Evaluative and hedonic wellbeing among those with and without children at home

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We document and interpret differences in life evaluation and in hedonic experience between those who live with children and those who do not; most previous literature has concluded that those with children have worse lives. For a sample of 1.8 million Americans of all ages, and without controls for other circumstances, we find little difference in subjective wellbeing between people with and without children. Among those most likely to be parents, life evaluation and all hedonic experiences except stress are markedly better among those living with a child. However, within this group, people who live with children are more likely to be married, richer, better educated, more religious, and healthier, all of which have well-documented positive associations with evaluative and hedonic wellbeing. With statistical controls for these background factors, the presence of a child has a small negative association with life evaluation, although it is associated with more of both positive and negative hedonics. These patterns are replicated in the English-speaking countries of the world, but not in other regions. We argue that the causal effect of children on parental wellbeing, which is the target for most of the literature, is not well defined. Instead, we interpret our rich-country results within a theory of children and wellbeing in which adults sort into parenthood according to their preferences. In poor, high-fertility countries, we find evidence that at least some people have children even when it diminishes their personal wellbeing.

There is a large literature on the correlates of measures of subjective wellbeing. Whether or not there is a child at home is often included as one such correlate, and more often than not is found to be associated with lower wellbeing. Broad recent surveys of this multidisciplinary literature by Hansen (1) and Stanca (2) report that most studies find lower life satisfaction among those who have children living at home. However, there is no consensus, see, e.g., Nelson et al. (3) for a recent challenge. There are several reasons for controversy: results are often different in different populations, or for different subsets of a given population, e.g., by age; results are often incidental, a byproduct of a main inquiry into something else with children included only as controls; different studies control for different factors, often without clear justification, and sometimes without clear description of what was done; and it is not always clear whether the inquiry is into parenthood or into living with children in the same household, i.e., children who may not be one's own. The literature focuses almost entirely on evaluative wellbeing measures, such as life satisfaction, that are global judgments about life as a whole. Much less is known about the associations between children and hedonic wellbeing, such as positive and negative affective states (hedonics), although see McLanahan and Adams (4) for an important early survey. Here we use data sets that are large enough to allow us to condition on a wide range of circumstances, and enable us to document the sensitivity of the conclusions to how the conditioning is done. We shall also maintain the distinction between life evaluation and hedonic measures of wellbeing, a distinction that is important on both empirical and theoretical grounds (4–6). Although we focus on a sample of more than 1.8 million adults in the United States, we

have comparable data for 161 countries that we use to document differences in results in different parts of the world.

Much of the empirical literature lacks reference to an account of why people have children, and what such a theory might mean for comparisons of the wellbeing of those who do and do not have children. Many studies treat children as an inevitable circumstance, like the weather or like it being a Monday, whose effects can be studied by direct comparison of those with and without children; in effect, children are being treated as if they were randomly allocated. However, this assumption is false, and approaches based on it cannot provide a serious interpretation of the evidence nor any guidance as to what needs to be measured. Here, we interpret the evidence in light of why people have children, for example, whether they take into account the expected affective and evaluative consequences of children when they plan their families, or earlier when they decide to get married. Our leading case is where otherwise similar people who differ only in their taste for children target their expected future life evaluation in choosing whether to become parents, in which case there is no reason to expect that parents will have better or worse lives than nonparents. The "otherwise similar" qualifier points to the importance of controls and why results can be expected to differ for different controls. We will elaborate on this in the *Discussion*, but we start by presenting the evidence on children and wellbeing.

We use data from two surveys, one from the United States and one global. The US survey covers 1.77 million American respondents from the ongoing Gallup–Healthways Wellbeing Index (GHWBI), collected on a daily basis from January 2008 to December 2012. This survey contains a life evaluation measure —the Cantril ladder (7)—as well as questions about hedonic

Significance

Most people think of their children as making their lives better. Yet many studies have found that those without children value their lives more than those with children. We also find a (small) negative effect, but only once we take into account that people with children have more favorable circumstances that predispose them to have better lives. Parents also experience more daily joy and more daily stress than nonparents. Interpreting such results requires that we think about who chooses to be a parent. If parents choose to be parents, and nonparents choose to be nonparents, there is no reason to expect that one group will be better or worse off than the other once other circumstances are controlled.

experiences on the day before the survey. Our global data come from Gallup's World Poll, which has been collecting random national samples from 161 countries since 2006, with 1.07 million respondents interviewed up to the end of 2012. Many of the questions are identical to those in the GHWBI, which facilitates direct comparison of the United States and other countries. The major advantage of these data is the very large samples, which allow us to work with subgroups and to allow for a wide range of covariates. Further information about the data is provided in *Methods* below.

