b) re-run the regression but additionally control for each respondent's weight profile on time horizon and/or social circle; then (c) examine how the coefficients on the sociodemographics are affected by the additional controls. To increase statistical power and reduce multiple hypothesis testing, we pool data from all the SWB questions, and we implement step (b) using only two control variables: one summarizing time-horizon weights and one summarizing social-circle weights.

In the Web Appendix, we examine several alternative definitions of these weight-profile control variables (both ordinal and cardinal) to ensure robustness of our findings. As we show there, under some linearity assumptions and assuming that the weight-profile controls have no measurement error, the regressions with both controls tell us what the coefficients on the sociodemographic characteristics would be if SWB were understood by everyone equally to be fully flow utility and fully family-centered utility.

In practice, our weight-profile control variables have measurement error. If the measurement error is classical and uncorrelated with the sociodemographics, then the differences in coefficients on the sociodemographics in step (c) are lower bounds on what the changes would be from controlling for non-noisy measures.[18]

Our results from step (a)—a "happiness regression" of SWB on sociodemographics—broadly mirror those that have been found in the literature: SWB is higher among respondents who have higher income, are more educated, more religious, older, and married; and lower among the unemployed. We also find that in our data, SWB is higher among women.

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[18] For the case of a single control variable measured with error, the claim follows directly from known results (Garber and Klepper, 1980; for a direct proof, see https://blog.supplysideliberal.com/post/2019/10/10/adding-a-variable-measured-with-error-to-a-regression-only-partially-controls-for-that-variable). Therefore, the change in sociodemographics' coefficients when we control for one of the profile variables is a lower bound on what the change would be from a non-noisy measure of the variable. The same logic then applies iteratively when we additionally control for the other profile variable.

In steps (b) and (c), we find that controlling for our time-horizon weight profile has no effect on regression coefficients, but that controlling for our social-circle weight profile results in several meaningful coefficient changes. In our benchmark specification, the coefficients on non-white, religious, and unemployed, for example, increase in magnitude by 57, 13, and 7 percent, while those on old and female shrink by 15 and 10 percent, respectively. Such large changes would have a substantial impact in applications that rely on coefficient magnitudes, such as efforts to "price" the costs of unemployment in terms of the decrease in income associated with the same decrease in SWB (e.g., Clark and Oswald, 2002). Our results also suggest that the increase in SWB at older ages (associated with the U-shape of SWB with age) is partly driven by social-circle weight profiles becoming increasingly family-centered with age (this finding of ours is consistent with socioemotional selectivity theory, which posits that as people age, they prioritize close relationships and obtain more satisfaction from them; for a review, see Löckenhoff and Carstensen, 2004). Our findings thus serve as a caution that conclusions in applications that depend on coefficient magnitudes may sometimes be driven by cross-group differences in the weights regarding whom the SWB question applies to.

VIII. Discussion and Concluding Remarks

The now-standard SWB questions that are regularly asked on large-scale social surveys were originally designed during the 1920s through 1970s by marriage researchers, education and personality psychologists, mental-health epidemiologists, gerontologists, and social-indicator researchers (Angner, 2011). These researchers had a variety of notions they intended to measure with these questions—but none designed their questions with the utility notions that economists have in mind when they use SWB data today.

In this paper, we document that economists make a variety of assumptions, sometimes inconsistent with each other, about what utility notions are captured by SWB questions, and we argue that the conclusions that can be drawn from many of the applications of SWB data hinge on which assumption is made. Empirically, we evaluate the extent to which responses to existing SWB survey questions might correspond with any of the utility notions economists assume they represent. We find that, first, according to respondents' reported introspections, none of the SWB measures we studied, including both those based on standard happiness, life satisfaction, and ladder questions, and new ones that we devised, have the time profile of flow utility, forward-

looking utility, or lifetime utility. Second, none of the measures corresponds to self-centered utility but instead each incorporates concern for others, particularly one's family. At the same time, respondents' introspections consistently react as expected to differently worded SWB questions, a point we return to shortly.

We also aimed to test the extent to which there is heterogeneity across respondents in the time horizons and social circles captured by their responses. Across sociodemographic groups, we find, first, substantial differences in introspections about time profiles and social circles. Second, we find that in some cases of comparing SWB across sociodemographic groups—such as younger vs. older—controlling for differences in social-circle introspections across respondents has a substantial impact on the estimated coefficient, even with our imperfect controls for introspection profiles.

Two of our findings point directly to readily applicable practical advice for researchers. First, we find that small adjustments to the wording of SWB questions are effective in shifting respondents' introspections in the expected direction. Our advice based on this finding depends on the researchers' latitude to shape the survey data they analyze. To users of existing SWB data, we caution against interpreting SWB analyses as measures of the standard utility notions. Researchers should keep this caution in mind when drawing policy implications from such analyses. To researchers who add their own SWB question to an ongoing survey, we recommend tweaking the standard wording of a question if doing so can bring it more in line with the utility notion the responses will be used to represent.[19] Among the eight SWB questions investigated in this paper, our respondents report that our newly phrased Personal Well-Being question—"On a scale from 0 to 10, how would you rate your overall personal well-being?"—while still far from cleanly eliciting self-centered flow utility, comes the closest. This short and simple question may be a promising point of departure for further tweaking. To researchers who can add multiple questions to a survey or are designing their own survey (or can do an auxiliary survey on a different sample), we additionally suggest that it may be useful to include introspective questions

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[19] For example, in a recent data-collection effort, Benjamin, Cooper, Heffetz, and Kimball (2019) include versions of the Personal Well-Being, Family Well-Being, and many other questions that, in addition to explicitly varying the relevant social circle, also explicitly state the relevant timeframe: "Thinking about the past year..." For another example, Allcott, Braghieri, Eichmeyer, and Gentzkow (2020) modify commonly used SWB questions to explicitly state "over the past four weeks," "over the last ten minutes," and "right now."

like ours. These can be used to shed light on how successfully the SWB question gets respondents to think about their response in a way consistent with the desired utility notion.

Second, we find that when we control for differences across respondents in their time-horizon and social-circle introspections, the coefficients from a regression of SWB on sociodemographics change, in some cases substantially. Moreover, since our measures of the time-horizon and social-circle introspections are likely noisy, our analyses likely understate the degree to which the magnitudes of sociodemographic comparisons of SWB are affected by the differences in introspections. We therefore advise against relying heavily on the magnitudes of coefficients from SWB regressions for policy purposes (as advocated by, e.g., Bronsteen, Buccafusco, and Masur, 2013, and Frijters, Clark, Krekel and Layard, 2020).[20] We caution, however, that even for the signs of coefficient estimates in sociodemographic comparisons of SWB, which are much more robust to our controls for heterogeneity than the magnitudes, interpreting these comparisons relies on additional assumptions that we have not tested (Benjamin, Cooper, Heffetz, and Kimball, 2020), such as sufficiently similar uses of the SWB response scales across the groups.

More broadly, we believe that our methodology of asking introspective questions could be useful in studying other aspects of how survey respondents answer SWB questions. Indeed, while this paper focuses on results pertaining to how respondents weight different life domains, time horizons, and social circles, our survey included additional introspective questions. We have not analyzed these data in detail, but for completeness, we mention them here and give some examples of questions and preliminary findings. We asked respondents, when they chose a particular number to respond to the SWB question, how much weight they put on thinking about how they *should* answer, thinking about their usual emotions and feelings these days, comparing their situation to other people, comparing to their own life in the past, comparing to their goals, and comparing to some absolute standard. We also asked follow-up questions about several of these possibilities. For the three standard SWB questions, we find that respondents report putting the highest weight on emotions/feelings, with a higher mean weight for Happiness than for Life Satisfaction or Ladder. Comparisons to one's goals and to one's past receive almost as much

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[20] Prior work has led to this same recommendation based on comparing the MRSs implied by SWB measures to the MRSs implied by choice (Benjamin, Heffetz, Kimball, and Rees-Jones, 2014).

weight, and comparisons to an absolute standard generally receives the least weight. We view these preliminary findings as worthy of future research.

References

Adler, Matthew D. 2012. *Well-Being and Fair Distribution: Beyond Cost-Benefit Analysis*. New York: Oxford University Press.

Adler, Matthew D. 2013. "Happiness Surveys and Public Policy: What's the Use?" *Duke Law Journal* 62(8): 1509–1601.

Adler, Matthew D., Paul Dolan, and Georgios Kavetsos. 2017. "Would you choose to be happy? Tradeoffs between happiness and the other dimensions of life in a large population survey." *Journal of Economic Behavior & Organization*, 139: 60–73.

Aghion, Philippe, Ufuk Akcigit, Angus Deaton, and Alexandra Roulet. 2016. "Creative Destruction and Subjective Well-Being." *American Economic Review* 106 (12): 3869-3897.

Alesina, Alberto, Di Tella, Rafael and MacCulloch, Robert. 2004. "Inequality and happiness: are Europeans and Americans different?" *Journal of Public Economics*, 88(9-10): 2009-2042.

Allcott, Hunt, Braghieri, Luca, Eichmeyer, Sarah, & Gentzkow, Matthew. 2020. "The welfare effects of social media." *American Economic Review*, 110(3), 629–676.

Andreoni, James. 1989. "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence." *Journal of Political Economy* 97(6): 1447-1458.

Angner, Erik. 2011. "The evolution of eupathics: The historical roots of subjective measures of wellbeing." *International Journal of Wellbeing*, 1(1): 4–41.

Becker, Gary S., and Luis Rayo. 2008. "Comment on 'Economic growth and subjective wellbeing: Reassessing the Easterlin Paradox' by Betsey Stevenson and Justin Wolfers." *Brookings Papers on Economic Activity*, Spring: 88-95.

Bénabou, Roland and Jean Tirole. 2006. "Incentives and Prosocial Behavior." *American Economic Review*, 96(5): 1652–1678.

Benjamin, Daniel J., Kristen Cooper, Ori Heffetz, and Miles S. Kimball. 2019. "A Well-Being Snapshot in a Changing World." *American Economic Review (Papers and Proceedings)*, 109: 344–49.

Benjamin, Daniel J., Kristen Cooper, Ori Heffetz, and Miles S. Kimball. 2020. "Self-reported wellbeing indicators are a valuable complement to traditional economic indicators but are not yet ready to compete with them." *Behavioural Public Policy*, July: 198–209.

Benjamin, Daniel J., Ori Heffetz, Miles S. Kimball, and Alex Rees-Jones. 2012. "What Do You Think Would Make You Happier? What Do You Think You Would Choose?" *American Economic Review*, 102(5): 2083–2110.

Benjamin, Daniel J., Ori Heffetz, Miles S. Kimball, and Alex Rees-Jones. 2014. "Can Marginal Rates of Substitution Be Inferred From Happiness Data? Evidence from Residency Choices." *American Economic Review*, 104(11): 3498–3528.

Benjamin, Daniel J., Ori Heffetz, Miles S. Kimball, and Nichole Szembrot. 2014. "Beyond Happiness and Satisfaction: Toward Well-Being Indices Based on Stated Preference." *American Economic Review*, 104(9): 2698–2735.

Bernheim, B. Douglas. 2016. "The Good, the Bad, and the Ugly: A Unified Approach to Behavioral Welfare Economics." *Journal of Benefit-Cost Analysis*, 7(1): 12–68.

Blanchflower, David G.. 2020. "Is happiness U-shaped everywhere? Age and subjective well-being in 145 countries." *Journal of Population Economics* (September).

Blanchflower, David G., and Andrew J. Oswald. 2004. "Well-being over time in Britain and the USA." *Journal of Public Economics* 88(7-8): 1359–1386.

Blanchflower, David G., and Andrew J. Oswald. 2008. "Is well-being U-shaped over the life cycle?" *Social Science & Medicine* 66: 1733–1749.

Bronsteen, John, Christopher Buccafusco, and Jonathan S. Masur. 2013. "Well-Being Analysis vs. Cost-Benefit Analysis." *Duke Law Journal*, 62: 1603-1689.

Cantril, Hadley. 1966. *The pattern of human concerns*. New Brunswick, N.J.: Rutgers University Press.

Clark, Andrew, and Andrew J. Oswald. 2002. "A simple statistical method for measuring how life events affect happiness." *International Journal of Epidemiology*, 31(6): 1139–1144.

Deaton, Angus, Jane Fortson, and Robert Tortora. 2010. "Life (Evaluation), HIV/AIDS, and Death in Africa." In *International Differences in Well-Being*, ed. Ed Diener, Daniel Kahneman and John Helliwell, 105–137. UK: Oxford University Press.

Deaton, Angus, and Arthur A. Stone. 2014. "Evaluative and hedonic wellbeing among those with and without children at home." *Proceedings of the National Academy of Sciences*, 111(4) 1328–1333.

Dunn, Elizabeth W., Lara B. Aknin, and Michael I. Norton. 2008. "Spending Money on Others Promotes Happiness." *Science* 319(5870): 1687–1688.

Easterlin, Richard A. 1995. "Will raising the incomes of all increase the happiness of all?" *Journal of Economic Behavior & Organization*, 27(1): 35-47.

Edgeworth, Francis Y. 1881. *Mathematical Psychics*. New York: Augustus M. Kelley.

Elster, Jon, and George Loewenstein. 1992. "Utility from memory and anticipation." In *Choice over time,* ed. G. Loewenstein and J. Elster, 213-234. New York: Russell Sage.

Falk, Armin, and Thomas Graeber. 2020. "Delayed Negative Effects of Prosocial Spending on Happiness." *Proceedings of the National Academy of Sciences* 117(12): 6463–6468.

Finkelstein, Amy, Erzo F. P. Luttmer, and Matthew J. Notowidigdo. 2013. "What Good is Wealth Without Health? The Effect of Health on the Marginal Utility of Consumption." *Journal of the European Economic Association* 11: 221–58.

Fleurbaey, Marc, and Hannes Schwandt. 2016. "Do People Seek to Maximize Their Subjective Well-Being – And Fail?" Manuscript.

Frank, Robert H. 1985. *Choosing the Right Pond: Human Behavior and the Quest for Status*. Oxford University Press.

Frijters, Paul, Andrew E. Clark, Christian Krekel and Richard Layard. 2020. "A happy choice: wellbeing as the goal of government." *Behavioural Public Policy*. Published online.

Garber, Steven, and Steven Klepper. 1980. "Extending the Classical Normal Errors-in-Variables Model." *Econometrica* 48(6): 1541–1546.

Glaeser, Edward L., Joshua D. Gottlieb, and Oren Ziv. 2016. "Unhappy Cities." *Journal of Labor Economics* 34(2): 129–182.

Glaeser, Edward L. and Charles Redlick. 2009. "Social Capital and Urban Growth." *International Regional Science Review* 32(3): 264–299.

Gruber, Jonathan and Sendhil Mullainathan. 2002. "Do Cigarette Taxes Make Smokers Happier?" NBER Working Paper No. 8872.

Gruber, Jonathan, and Sendhil Mullainathan. 2005. "Do Cigarette Taxes Make Smokers Happier?" *B.E. Journal of Economic Analysis and Policy*, 5(1).

Hausman, Daniel M. 2012. *Preference, Value, Choice, and Welfare*. New York, N.Y.: Cambridge University Press.

Havranek, Tomas, Marek Rusnak, and Anna Sokolova. 2017. "Habit formation in consumption: A meta-analysis." *European Economic Review*, 95: 142–167.

Jackson, Matthew O., and Leeat Yariv. 2015. "Collective dynamic choice: the necessity of time inconsistency." *American Economic Journal: Microeconomics*, 7(4): 150–178.

Junghaenel, Doerte U., Joan E. Broderick, Stefan Schneider, Marcella May, Alicia Bolton, Kelly P. McCarrier, Larissa M. Stassek, Sarah C. Keithly, and Arthur A. Stone. 2018. "Frames of Reference in Self-Reports of Health, Well-Being, Fatigue, and Pain: a Qualitative Examination." *Applied Research in Quality of Life*, 13: 585–601.

Kahneman, Daniel, and Angus S. Deaton. 2010. "High Income Improves Evaluation of Life but not Emotional Well-Being." *Proceedings of the National Academy of Sciences*, 107(38): 16489–16493.

Kahneman, Daniel, Alan B. Krueger, David A. Schkade, Norbert Schwarz, and Arthur A. Stone. 2004. "A survey method for characterizing daily life experience: The day reconstruction method." *Science*, 306, 1776–1780.

Kahneman, Daniel, Peter P. Wakker, and Rakesh Sarin. 1997. "Back to Bentham? Explorations of experienced utility." *Quarterly Journal of Economics*, 112: 357– 406.

Kapteyn, Arie, James P. Smith, and Arthur van Soest. 2009. "Life satisfaction." IZA Discussion Paper No. 4015.

Kimball, Miles, and Robert Willis. 2006. "Happiness and Utility." http://www-personal.umich.edu/~mkimball/pdf/uhap.pdf

Laibson, David. 1997. "Golden Eggs and Hyperbolic Discounting." *Quarterly Journal of Economics*, 112(2): 443–477.

Löckenhoff, Corinna E., and Laura L. Carstensen. 2004. "Socioemotional Selectivity Theory, Aging, and Health: The Increasingly Delicate Balance Between Regulating Emotions and Making Tough Choices." *Journal of Personality*, 72(6): 1395–1424.

Ludwig, Jens, Greg J. Duncan, Lisa A. Gennetian, Larry F. Katz, Ronald C. Kessler, Jeffrey R. Kling, and Lisa Sanbomatsu. 2012. "Neighborhood Effects on the Long-Term Well-Being of Low-Income Adults." *Science*, 337:1505–10.

Millner, Antony, and Geoffrey Heal. 2018. "Time consistency and time invariance in collective intertemporal choice." *Journal of Economic Theory*, 176: 158–169.

Morewedge, Carey K. 2015. "Utility: Anticipated, Experienced, and Remembered." In *Wiley-Blackwell handbook of judgment and decision making, Volume 1,* ed. Gideon Keren and George Wu, 295–330. New Jersey: Wiley-Blackwell.

O'Donoghue, Ted, and Charlie Sprenger. 2018. "Reference-Dependent Preferences." In *Handbook of Behavioral Economics – Foundations and Applications, Volume 1*, ed. B. Douglas Bernheim, Stefano DellaVigna, and David Laibson. Oxford: Elsevier.

Oswald, Andrew J. 2008. "On the curvature of the reporting function from objective reality to subjective feelings." *Economics Letters*, 100: 369–372.

Oswald, Andrew J., and Stephen Wu. 2010. "Objective Confirmation of Subjective Measures of Human Well-Being: Evidence from the U.S.A." *Science* 327(5965): 576–579.

Railton, Peter. 1986. "Facts and Values." *Philosophical Topics*, 14(2): 5–31.

Ralph, Katherine, Kim Palmer, and Jayne Olney. 2011. "Subjective Well-being: a qualitative investigation of subjective well-being questions." Working paper for the Technical Advisory Group on 29 March 2012, Office of National Statistics, U.K.

Ross, Michael, Adele Eyman, and Natalie Kishchuk. 1986. "Determinants of Subjective Well-Being." In *Relative Deprivation and Social Comparison: The Ontario Symposium, Volume 4,* ed. James M. Olson, C. P. Herman, and Mark P. Zanna. New Jersey: L. Erlbaum Associates.

Ryff, Carol D. 1989. "Happiness is Everything, or Is It? Explorations on the Meaning of Psychological Well-Being." *Journal of Personality and Social Psychology*, 57: 1069–1081.

Schwandt, Hannes. 2016. "Unmet Aspirations as an Explanation for the Age U-shape in Wellbeing." *Journal of Economic Behavior and Organization* 122: 75–87.

Schwarz, Norbert and Fritz Strack. 1999. "Reports of Subjective Well-Being: Judgmental Processes and Their Methodological Implications." In *Well-Being: The Foundations of Hedonic Psychology,* ed. Daniel Kahneman, Ed Diener, and Norbert Schwarz. New York:

Russell Sage Foundation.

Steffel, Mary, and Daniel M. Oppenheimer. 2009. "Happy by What Standard? The Role of Interpersonal and Intrapersonal Comparisons in Ratings of Happiness." *Social Indicators Research*, 92(1): 69–79.

Stevenson, Betsey, and Justin Wolfers. 2009. "The Paradox of Declining Female Happiness." *American Economic Journal: Economic Policy*, 1(2), 190–225.

Stone, Arthur A., Stefan Schneider, Doerte U. Junghaenel, and Joan E. Broderick. 2019. "Response styles confound the age gradient of four health and well-being outcomes." *Social Science Research*, 78, 215–225.

Stone, Arthur, Joseph Schwartz, Joan Broderick, and Angus Deaton. 2010. "A snapshot of the age distribution of psychological well-being in the United States." *Proceedings of the National Academy of Sciences*, 107(22): 9985–9990.

Szabó, Andrea, and Gergely Ujhelyi. 2017. "Choice and Happiness in South Africa." *Economics Letters*, 155: 28–30.

Zhou, Jiannan. 2020. "Survey Evidence on Habit Formation: Existence, Specification, and Implication." https://jiannanzhou.com/research/habit/Habit_Zhou_Paper.pdf

Figure 1: Response Histograms, by SWB Question
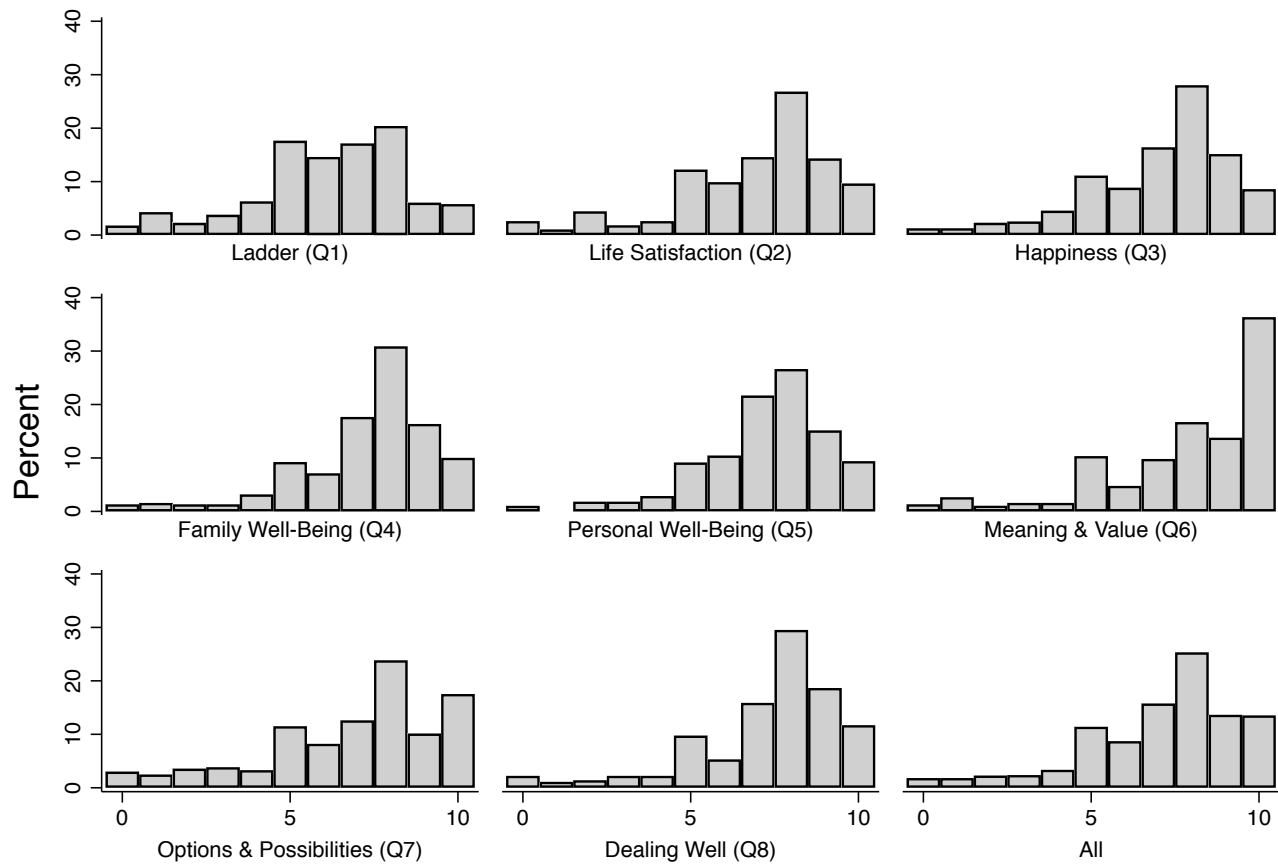
Notes: Based on 3,040 observations (All) and on 359–397 observations (each of Q1–Q8). Two respondents entered non-integers; these were rounded to the nearest integers.