The two Gallup surveys ask about children in the home, not about how many children the respondent has or has had. Well-being differences between those who do and do not live with children are interesting in their own right, but our main focus here is on parents living with their children, so this is a disadvantage of these data. We have used the 2008 American Community Survey to calculate, for each adult age, the fraction of adults who are parents of the children who are living with them. This fraction rises from 0.2 at age 20—where most children are the siblings of the respondent—to 0.9 at age 34, remaining above 0.9 until age 46, and steadily falling thereafter. Most of our results are confined to the subsample of adults aged from 34 to 46, more than 90% of whom are the parents of the children who live with them. This truncation is forced on us by the nature of our data and is likely to miss young parents, who might be those who find it most difficult to deal with parenthood; we provide some supplementary results on this issue.

Results

We begin with the United States, and follow the literature in looking at the psychological correlates of having a child at home. The two leftmost columns of Table 1 report the mean outcomes for those who live in a household with no children versus those who live in a household with at least one child; these are simple comparisons without controls. The third column is the difference between the first two. For the positive outcomes—ladder, happiness, smiling, and enjoyment—positive numbers indicate better wellbeing outcomes for those with children; for negative outcomes—sadness, anger, worry, stress, and pain—negative numbers indicate better wellbeing outcomes for those with children. Life evaluation (ladder) is slightly worse for those with at least one child at home (difference of –0.025 compared with a mean of 6.84 and SD of 2.03), happiness and smiling are slightly more prevalent (1.4 and 2.3 percentage points around means of 88.2 and 82.4%), and enjoyment is less prevalent (0.4 with a mean of 84.5%) as is sadness (0.5 percentage points from a base of 18.1%). The larger differences are in worry, stress, and anger, all of which are markedly higher among those who have children at home, with prevalence higher by 5.4, 10.1, and 4.5 percentage points, respectively; these differences are large relative to the mean prevalence of 32, 40, and 14%, respectively. The exception to this pattern is for physical pain: having a child at home is associated lower prevalence of pain by 4.5 percentage points compared with a mean of 23.8%. We do not report *t* values because, given the sample size, all are well beyond conventional significance levels.

The assessment of effect size is aided by a comparison with the effects of income; the fourth column shows the fractional change in income that is associated with the same effect size as the presence of the child. It is calculated from a regression of each outcome on the logarithm of income—income enhances life evaluation, increases positive hedonics, and decreases negative hedonics, at least up to a point (5)—and calculating the fractional change in income that produces the same effect as the third column of Table 1. These numbers are the ratios of the numbers in the third column to the coefficient on a bivariate regression of each outcome on the logarithm of income, and are shown in the fourth column; positive numbers indicate beneficial

Table 1. Comparisons of outcomes for those with and without children living at home and income equivalents

	All ages				Ages 34–46			
	No kids	Kids	Δ	Δy/y	No kids	Kids	Δ	Δy/y
Ladder	6.84	6.82	–0.025	–0.05	6.51	6.84	0.329	0.74
Happiness	0.88	0.89	0.014	0.38	0.84	0.89	0.049	1.46
Smiling	0.82	0.83	0.023	0.91	0.79	0.83	0.048	2.16
Enjoyment	0.85	0.84	–0.004	–0.07	0.80	0.84	0.040	1.01
Sadness	0.18	0.18	–0.005	0.08	0.20	0.17	–0.037	0.51
Anger	0.12	0.17	0.043	–0.75	0.17	0.16	–0.009	0.22
Worry	0.30	0.36	0.054	–0.57	0.37	0.36	–0.012	0.16
Stress	0.36	0.46	0.101	–0.97	0.46	0.47	0.009	–0.25
Physical pain	0.26	0.21	–0.045	0.79	0.25	0.20	–0.050	0.71

The first and second columns are the average outcomes over those without and with a child (15 or younger) at home and the third column is the second column minus the first. Ladder is on a scale from 0 (worst possible life for you) to 10 (best possible life for you), and other outcomes are dichotomous: 1 if you experienced a lot in the previous day, 0 otherwise. The fourth column is the ratio of the third column to the coefficient on the logarithm of income in a bivariate regression of the outcome on log income: it is the change in log income that would produce the same effect on the outcome as the difference in the third column.

effects for those with children, negative numbers the reverse and the numbers indicate the size of the effect in an income metric. In these unconditional analyses, the effects of presence of children at home on happiness, enjoyment, and pain reduction are comparable to substantial increases in income (positive coefficients in the fourth column); whereas, anger, worry, and stress are comparable to substantial decreases in income (negative coefficients). The key life evaluation measure is little different—equivalent to only a 5% difference in income—between those with and without children.