Figure 2: Reported Weight Placed, by SWB Question
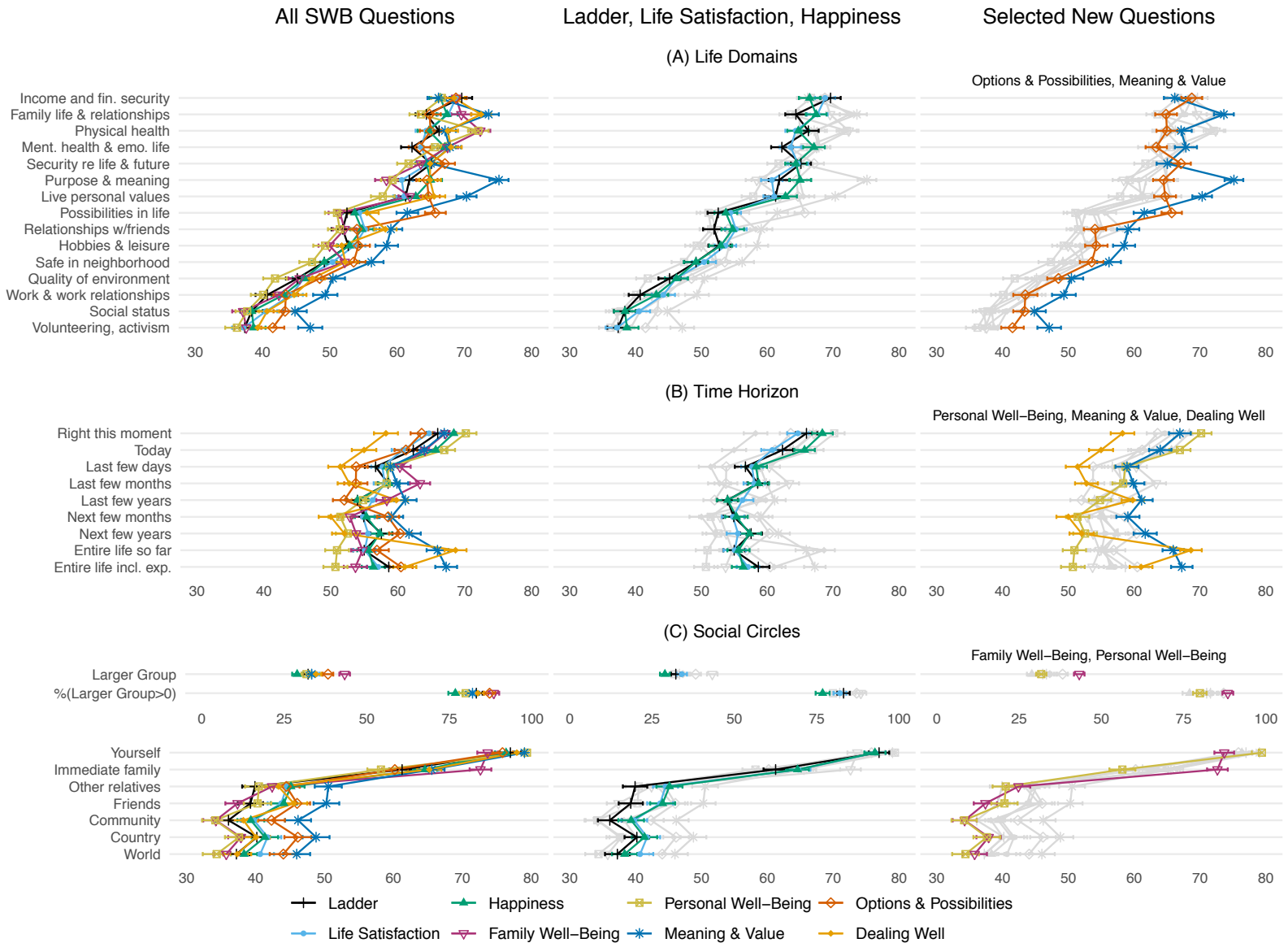
Notes: Based on 3,040 observations. Each row reports mean rating (0–100) by SWB question, other than "%(Larger Group > 0)" row, which reports percent of respondents who rated Larger Group above 0 (see text for details). "All SWB questions" column reports means/percent for all eight questions; "Ladder, Life Satisfaction, Happiness" column grays out all but these three widely used SWB questions; "Selected SWB questions" column grays out all but the two or three questions in the relevant mini-graph subtitle. Capped bars report standard errors.

Figure 3: Reported Weight Placed, by Demographics

Figure 4: Example Reported Weights for the Time-Horizon Sliders (Ladder Question)
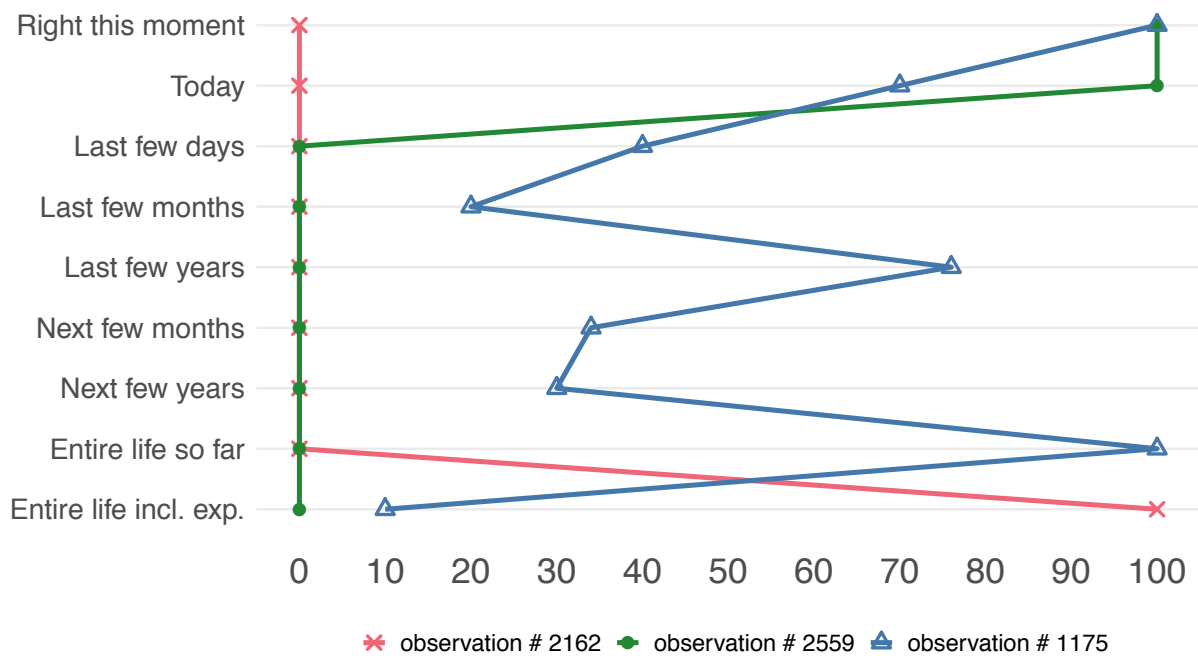
Notes: Slide responses for three (selected) survey respondents, all of whom had answered the Ladder SWB question.

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Web Appendix

Contents

1 Survey Demographics

Appendix Table I: Comparison of Survey Respondent Demographics to Census Data

	Self-Reported Well-being Survey			Census Etc.[1]
	# Observations[2]	Value	(SE)	Value
Mean values:				
Age	3005	48.2	(0.3)	46.4
Household size	3025	2.8	(0.0)	2.6
Percent:				
Female	3030	52.5	(0.9)	51.5
Non-White	3031	28.1	(0.8)	25.3
Married	3030	62.2	(0.9)	51.4
Employed	3031	59.0	(0.9)	59.0
Education	3031			
12 years or less (no diploma)		6.3	(0.4)	14.7
High school diploma		17.1	(0.7)	28.6
College		61.3	(0.9)	47.5
Graduate school		15.3	(0.7)	9.2
Total Household Income:	3029			
Less than $20,000		15.7	(0.7)	19.9
$20,000 to $40,000		18.7	(0.7)	21.7
$40,000 to $60,000		21.0	(0.7)	16.7
$60,000 to $100,000		26.8	(0.8)	21.3
$100,000 or more		17.9	(0.7)	20.4
Region:	3023			
Northeast		25.2	(0.8)	18.3
Midwest		23.8	(0.8)	21.7
South		29.5	(0.8)	37.0
West		21.5	(0.7)	23.0

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[1]Entire-population estimates for Household size, Children under 18 in household, and Total household income; age 18+ population estimates for all other variables; see Appendix Table II for further details.

[2]Number of respondents reporting demographic characteristic (out of a total of 3,040 respondents).

Appendix Table II: Data Source and Variable Construction for Census Etc. Column in Appendix Table I

Variable	Tables	Source	Notes
Age	Table PCT12: SEX BY AGE - Universe: Total population	2010 Census Summary File 1	Calculated mean for 18 years and older.
Household Size	Table DP-1: Profile of General Population and Housing Characteristics	2010 Census Summary File 1	Given as the average household size.
Female	Table DP-1: Profile of General Population and Housing Characteristics	2010 Census Summary File 1	Calculated mean for 18 years and older.
Non-White	Table QT-PL: Race, Hispanic or Latino, Age, and Housing Occupancy: 2010	2010 Census National Summary File of Redistricting Data	Calculated for 18 years and over. Individuals who reported 2 or more races were considered Non-White.
Married	Table B12002: SEX BY MARTIAL STATUS BY AGE FOR THE POPULATION 15 YEARS AND OVER - Universe: Population 15 years and over	2010 American Community Survey 1-Year Estimates	Calculated as married, excluding separated, for 18 years and over.
Employed	Table B01001: SEX BY AGE - Universe: Total population. Table B21005: AGE BY VETERAN STATUS BY EMPLOYMENT STATUS FOR THE CIVILIAN POPULATION 18 TO 64 - Universe: Population 16 years and over. Table B23001: SEX BY AGE BY EMPLOYMENT STATUS FOR THE POPULATION 16 YEARS AND OVER - Universe: population 16 years and over.	2010 American Community Survey 1-Year Estimates	Calculated percent employed for 18 years and over. Table includes military as employed, the estimate goes down by 0.2 percent if military personnel are dropped.
Education	Table B15001: SEX BY AGE BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 18 YEARS AND OVER - Universe: Population 18 years and over	2010 American Community Survey 1-Year Estimates	Calculated distribution for 18 years and over.
Total Household Income	Table HINC-06: Income Distribution to $250,000 or More for Households: 2010	Current Population Survey, 2011 Annual Social and Economic Supplement	Total household income.
Region	Table PCT12: SEX BY AGE - Universe: Total population	2010 Census Summary File 1	Chose geographic units as regions. Calculated for 18 years and over.

2 Multivariate Regression Analysis

In this appendix section we provide full details of the analysis summarized in the paper's Section VII. Much of the SWB literature in economics focuses on cross-group comparisons of responses to SWB questions. Such comparisons assume that SWB responses capture the same utility notion across the groups. However, in the main text Sections V.C and VI.C, we record evidence of cross-group weighting differences for time horizons and social circles, which suggests that this assumption may not hold.

We now explore how these weighting differences may affect conclusions about cross-group SWB comparisons. In the paper, we studied the entire profile of slider responses but examined only univariate sociodemographic splits one at a time (age, sex, income, and employment status) averaged across respondents. To facilitate comparisons with the literature, we now switch to a multivariate regression framework for the sociodemographics and summarize the slider responses with respondent-level summary indexes, as described below.

Conceptually, our approach has three steps (the same steps as in a mediation analysis, albeit with a somewhat different interpretation): (a) run a standard regression of SWB responses on a full set of available sociodemographics in our survey data; (b) re-run the regression but additionally control for respondents' weight profile on time horizon and/or social circle; then (c) examine how the coefficients on the sociodemographics are affected by the additional controls. To increase statistical power and reduce multiple hypothesis testing, we pool data from all the SWB questions, and we implement step (b) using only two variables: one summarizing time-horizon weights and one summarizing social-circle weights.

For example, one way that we construct a respondent-level measure of time-horizon weight profile is:

"Now-ness" = rank(Entire life so far) + rank(Entire life including expectations) − rank(Right this moment) − rank(Today),

where rank(x) is equal to 1 for the slider assigned the highest weight by the respondent, 2 for the second-highest weight, and so on (with ties dealt with in the usual way, e.g., if two sliders both receive the highest weight, then each has rank 1.5). Higher values of Now-ness correspond to higher weight on one's immediate present and lower weight on one's entire life. By constructing the variable using the ranks of the sliders rather than the 0–100 numerical weights assigned to them, we avoid attributing more than ordinal information to the slider responses.

Similarly, one way that we construct a respondent-level measure of social-circles weight profile is:

$$\text{``Me-ness''} = \text{rank(Your country)} + \text{rank(The world)} - \text{rank(Yourself)} - \text{rank(Your}$$
immediate family).

Higher values of Me-ness correspond to higher weight on one's self and immediate family and lower weight on country and world.[3] We also examine several alternative definitions of the Now-ness and Me-ness variables (both ordinal and cardinal) to ensure robustness of our findings.

The general model underlying our analysis is

$$y_i = f(x_{i1}, x_{i2}, ..., x_{iJ}, n_i, m_i) + \epsilon_i,$$

where y_i is respondent i's 0–10 response on the SWB question, $x_{i1}, x_{i2}, ..., x_{iJ}$ are standard sociodemographic variables used in the happiness literature (including sex, age, income, etc.), n_i is the Now-ness index, m_i is the Me-ness index, and ϵ_i is a mean-zero i.i.d. error term. We would like to estimate the associations between $x_{i1}, x_{i2}, ..., x_{iJ}$ and y_i when n_i and m_i are equal to specific values determined by the utility notion we are interested in. We contend that this is the specification that papers in the literature would also like to use, i.e., they would also like to estimate the associations between sociodemographics and SWB responses while holding fixed (across respondents) the utility notion elicited by the SWB question. However, in the absence of individual measures of time-horizon and social-circle weights, the regressions in the literature omit n_i and m_i. Step (c) in our analysis can be viewed as an investigation of the implications of this omission for estimated sociodemographic coefficients.

The utility notion we focus on here is *family-centered flow utility* (where "family" means self and immediate family). Our analysis is cleanest for this concept, for reasons that we now explain; note also that this concept may be the appropriate one for economic analysis that relies on household-level flow variables (such as income and consumption). In terms of the equation above, this utility notion corresponds to n_i and m_i equal to their maximum values. If n_i and m_i were in fact maximal, then respondent i's response would capture fully family-centered flow utility. For this particular utility notion, it does not matter whether the respondent has other-regarding preferences that include broader social circles than the

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[3]Recall from the paper's Section VI that the screen with eight social-circle sliders on which the Me-ness index is based on is only presented to respondents who gave non-0 weight to "Larger Group" in a preceding, single-slider screen. In addition, due to a coding error, it was also not presented to respondents who did not move the slider from its initial value at the midpoint between "Personal situation" and "Larger Group." In our main specification, for most of our measures we impute a value for the Me-ness index to these two groups of respondents. Specifically, the 523 respondents who gave 0 weight to "Larger Group" are assigned the average Me-ness value among the 463 respondents who gave 0–10 weight, and the 290 respondents who left the "Larger Group" weight at the default of 50 are assigned the average value among the 330 respondents who gave 40–60 weight. Appendix Table VIII reports robustness analysis in which we drop the relevant observations rather than using imputations; the table shows very similar results.

respondent's family. In contrast, for other utility notions, it may matter. For example, if we aimed for a utility notion that included the non-family altruistic component of preferences, we would want to know what the respondent's response to the SWB question would be if her response included that component of preferences. However, this response would correspond to different values of m_i for different respondents, depending on the extent of their other-regarding preferences.

The utility notion family-centered (or household-centered) flow utility is the most appealing in our context for another reason: it is closest to the weights observed in our data, so predicting what y_i would be if n_i and m_i were maximal relies on less extrapolation than predicting what y_i would be under other utility notions.

For simplicity, our regressions assume that the f function is linear:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + ... + \beta_J x_{iJ} + \beta_n n_i + \beta_m m_i + \epsilon_i.$$

When we estimate this equation without including n_i and m_i as regressors, it is a standard specification from the happiness literature. When we instead include n_i and m_i, because of the assumed linearity of f, the coefficients $\beta_1, \beta_2, ..., \beta_J$ can be interpreted as the associations of the sociodemographics with y_i when n_i and m_i are equal to their maximum values (or held fixed at any other values).[4] We caution, however, that our measures of n_i and m_i are likely to be noisy proxies, and if this measurement error is classical and uncorrelated with the sociodemographics, then the change in the estimates of the coefficients $\beta_1, \beta_2, ..., \beta_J$ from controlling for these proxies is a lower bound on what the effect of controlling for n_i and m_i would be.[5]

Appendix Table III reports our main results. The regressors in all columns are dichotomous measures of the following list of sociodemographics commonly included in happiness regressions in the literature: female, non-white, married, has kids, and unemployed, as well as above median age, religiousness, education, and income. As a preliminary step, columns (1) and (2) show coefficients from regressions of Now-ness and Me-ness, respectively, on the socio-demographics. The coefficients mostly have the same signs in the two columns, but the

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[4]While it would be possible to estimate a non-linear f function instead—for example, including interactions between n_i and m_i and the x_{ij}'s—we stick with the linear specification. We do so because we want to keep the analysis as simple as possible; our goal here is merely to examine the robustness of the β_{ij}'s to controlling for heterogeneity in Now-ness and Me-ness, rather than to obtain gold-standard estimates of the effects of the sociodemographics.

[5]For the case of a single control variable measured with error, the claim follows directly from known results (Garber and Klepper, 1980; for a direct proof, see https://blog.supplysideliberal.com/post/2019/10/10/adding-a-variable-measured-with-error-to-a-regression-only-partially-controls-for-that-variable). Therefore, the change in sociodemographics coefficients when we control for one of the profile variables is a lower bound on what the change would be from a non-noisy measure of the variable. The same logic then applies iteratively when we additionally control for the other profile variable.

standard errors are systematically smaller in the Me-ness column (2). To various degrees, respondents who are female, older, white, non-religious, and unemployed reported responding to the SWB questions as being both more about the present and more about themselves and their families. More educated respondents also reported putting higher weight on themselves and their families. These findings are consistent with the visual patterns discussed in the main text (Sections V.C and VI.C), although we detect more sociodemographic differences here in our multivariate regressions. We highlight, however, that the R^2 of the Now-ness regression in column (1) is much smaller than the R^2 of the Me-ness regression in column (2): 0.02 versus 0.08. Although this low R^2 may reflect real lack of explanatory power of demographics for Now-ness (even if perfectly measured), it could alternatively reflect a Now-ness measure that is a particularly noisy proxy for n_i.

Our main results, corresponding to steps (a)–(c) from above, are reported in columns (3)–(6). Column (3) shows the coefficients from a regression of SWB on the sociodemographics. The results broadly mirror those that have been found in the literature: SWB is higher among respondents who have higher income, are more educated, more religious, older, and married, and lower among the unemployed. We also find that in our data, SWB is higher among women.

Columns (4)–(6) show the *change* in coefficients when our measures of Now-ness (Column 4), Me-ness (5), and both (6) are added as controls. Overall, we find that controlling for our measure of Now-ness (Column 4) causes zero coefficient changes up to two decimal places. This finding may suggest, reassuringly, that in our data, most SWB associations with the sociodemographic groups are robust to the differences we found above in time-horizon weight profiles across the groups. We suspect, however, that our measure of Now-ness is particularly noisy. In that case, controlling for this measure would be expected to leave the other coefficients unchanged (see footnote 5 above). Appendix Tables IV–VIII show similar results when we use a range of alternative measures of Now-ness, suggesting that our data may be too noisy to construct a good proxy for Now-ness at the individual level.

In contrast, controlling for our measure of Me-ness (Column 5) results in several meaningful coefficient changes. The coefficients on non-white, religious, and unemployed, for example, increase in magnitude by 57, 13, and 7 percent, while those on old and female shrink by 15 percent and 10 percent, respectively. Such large changes would have a substantial impact in applications that rely on coefficient magnitudes, such as efforts to "price" the costs of unemployment in terms of the decrease of income associated with the same decrease in SWB (e.g., Clark and Oswald, 2002). Our results also suggest that the increase in SWB at older ages (associated with the "U-shape" of SWB with age) is partly driven by increasing Me-ness with age (this finding of ours is consistent with socioemotional selectivity theory,

which posits that as people age, they prioritize close relationships and obtain more satisfaction from them; for a review, see Löckenhoff and Carstensen, 2004). Our findings thus serve as a caution that conclusions in applications that depend on coefficient magnitudes may sometimes be driven by cross-group differences in the weights regarding whom the SWB question applies to.

At the same time, we find no meaningful differences across columns (3)–(6) in the coefficients on being married, having children, and having high income. While we do not know whether this coefficient stability generalizes to other datasets, in our data at least, these cross-group comparisons appear robust to any time-horizon and social-circles weight-profile differences across these groups.

References

Clark, Andrew, and Andrew J. Oswald. 2002. "A simple statistical method for measuring how life events affect happiness." *International Journal of Epidemiology*, 31(6): 1139–1144.

Garber, Steven and Steven Klepper. 1980. "Extending the Classical Normal Errors-in-Variables Model." *Econometrica*, 48(6): 1541–1546.

Löckenhoff, Corinna E., and Laura L. Carstensen. 2004. "Socioemotional Selectivity Theory, Aging, and Health: The Increasingly Delicate Balance Between Regulating Emotions and Making Tough Choices." *Journal of Personality*, 72(6): 1395–1424.

Appendix Table III: Benchmark Specification

Dependent Variable:	Now-ness	Me-ness	Original Well-Being			
			Baseline	Δ Controlling for		
				Now-ness	Me-ness	Both
	(1)	(2)	(3)	(4)	(5)	(6)
Female	1.01	0.81	0.42	-0.00	-0.04	-0.04
	(0.27)	(0.16)	(0.08)	(0.01)	(0.01)	(0.01)
Old	0.46	1.10	0.35	-0.00	-0.05	-0.05
	(0.30)	(0.17)	(0.09)	(0.00)	(0.01)	(0.01)
Non-White	-0.70	-0.98	0.07	0.00	0.04	0.04
	(0.31)	(0.20)	(0.10)	(0.00)	(0.01)	(0.01)
Married	-0.59	0.23	0.32	0.00	-0.01	-0.01
	(0.31)	(0.18)	(0.10)	(0.00)	(0.01)	(0.01)
Has Kids	0.40	0.31	0.16	-0.00	-0.01	-0.01
	(0.30)	(0.17)	(0.09)	(0.00)	(0.01)	(0.01)
Religious	-0.31	-0.85	0.30	0.00	0.04	0.04
	(0.28)	(0.17)	(0.08)	(0.00)	(0.01)	(0.01)
High Education	-0.11	0.33	0.28	0.00	-0.01	-0.02
	(0.30)	(0.17)	(0.09)	(0.00)	(0.01)	(0.01)
High Income	-0.05	0.01	0.50	0.00	-0.00	-0.00
	(0.31)	(0.18)	(0.09)	(0.00)	(0.01)	(0.01)
Unemployed	0.77	0.72	-0.45	-0.00	-0.03	-0.03
	(0.46)	(0.25)	(0.14)	(0.00)	(0.01)	(0.01)
Now-ness				0.00		-0.00
				(0.01)		(0.01)
Me-ness					0.04	0.04
					(0.01)	(0.01)
Observations	2989	2989	2989	2989	2989	2989
R^2	0.02	0.08	0.07	0.07	0.07	0.07

Notes: The total number of observations is 3040, including 2233 full responses, 756 imputed responses (see text for details), and 51 missing observations that are not included in the regressions. Columns (1)–(3) use OLS regression and columns (4)–(6) report the change in OLS coefficient caused by controlling for Now-ness and/or Me-ness, the standard errors were estimated using a stacked regression. All regressions control for political attitudes and region fixed effects. All regressions include a constant, which in columns (4)–(6) is estimated to intercept at 5.83 (0.15). Standard errors in parentheses.

This specification uses the example definitions of Now-ness and Me-ness mentioned in the body of the appendix, which we refer to hereafter as the basic specification. The indexes are calculated as follows:

Now-ness = rank(Entire life so far) + rank(Entire life including expectations) − rank(Right this moment) − rank(Today)

Me-ness = rank(Your country) + rank(The world) − rank(Yourself) − rank(Your immediate family)

Appendix Table IV: A variant of Appendix Table III, using a "Wider" definition of Now-ness and Me-ness

Dependent Variable:	Now-ness	Me-ness	Original Well-Being			
			Baseline	Δ Controlling for		
				Now-ness	Me-ness	Both
	(1)	(2)	(3)	(4)	(5)	(6)
Female	1.40	1.05	0.42	0.00	-0.04	-0.03
	(0.42)	(0.18)	(0.08)	(0.01)	(0.01)	(0.01)
Old	-0.39	1.60	0.35	-0.00	-0.06	-0.06
	(0.46)	(0.19)	(0.09)	(0.00)	(0.02)	(0.02)
Non-White	-1.36	-1.17	0.07	-0.00	0.04	0.04
	(0.47)	(0.23)	(0.10)	(0.00)	(0.01)	(0.01)
Married	-0.55	0.26	0.32	-0.00	-0.01	-0.01
	(0.47)	(0.21)	(0.10)	(0.00)	(0.01)	(0.01)
Has Kids	0.22	0.30	0.16	0.00	-0.01	-0.01
	(0.45)	(0.19)	(0.09)	(0.00)	(0.01)	(0.01)
Religious	-0.82	-1.14	0.30	-0.00	0.04	0.04
	(0.42)	(0.19)	(0.08)	(0.00)	(0.01)	(0.01)
High Education	-0.14	0.41	0.28	-0.00	-0.01	-0.02
	(0.45)	(0.19)	(0.09)	(0.00)	(0.01)	(0.01)
High Income	-0.07	0.06	0.50	-0.00	-0.00	-0.00
	(0.47)	(0.20)	(0.09)	(0.00)	(0.01)	(0.01)
Unemployed	1.39	0.85	-0.45	0.00	-0.03	-0.02
	(0.70)	(0.28)	(0.14)	(0.01)	(0.01)	(0.01)
Now-ness				-0.00		-0.00
				(0.00)		(0.00)
Me-ness					0.03	0.04
					(0.01)	(0.01)
Observations	2989	2989	2989	2989	2989	2989
R^2	0.02	0.11	0.07	0.07	0.07	0.07

Notes: The total number of observations is 3040, including 2233 full responses, 756 imputed responses (see text for details), and 51 missing observations that are not included in the regressions. Columns (1)–(3) use OLS regression and columns (4)–(6) report the change in OLS coefficient caused by controlling for Now-ness and/or Me-ness, the standard errors were estimated using a stacked regression. All regressions control for political attitudes and region fixed effects. All regressions include a constant, which in columns (4)–(6) is estimated to intercept at 5.83 (0.15). Standard errors in parentheses.

This specification uses the same ranking method as in the basic specification. The only difference is that this specification utilizes all variables:

Now-ness = rank(Next few months) + rank(Next few years) + rank(Entire life so far) + rank(Entire life including expectations) − rank(Right this moment) − rank(Today) − rank(Last few days) − rank(Last few months) − rank(Last few years)

Me-ness = rank(Other relatives) + rank(Your friends) + rank(Your community) + rank(Your country) + rank(The world) − rank(Yourself) − rank(Your immediate family)

Appendix Table V: A variant of Appendix Table III, using a "Narrow Ranking" definition of Now-ness and Me-ness

Dependent Variable:	Now-ness	Me-ness	Original Well-Being			
			Baseline	Δ Controlling for		
				Now-ness	Me-ness	Both
	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.45	0.45	0.42	-0.00	-0.04	-0.04
	(0.12)	(0.08)	(0.08)	(0.01)	(0.01)	(0.01)
Old	0.24	0.63	0.35	-0.00	-0.05	-0.05
	(0.13)	(0.09)	(0.09)	(0.00)	(0.01)	(0.01)
Non-White	-0.31	-0.53	0.07	0.00	0.04	0.04
	(0.13)	(0.10)	(0.10)	(0.00)	(0.01)	(0.01)
Married	-0.29	0.11	0.32	0.00	-0.01	-0.01
	(0.13)	(0.10)	(0.10)	(0.00)	(0.01)	(0.01)
Has Kids	0.20	0.13	0.16	-0.00	-0.01	-0.01
	(0.13)	(0.09)	(0.09)	(0.00)	(0.01)	(0.01)
Religious	-0.17	-0.49	0.30	0.00	0.04	0.04
	(0.12)	(0.09)	(0.08)	(0.00)	(0.01)	(0.01)
High Education	-0.04	0.15	0.28	0.00	-0.01	-0.01
	(0.12)	(0.09)	(0.09)	(0.00)	(0.01)	(0.01)
High Income	-0.09	0.04	0.50	0.00	-0.00	-0.00
	(0.13)	(0.09)	(0.09)	(0.00)	(0.01)	(0.01)
Unemployed	0.26	0.36	-0.45	-0.00	-0.03	-0.03
	(0.19)	(0.13)	(0.14)	(0.00)	(0.01)	(0.01)
Now-ness				0.01		0.00
				(0.01)		(0.01)
Me-ness					0.08	0.08
					(0.02)	(0.02)
Observations	2989	2989	2989	2989	2989	2989
R^2	0.02	0.09	0.07	0.07	0.07	0.07

Notes: The total number of observations is 3040, including 2233 full responses, 756 imputed responses (see text for details), and 51 missing observations that are not included in the regressions. Columns (1)–(3) use OLS regression and columns (4)–(6) report the change in OLS coefficient caused by controlling for Now-ness and/or Me-ness, the standard errors were estimated using a stacked regression. All regressions control for political attitudes and region fixed effects. All regressions include a constant, which in columns (4)–(6) is estimated to intercept at 5.83 (0.15). Standard errors in parentheses.

This specification only ranks the variables used in the equations (on a scale of 1 (Highest) – 4 (Lowest)). Ties are dealt with in the same way as in the basic specification. The equations are:

Now-ness = rank(Entire life so far) + rank(Entire life including expectations) − rank(Today) − rank(Right this moment)

Me-ness = rank(Country) + rank(World) − rank(Immediate family) − rank(Yourself)

Appendix Table VI: A variant of Appendix Table III, using a "Cardinal" definition of Now-ness and Me-ness

Dependent Variable:	Now-ness	Me-ness	Original Well-Being			
			Baseline	Δ Controlling for		
				Now-ness	Me-ness	Both
	(1)	(2)	(3)	(4)	(5)	(6)
Female	7.56	13.66	0.42	0.00	-0.03	-0.02
	(2.62)	(2.15)	(0.08)	(0.00)	(0.01)	(0.01)
Old	2.37	15.20	0.35	0.00	-0.03	-0.03
	(2.96)	(2.39)	(0.09)	(0.00)	(0.01)	(0.01)
Non-White	-8.21	-17.14	0.07	-0.00	0.03	0.03
	(2.89)	(2.48)	(0.10)	(0.00)	(0.01)	(0.01)
Married	-9.22	2.47	0.32	-0.00	-0.00	-0.01
	(2.98)	(2.43)	(0.10)	(0.01)	(0.00)	(0.01)
Has Kids	5.16	3.07	0.16	0.00	-0.01	-0.00
	(2.96)	(2.38)	(0.09)	(0.00)	(0.00)	(0.01)
Religious	-6.73	-14.13	0.30	-0.00	0.03	0.02
	(2.69)	(2.24)	(0.08)	(0.00)	(0.01)	(0.01)
High Education	-2.60	3.97	0.28	-0.00	-0.01	-0.01
	(2.88)	(2.35)	(0.09)	(0.00)	(0.01)	(0.01)
High Income	-0.18	2.42	0.50	-0.00	-0.00	-0.01
	(2.98)	(2.43)	(0.09)	(0.00)	(0.00)	(0.01)
Unemployed	13.79	12.15	-0.45	0.01	-0.02	-0.01
	(4.79)	(3.64)	(0.14)	(0.01)	(0.01)	(0.01)
Now-ness				-0.00		-0.00
				(0.00)		(0.00)
Me-ness					0.00	0.00
					(0.00)	(0.00)
Observations	2989	2989	2989	2989	2989	2989
R^2	0.02	0.10	0.07	0.07	0.07	0.07

Notes: The total number of observations is 3040, including 2233 full responses, 756 imputed responses (see text for details), and 51 missing observations that are not included in the regressions. Columns (1)–(3) use OLS regression and columns (4)–(6) report the change in OLS coefficient caused by controlling for Now-ness and/or Me-ness, the standard errors were estimated using a stacked regression. All regressions control for political attitudes and region fixed effects. All regressions include a constant, which in columns (4)–(6) is estimated to intercept at 5.83 (0.15). Standard errors in parentheses.

This specification uses the original cardinal variables (0 (Lowest) – 100 (Highest)):

Now-ness = (Today) + (Right this moment) − (Entire life so far) − (Entire life including expectations)

Me-ness = (Immediate family) + (Yourself) − (Country) − (World)

Appendix Table VII: A variant of Appendix Table III, using a "Standardized Cardinal" definition of Now-ness and Me-ness

Dependent Variable:	Now-ness	Me-ness	Original Well-Being			
			Baseline	Δ Controlling for		
				Now-ness	Me-ness	Both
	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.41	0.59	0.36	-0.00	-0.06	-0.05
	(0.13)	(0.10)	(0.09)	(0.01)	(0.02)	(0.02)
Old	0.07	0.79	0.30	-0.00	-0.08	-0.08
	(0.14)	(0.11)	(0.10)	(0.00)	(0.02)	(0.02)
Non-White	-0.40	-0.66	0.02	0.00	0.06	0.06
	(0.14)	(0.13)	(0.12)	(0.01)	(0.02)	(0.02)
Married	-0.22	0.23	0.25	0.00	-0.02	-0.02
	(0.15)	(0.12)	(0.11)	(0.00)	(0.01)	(0.01)
Has Kids	0.15	0.10	0.26	-0.00	-0.01	-0.01
	(0.14)	(0.11)	(0.10)	(0.00)	(0.01)	(0.01)
Religious	-0.10	-0.42	0.37	0.00	0.04	0.04
	(0.13)	(0.10)	(0.09)	(0.00)	(0.01)	(0.01)
High Education	-0.04	0.23	0.28	0.00	-0.02	-0.02
	(0.14)	(0.11)	(0.10)	(0.00)	(0.01)	(0.01)
High Income	-0.12	0.02	0.43	0.00	-0.00	-0.00
	(0.14)	(0.11)	(0.10)	(0.00)	(0.01)	(0.01)
Unemployed	0.30	0.38	-0.47	-0.00	-0.04	-0.03
	(0.21)	(0.17)	(0.16)	(0.00)	(0.02)	(0.02)
Now-ness				0.00		-0.01
				(0.02)		(0.02)
Me-ness					0.10	0.10
					(0.02)	(0.02)
Observations	2143	2143	2143	2143	2143	2143
R^2	0.02	0.11	0.08	0.08	0.08	0.08

Notes: The total number of observations is 3040. 2233 full responses, except this specification drops 90 observations with no variation in answers (cannot divide by standard deviation of 0) or missing answers. Columns (1)–(3) use OLS regression and columns (4)–(6) report the change in OLS coefficient caused by controlling for Now-ness and/or Me-ness, the standard errors were estimated using a stacked regression. All regressions control for political attitudes and region fixed effects. All regressions include a constant, which in columns (4)–(6) is estimated to intercept at 5.86 (0.17). Standard errors in parentheses.

This version standardizes the cardinal variables for each individual using the following algorithm: $Std\_Variable_i = \frac{Variable_i - Mean_i}{SD_i}$, where $Mean_i$ and SD_i are the mean and standard deviation of each individual's answers respectively. The equations are:

Now-ness = (Std_Today) + (Std_Right this moment) - (Std_Entire life so far) - (Std_Entire life including expectations)

Me-ness = (Std_Immediate family) + (Std_Yourself) - (Std_Country) - (Std_World)

Appendix Table VIII: A variant of Appendix Table III, without imputations

Dependent Variable:	Now-ness	Me-ness	Original Well-Being			
			Baseline	Δ Controlling for		
				Now-ness	Me-ness	Both
	(1)	(2)	(3)	(4)	(5)	(6)
Female	1.09	1.16	0.35	-0.00	-0.05	-0.05
	(0.32)	(0.21)	(0.09)	(0.01)	(0.01)	(0.02)
Old	0.17	1.34	0.28	-0.00	-0.06	-0.06
	(0.35)	(0.23)	(0.10)	(0.00)	(0.02)	(0.02)
Non-White	-1.15	-1.30	0.01	0.00	0.05	0.06
	(0.36)	(0.26)	(0.12)	(0.01)	(0.02)	(0.02)
Married	-0.25	0.49	0.31	0.00	-0.02	-0.02
	(0.37)	(0.25)	(0.11)	(0.00)	(0.01)	(0.01)
Has Kids	0.27	0.40	0.24	-0.00	-0.02	-0.02
	(0.35)	(0.23)	(0.10)	(0.00)	(0.01)	(0.01)
Religious	-0.17	-0.94	0.37	0.00	0.04	0.04
	(0.32)	(0.22)	(0.09)	(0.00)	(0.01)	(0.01)
High Education	-0.03	0.40	0.27	0.00	-0.02	-0.02
	(0.35)	(0.23)	(0.10)	(0.00)	(0.01)	(0.01)
High Income	-0.21	-0.01	0.42	0.00	0.00	0.00
	(0.36)	(0.23)	(0.10)	(0.00)	(0.01)	(0.01)
Unemployed	0.68	0.82	-0.41	-0.00	-0.03	-0.03
	(0.55)	(0.34)	(0.16)	(0.00)	(0.02)	(0.02)
Now-ness				0.00		0.00
				(0.01)		(0.01)
Me-ness					0.04	0.04
					(0.01)	(0.01)
Observations	2219	2219	2219	2219	2219	22
R^2	0.02	0.09	0.07	0.07	0.08	0.08

Notes: The total number of observations is 3040, 821 were dropped due to missing observations. Columns (1)–(3) use OLS regression and columns (4)–(6) report the change in OLS coefficient caused by controlling for Now-ness and/or Me-ness, the standard errors were estimated using a stacked regression. All regressions control for political attitudes and region fixed effects. All regressions include a constant, which in columns (4)–(6) is estimated to intercept at 5.89 (0.17). Standard errors in parentheses.

3 Correlation Tables

Appendix Table IX: Correlation of Domain Weights Between Questions

	Ladder	Life Satisfaction	Happiness	Family Well-Being	Personal Well-Being	Meaning & Value	Options & Possibilities	Dealing Well
Ladder	1							
Life Satisfaction	0.99	1						
Happiness	0.98	0.98	1					
Family Well-Being	0.97	0.97	0.96	1				
Personal Well-Being	0.97	0.96	0.96	0.99	1			
Meaning & Value	0.92	0.92	0.96	0.89	0.89	1		
Options & Possibilities	0.95	0.94	0.94	0.9	0.91	0.91	1	
Dealing Well	0.97	0.98	0.99	0.97	0.96	0.95	0.93	1

Appendix Table X: Correlation of Time-Horizon Weights Between Questions

	Ladder	Life Satisfaction	Happiness	Family Well-Being	Personal Well-Being	Meaning & Value	Options & Possibilities	Dealing Well
Ladder	1							
Life Satisfaction	0.94	1						
Happiness	0.96	0.95	1					
Family Well-Being	0.74	0.88	0.82	1				
Personal Well-Being	0.85	0.95	0.94	0.94	1			
Meaning & Value	0.52	0.43	0.39	0.1	0.2	1		
Options & Possibilities	0.72	0.5	0.63	0.1	0.37	0.64	1	
Dealing Well	-0.07	-0.03	-0.12	-0.12	-0.17	0.74	0.03	1

Appendix Table XI: Correlation of Social-Circle Weights Between Questions

	Ladder	Life Satisfaction	Happiness	Family Well-Being	Personal Well-Being	Meaning & Value	Options & Possibilities	Dealing Well
Ladder	1							
Life Satisfaction	0.996	1						
Happiness	0.992	0.998	1					
Family Well-Being	0.958	0.974	0.972	1				
Personal Well-Being	0.993	0.989	0.989	0.932	1			
Meaning & Value	0.997	0.995	0.996	0.951	0.998	1		
Options & Possibilities	0.995	0.986	0.981	0.928	0.994	0.993	1	
Dealing Well	0.989	0.996	0.998	0.965	0.989	0.994	0.981	1

4 Reported Weight, by Demographics and by Questions

Appendix Table XII: A variant of Figure 2, for the standard SWB questions: Ladder, Life Satisfaction, Happiness
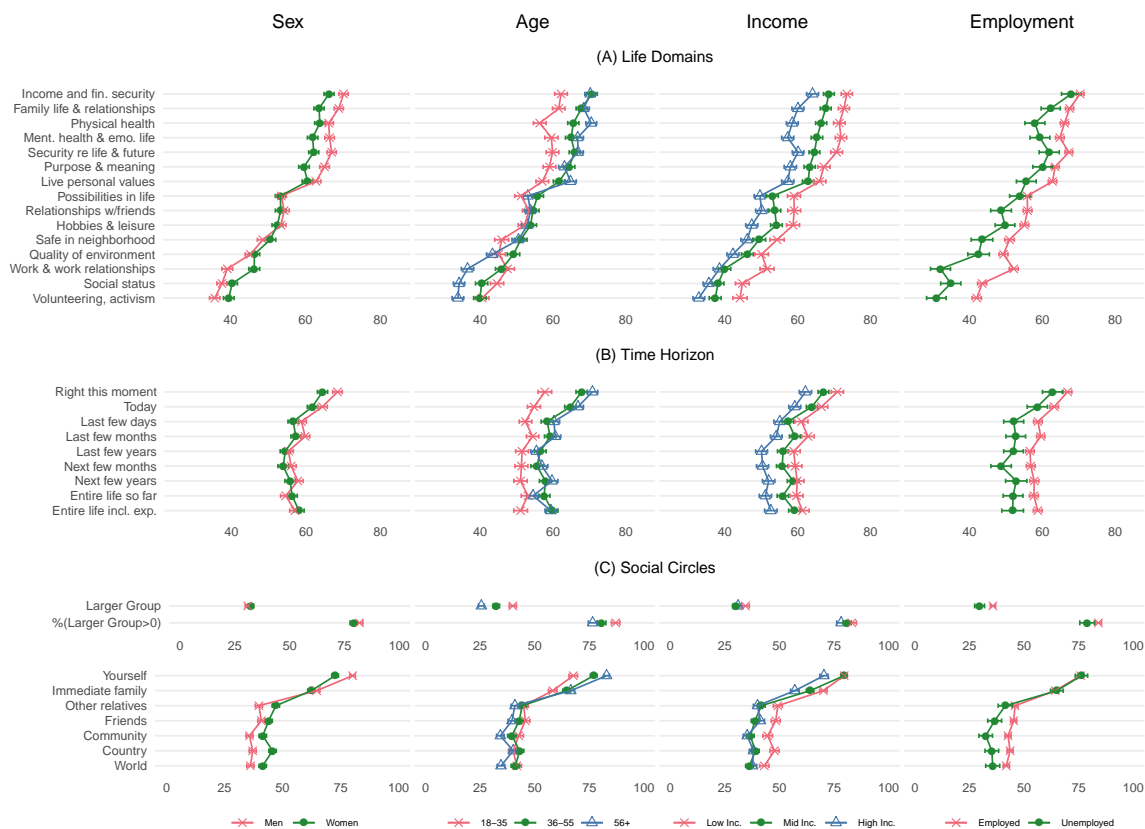
Notes: The total number of observations is 1177. Each row reports mean rating (0–100) by demographics, other than "%(Larger Group > 0)" row, which reports percent of respondents who rated Larger Group above 0 (see text for details). Each single mini-graph is based on 611–1172 observations. Capped bars report standard errors.

Notes: The total number of observations is 762. Each row reports mean rating (0–100) by demographics,
other than "%(Larger Group > 0)" row, which reports percent of respondents who rated Larger Group
above 0 (see text for details). Each single mini-graph is based on 400–762 observations. Capped bars report
standard errors.

Appendix Table XIV: A variant of Figure 2, for the SWB questions: Meaning & Value, Options & Possibilities, Dealing Well
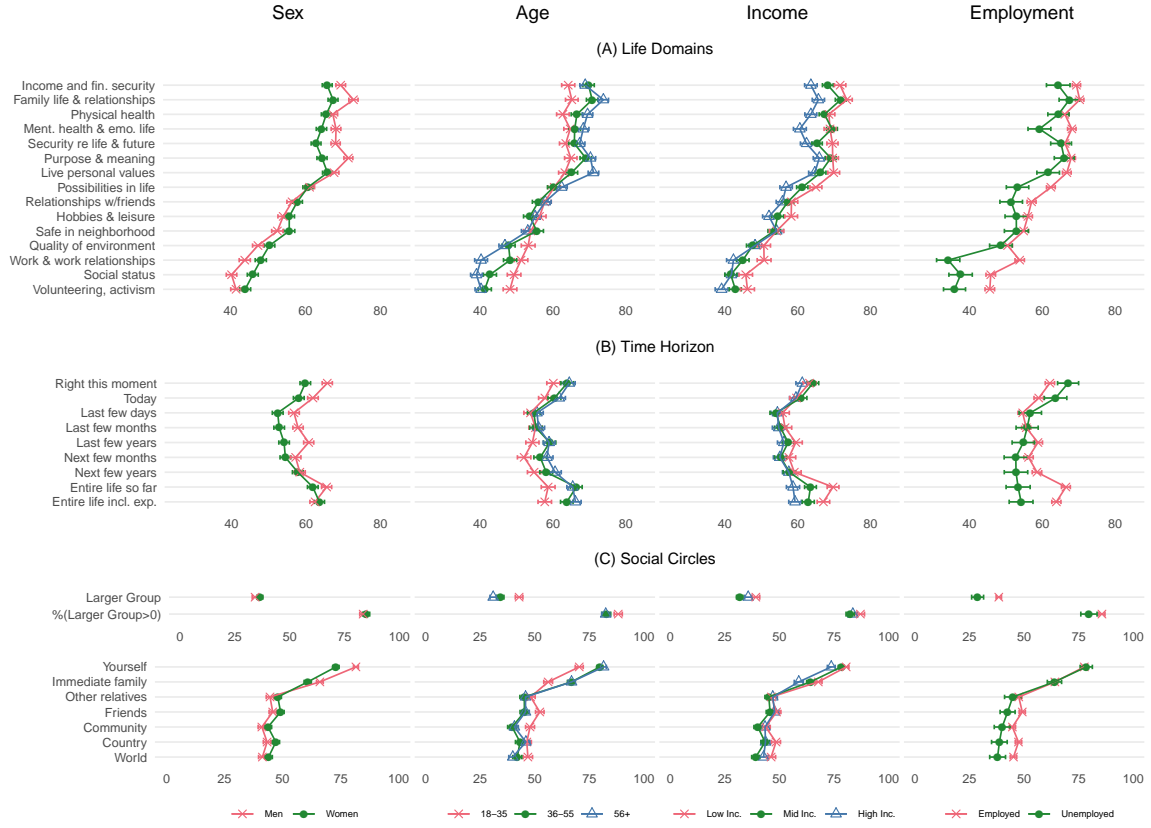
Notes: The total number of observations is 1101. Each row reports mean rating (0–100) by demographics, other than "%(Larger Group > 0)" row, which reports percent of respondents who rated Larger Group above 0 (see text for details). Each single mini-graph is based on 579–1097 observations. Capped bars report standard errors.

5 Survey Screenshots

The following pages contain screenshots of the survey:

Welcome to the survey! Please think carefully about each question, and answer each question as best as you can.

There are no right or wrong answers. If you need to think about a question, please take your time. If you're not sure what a question means, or if you're not sure about your answer, please do the best you can and give us your best guess. We'll ask you at the end for feedback about the survey.

Thank you again for your participation. Please click "Next" to get started.

Survey Completion

0% [   ] 100%

Next

Cornell University

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

Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied):

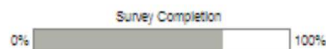Survey Completion

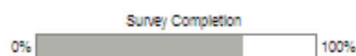0% [   ] 100%

Next

Cornell University

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

Many important surveys ask people questions much like the Life Satisfaction Question you have just answered (copied above, along with your answer), but little is known about how respondents understand such questions and how they form their answer. The purpose of this study is to better understand how people reason when they answer this Life Satisfaction Question. This will help researchers to make better use of the resulting data, in particular when they compare the responses of different people.

On the following screens, we will ask you questions about how you answered the Life Satisfaction Question. To help you remember the Life Satisfaction Question and the answer you have just given, the question and your answer will keep appearing at the top of the following screens (just like they appear above).

When you are ready to continue, please click "Next."

Survey Completion

0% [   ] 100%

Next

24

Options & Possibilities Question: *On a scale from 0 to 10, to what extent do you feel that your life is full of options and possibilities that you are free to choose from? Please give a number between 0 (extremely limited options to choose from) and 10 (very many options to choose from).*

You answered: *8*

In this survey, you will see a set of slider questions like the one below. When you respond to these questions, a number between 0 and 100 will appear, where 0 means "Not at All" and 100 means "A Lot".

The number that appears is the percentage of "A Lot" that you have selected for this question or category (given what "A Lot" means for you).

Example Question:
How much did you enjoy answering the Options & Possibilities Question?

Not at All   A Lot

How much did you
enjoy answering the
Options & Possibilities
Question?

Survey Completion
0% [   ] 100%

Next

Cornell University

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

Just to make sure that the meaning of the slider is clear, your response to the example question means that you enjoyed answering the Life Satisfaction Question 0% as much as you would have needed to enjoy it in order for you to provide a response of "A Lot".

Please click "Next" to proceed with the survey.

Survey Completion

0% [   ] 100%

Next

Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

Your answer to the Life Satisfaction Question was 7. *Using the same yardstick* that led you to answer 7, what would have to be different for you to answer 10?

Before you answer, let us explain what we mean by "*the same yardstick*." Think of teachers who grade students' exams. Some teachers give higher grades while others give lower grades, even when grading the same set of exams. To describe that difference in grading standards, we would say that different teachers use different *yardsticks*. In that example, "*using the same yardstick*" means giving the same grade to the same exam performance. When we ask you to "*use the same yardstick*," we mean we don't want you to change how you translate a given situation into a number. Rather, we want to know how the situation would have to be different for you to answer a particular number to the Life Satisfaction Question.

To help you answer this general question, first please pause for a few seconds and think about the moment when you first answered 7. At that time, if you thought of what would have to be different for you to answer 10, what picture did you have in mind? We won't ask you to actually tell us what you had in mind, but we would like you to keep that picture in your mind as you answer the next few questions.

Survey Completion

0% [   ] 100%

Next

Cornell University

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

If *your current difficulties are solved*, would that be enough for you to answer 10, or were you picturing a 10 as better than that?

I pictured a 10 as better ○

Would be enough ○
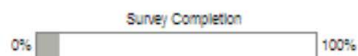
Survey Completion

0% [ ] 100%

Next

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

When you answered the Life Satisfaction Question, did you evaluate your situation as it is right this moment or over a longer period of time, in the past or in the future? To what extent did you evaluate your situation...

Please note: When you decide where the slider belongs for each time period, consider the importance of that time period on its own, and not in comparison with the other items in the table.

	Not at All	A Lot
Right this moment (while answering the survey)		
Today		
In the last few days		
In the last few months		
In the last few years		
In the next few months		
In the next few years		
Over your entire life so far, until this moment		
Over your entire life, including your expectations for the future		
Other (please specify):		

Survey Completion

0% 100%

Next

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

When you answered the Life Satisfaction Question, to what extent did you evaluate the situation of...

Please note: When you decide where the slider belongs for each person or set of people, consider the importance of that group on its own, and not in comparison with the other items in the table.

Not at All   A Lot

Yourself

Your immediate family
(parents, children,
siblings, spouse)

Other relatives

Your friends

Your community

Your country

The world

Other (please specify):

Survey Completion
0% 100%

Next

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

People often attribute unequal importance to various aspects of their life. When answering the Life Satisfaction Question, how much weight do you think the following aspects of your situation had on your answer?

Please note: When you decide where the slider belongs for each aspect, consider the importance of that aspect *on its own*, and not in comparison with the other items in the table.

	Not at All	A Lot
Having many possibilities in life to choose from		
Security about life and the future in general		
Quality of the environment		
Physical health		
Family life and family relationships		
Social status		
Mental health and emotional life		
Work and relationships with co-workers		
Hobbies and leisure activities		
Relationships with friends		
Feeling safe in your neighborhood		
Sense of purpose and meaning in life		
Ability to live according to personal values		
Volunteering and/or activism		
Income and financial security		
Other (please specify):		

Survey Completion

0%　　　　100%

Next

Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

In your opinion, *using the same yardstick* that led you to answer 7, what percentage of people in the country have a situation and experience to which you would give more than 7 as an answer?

Percentage, between 0% and 100%:
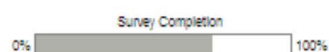
[ ] %

Survey Completion
0% [========   ] 100%

Next

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

Now suppose that you win the lottery. The prize gives you 10% more income per year for the rest of your life than what you would otherwise have had. *Using the same yardstick* that led you to answer 7 to the Life Satisfaction Question, what would be your answer to the Life Satisfaction Question now?

Please give a number from 0 to 10. (Feel free to give a response that includes decimals.)
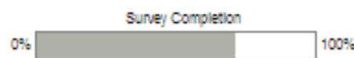
Survey Completion

0% [▬▬▬▬▬▬] 100%

Next

Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

What percentage of people in this country do you consider to have a situation and experience that you rate better than yours in the Life Satisfaction Question, after you find that you have 10% more income every year from the lottery winnings?
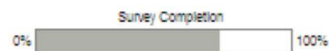
Percentage, between 0% and 100%:

[____] %

Survey Completion

0% [████████____] 100%

Next

36

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

Now suppose that you win the lottery, but that the prize is a <u>20%</u> increase in your income every year for the rest of your life (relative to what you would otherwise have had). *Using the same yardstick* that led you to answer 7 to the Life Satisfaction Question, what would be your answer to the Life Satisfaction Question now?

Please write a number from 0 to 10. (Feel free to give a response that includes decimals.)

Survey Completion

0%   100%

Next

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

What percentage of people in this country do you consider to have a situation and experience that you rate better than yours in the Life Satisfaction Question, after you find that you have <u>20%</u> more income every year from the lottery winnings?

Percentage, between 0% and 100%:

%

Survey Completion

0%   100%

Next

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

When you answered the Life Satisfaction Question, to what extent did you come up with a particular number on the 0-10 scale by...

Please note: When you decide where the slider belongs for each category, consider the importance of that category on its own, and not in comparison with the other items in the table.

	Not at All	A Lot
Comparing your situation to your life in the past		
Comparing your situation to the situation of other people		
Thinking about your usual *emotions and feelings* these days		
Comparing your situation to your goals		
Thinking about how you *should* answer given your situation		
Comparing your situation to some absolute standard		
Other (please specify):		

Survey Completion

0% 100%

Next

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Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

What determines how you should answer given your situation? To what extent do the following considerations determine how you "should" answer?

Please note: When you decide where the slider belongs for each category, consider the importance of that category *on its own*, and not in comparison with the other items in the table.

	Not at All	A Lot
How you would want yourself to answer given your situation (i.e., how satisfied your "ideal self" would be)		
Moral or religious principles		
An "objective" assessment of your situation		
The normal/standard answer people would give to this question		
Other people's opinions about your situation		
Other (please specify):		

Survey Completion

0% 100%

Next

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

When you answered 7, to what extent did you come up with a particular number on the 0-10 scale by making a comparison between your situation and some references such as...

Please note: When you decide where the slider belongs for each category, consider the importance of that category on its own, and not in comparison with the other items in the table.

	Not at All	A Lot
People in other countries		
People in previous generations		
Your family members or relatives		
Your friends		
Your expectations		
Your colleagues or co-workers		
People whom you consider to have better life situations and experiences than yours		
Your neighbors and community		
Your own goals and aspirations		
Your situation in the past		
The average person in your country		
People whom you consider to have worse life situations and experiences than yours		
Your idea of what a good life for a human being is supposed to be		
People you consider as your role models		
Other (please specify):		

Survey Completion
0% _____ 100%

Next

41

Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

If the situation of the following persons improved while your own personal situation did not change, do you think that this would increase, decrease, or leave unchanged your answer to the Life Satisfaction Question?

	Increase	Decrease	Leave Unchanged	Does Not Apply
Your partner	○	○	○	○
Your children	○	○	○	○
Your siblings	○	○	○	○
Your siblings' partners	○	○	○	○
Your parents	○	○	○	○
Other relatives	○	○	○	○
Your friends	○	○	○	○
Your colleagues	○	○	○	○
Your neighbors	○	○	○	○
Your community	○	○	○	○
Your country	○	○	○	○
Other (please specify):	○	○	○	○

Survey Completion

0% 100%

Next

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Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

Think of the goals, aspirations, and dreams you had in mind when you answered the Life Satisfaction Question. *Using the same yardstick* that led you to answer 7 to the Life Satisfaction Question, what would be your answer in a situation in which all your goals, aspirations and dreams were realized?

Please give a number from 0 to 10:

Survey Completion

0% ▭ 100%

Next

Cornell University

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: *7*

And what percentage of the population in this country would still have a situation and experience that you rate better than yours if these goals, dreams, and aspirations were realized?

Percentage, between 0% and 100%:

[_____] %

Survey Completion

0% [▓▓▓▓▓▓▓▓▓▓▓▓░░░] 100%

[Next]

Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

To achieve the goals, aspirations, and dreams you have today about what will happen over the next year, it would take:

Mostly Luck   Mostly Effort

Survey Completion

0%   100%

Next

Cornell University

Life Satisfaction Question: All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).

You answered: 7

Consider the situation you were in five years ago. *Using the same yardstick* that you used when answering the Life Satisfaction Question at the beginning of this survey, how would you rate that situation from five years ago?

Please give a number between 0 and 10:

Survey Completion

0%   100%

Next

Cornell University

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

And how do you think you would have actually answered the Life Satisfaction Question five years ago, with the *yardstick* you would have used back then?

Please give a number between 0 and 10:

Survey Completion

0% ▮▮▮▮▮▮▮ 100%

Next

47

Cornell University

Ladder Question: Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time? Please give a number from 0 to 10.

You answered: 8

How would you explain the difference between the response you would have answered to the Ladder Question five years ago and the answer of 8 that you gave to the Ladder Question at the beginning of the survey? (Please select all that apply.)

☐ My goals in life are different

☐ My situation is different

☐ My beliefs about what is possible in my life have changed

☐ I compare myself to different people

☐ My values have changed

☐ My mood/feelings are different

☐ I use a different *yardstick* to evaluate my situation

☐ Other (please specify):

[ ]

Survey Completion

0% [▓▓▓▓▓▓▓▓▓▓▓▓▓▓] 100%

[Next]

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Cornell University

Life Satisfaction Question: *All things considered, how satisfied are you with your life as a whole these days? Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied).*

You answered: 7

Relative to five years ago, would you say that for a similar situation and experience...

○ I now give higher numbers in response to the Life Satisfaction Question

○ I now give lower numbers in response to the Life Satisfaction Question

○ I give similar numbers now as I did then in response to the Life Satisfaction Question

○ I don't know

Survey Completion

0% [▓▓▓▓▓▓▓▓▓▓▓▓   ] 100%

Next

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Cornell University

You are almost done; in the next screens we are only going to ask you a few demographic questions for statistical purposes. Before we do that, we are going to ask you the Life Satisfaction Question again because some participants have told us that after taking the survey, they would want to change their answer to this question. Please feel free to respond with the same answer that you gave before or to give a different answer; please just try to answer the question as best you can:

The Life Satisfaction Question:
All things considered, how satisfied are you with your life as a whole these days?

Please give a number between 0 (extremely dissatisfied) and 10 (extremely satisfied):

Survey Completion
0%   100%

Next

Why did your answer to the Ladder Question change since the beginning of the survey?

Survey Completion

0% [████████____] 100%

Next

What is your gender?
- Male
- Female

In what year were you born?

Which best describes your religious affiliation or beliefs?
- Protestant
- Catholic
- Jewish
- Muslim
- Buddhist
- No religion or agnostic
- Other (please specify):

Which of the following best describes how often you attend religious services?
- About once a week or more
- Once or twice a month
- Rarely
- Never

How important is religion in your life?
- Not important
- A little important
- Pretty important
- Very important

In general, which of the following best describes your *political* views?
- Very liberal
- Liberal
- Slightly liberal
- Moderate
- Slightly conservative
- Conservative
- Very conservative

Thinking about *economic issues*, which of the following best describes your attitudes?
- Very liberal
- Liberal
- Slightly liberal
- Moderate
- Slightly conservative
- Conservative
- Very conservative

Thinking about *social issues*, which of the following best describes your attitudes?
- Very liberal
- Liberal
- Slightly liberal
- Moderate
- Slightly conservative
- Conservative
- Very conservative

Do you consider yourself a...
- Republican
- Democrat
- Independent
- Other
- None of the above

What region of the United States do you currently live in?
- Northeast
- Midwest
- South
- West

Which best describes your race?
- White or Caucasian (non-Hispanic)
- Hispanic or Latino
- Black or African-American
- American Indian, Aleut, Eskimo
- Asian or Pacific Islander
- Do not know
- Other (please specify):

What is the highest degree or level of schooling you have completed?
- No schooling completed
- Grade 1 through Grade 11
- 12th Grade (No Diploma)
- High School Diploma
- Some College
- Associate's Degree (2 year degree)
- Bachelor's Degree
- Master's Degree
- Professional Degree (ex. MD, JD, LLB)
- Doctorate Degree

Which of the following best describes your employment status?
- Employed Full-Time
- Employed Part-Time
- Student
- Self-Employed
- Unemployed
- On Temporary Leave from Work
- Retired
- Other (please specify):

What is your current marital status?
- Married
- Living with a significant other
- Widowed
- Divorced
- Separated
- Single
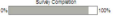
What is your annual household income?
- Under $20,000
- $20,000 - $39,999
- $40,000 - $59,999
- $60,000 - $79,999
- $80,000 - $99,999
- $100,000 - $149,999
- $150,000 or more

How many people currently live in your household? (Including yourself)

How many children do you have, if any?

Survey Completion

0% [   ] 100%

Next

52

How enjoyable or annoying did you find answering this survey?

Extremely Annoying   Extremely Enjoyable

Survey Completion

0% [   ] 100%

Next

Cornell University

What did you like or dislike about the survey? Please share any comments you may have. Thank you again for participating!

Survey Completion

0% [_____] 100%

Next

Cornell University

We thank you for your time spent taking this survey.
Your response has been recorded.

Survey Completion
0% [   ] 100%

For online publication only

What Do Happiness Data Mean? Theory and Survey Evidence

Daniel J. Benjamin
Jakina Debnam Guzman
Marc Fleurbaey
Ori Heffetz
Miles Kimball

January 29, 2021

Individual Responses Web Appendix

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1 Time Horizon Individual Responses

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Ladder — Happiness — Personal Well–Being — Options & Possibilities

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Ladder — Happiness — Personal Well–Being — Options & Possibilities

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Ladder, Happiness, Personal Well–Being, Options & Possibilities, Life Satisfaction, Family Well–Being, Meaning & Value, Dealing Well

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Ladder   Happiness   Personal Well–Being   Options & Possibilities

Life Satisfaction   Family Well–Being   Meaning & Value   Dealing Well

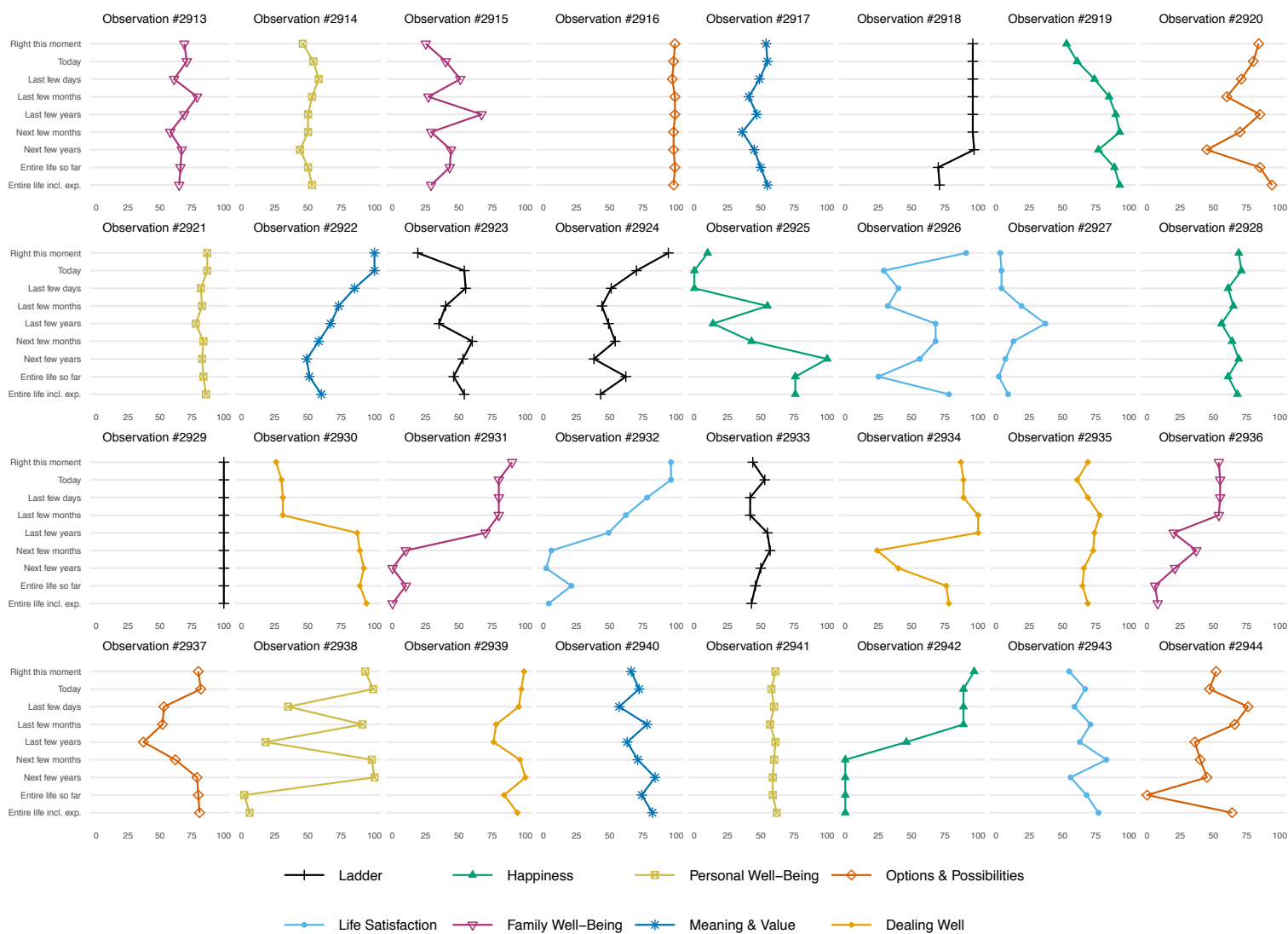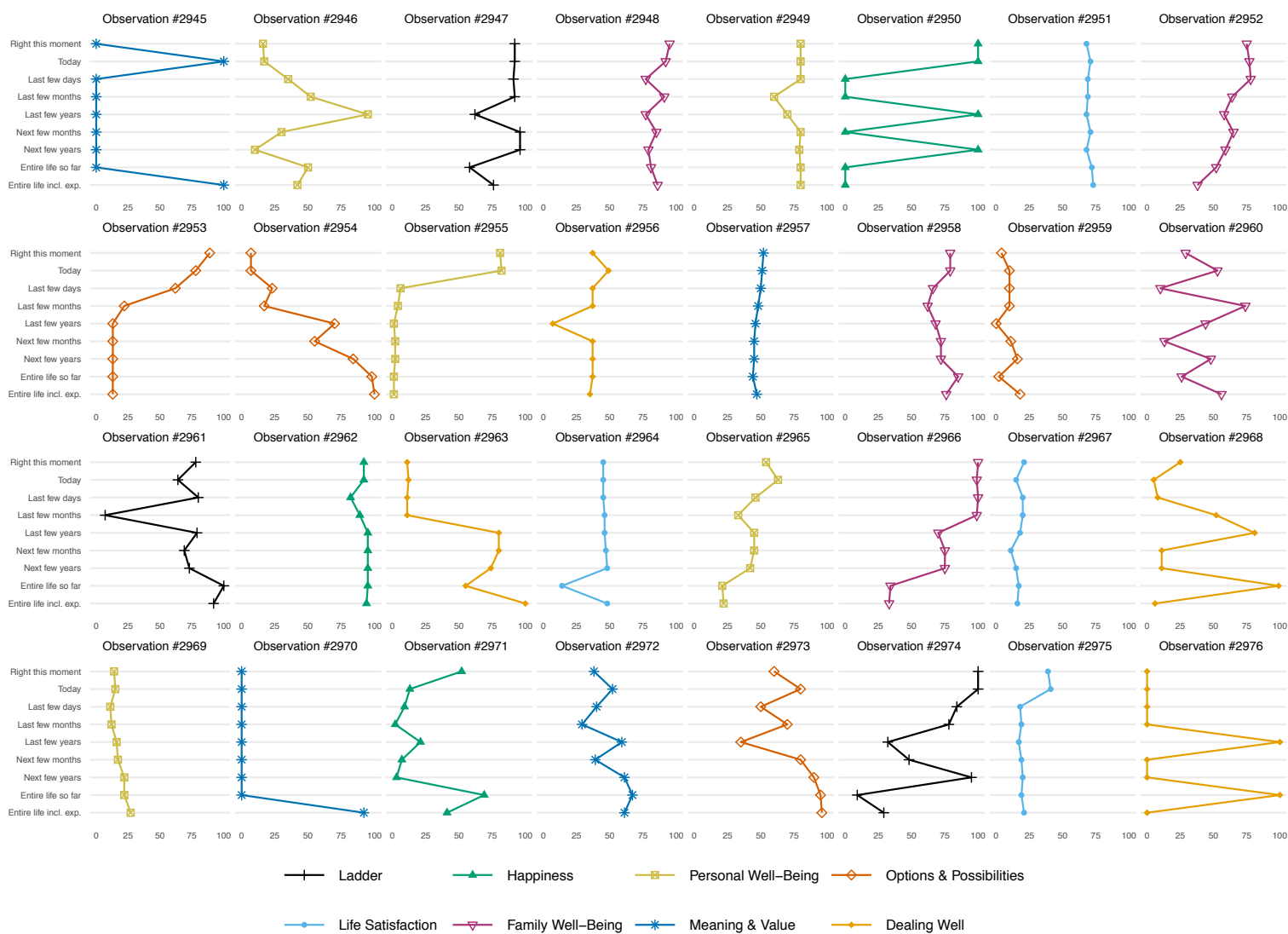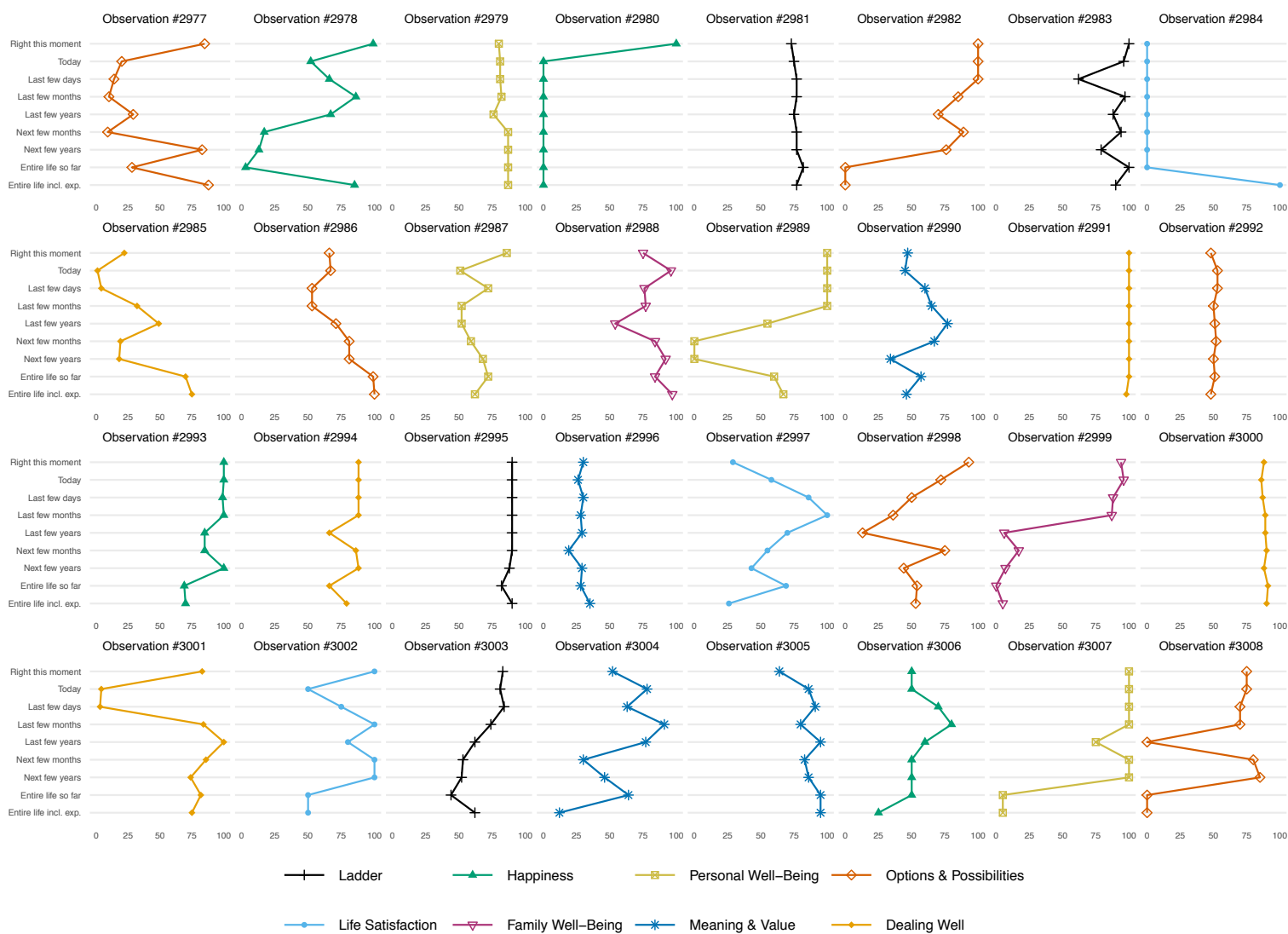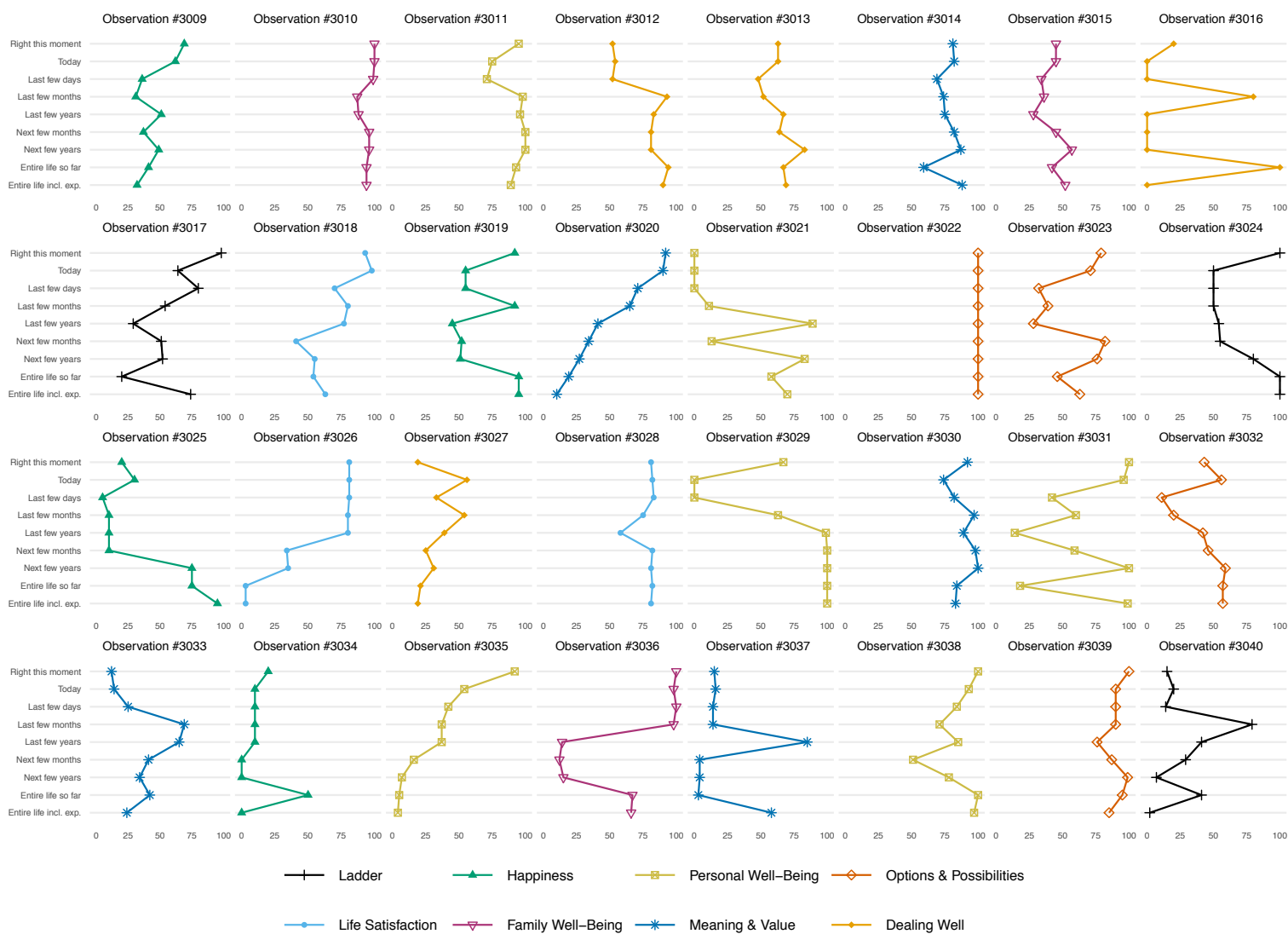# 2 Social Circle Individual Responses

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Ladder — Happiness — Personal Well–Being — Options & Possibilities

Life Satisfaction — Family Well–Being — Meaning & Value — Dealing Well

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