We now move to our primary focus, differences in wellbeing associated with one's own children living at home. The right-hand side of Table 1 shows the same results as before, but only for adults aged 34–46, more than 90% of whom are the parents of any children at home; all further US results are for this age group. For them, the (otherwise unconditioned) comparisons cast the presence of children in a more positive light. Comparison of the two sides of Table 1 shows that the changes from right to left are largest among those without children, whose outcomes are poorer when we move to the restricted age group. For life evaluation, which is U shaped in age, the midlife dip comes later for those who have children. More generally, and with the exception of stress, all outcomes are more favorable (higher levels of positive outcomes, and lower levels of negative outcomes) when there are children in the household. Judging by the income comparisons in the final column, there are substantial positive effects on life evaluation, on reducing sadness, worry, anger, and physical pain, and very large effects on happiness, enjoyment, and smiling. Those with children continue to report more stress. For this age group, those living with children (in nearly all cases as their parents) have markedly better life evaluations and hedonic experience than those who do not.

One concern is that by truncating the age range to those who are almost certainly parents of the children at home, we have excluded younger parents for whom children may be more difficult. In Table S1, we repeat Table 1 with the lower age range reduced to 28 (80% of whom we estimate are parents) and 25 (63% of whom are parents.) The favorable associations in Table 1 are replicated for both groups, although the sizes of the effects are indeed smaller. We do not believe that the positive results in Table 1 come from excluding younger parents. We also note that response rates to telephone surveys may be differentially

affected by the presence or absence of children; Heffetz and Rabin (8) have recently shown that, among those without children, but not those with, happiness is higher among those who are harder to reach.

An obvious challenge to the findings in Table 1 is that those with children are different from those without, and that these other circumstances may predispose them to higher subjective wellbeing even if they had not been parents. Table 2 documents the differences in socioeconomic characteristics between the two groups; those with children are markedly better off (28 log points in family income), (much) more likely to be married, more religious, healthier, better educated, more likely to be female, more likely to be Hispanic, and less likely to smoke. All of these characteristics are strongly correlated with better emotional and evaluative outcomes, even among people without children, so that the superior outcomes for the parents in the right-hand side of Table 1 may be explicable by their characteristics, not by the presence of the child.

Table 3 reports the coefficients on the presence of a child in regressions that control for some or all of these background characteristics. Controls are added as we move from left to right. The final columns on the right show the results for a full set of controls, including marriage status, household size, single years of age, religiosity, smoking, health limitation and disability, race, Hispanic status, education, income categories, sex, and state of residence. With these controls, life evaluation is lower for those with children, who also experience more positive as well as more negative emotions. Those who have children experience the emotional highs and lows of being parents—which those without children do not—but this does not carry through to their life evaluations, which are on average lower than those without children.

However, these results are hardly conclusive. In particular, it is never possible to measure all possible controls, and we cannot rule out that there are other omitted background variables that are positively related to both children and wellbeing; if this was the case, we would be undercontrolling. On the contrary, the full set of covariates may overcontrol by blocking off some of the pathways through which having children affect outcomes. For example, some people will quit smoking once they have children, or work harder to earn more. Most obviously, for many people, marriage is part of the process of having children; many people get married to find fulfillment in life with a partner and children. If so, at least some of the increase in life evaluation that comes with marriage should be properly attributed to children. The middle pair of columns, labeled intermediate controls, shows the coefficients calculated without controlling for marriage or household size, which are the two variables that are most directly related to having children. The first pair of columns, labeled minimal controls, eliminates all controls that might be affected by having children, and controls only for sex, age, education, health limitations, disability, race, Hispanic status, and state of residence. As we move from left to right across the columns, adding controls, the evaluative and emotional associates of children become progressively less favorable. With the minimal controls on the left, about half of the uncontrolled difference in life evaluation remains (0.187 versus 0.329 in the right side of Table 1), and there are similar scaling effects for the hedonics. In these first columns, we are back to a relatively favorable view of children. However, this treatment is too generous to the "children are good" hypothesis; not all differences in income, smoking, or religiosity, or even in marriage are responses to the actual or anticipated presence of children. If the first pair of columns overstates the benefits of children, then the last pair understates the benefits. How we should interpolate between them is not clear, and we shall return to this in the *Discussion*. In the meantime, it is important to note that it is only the coefficient on life evaluation whose sign changes across the columns of Table 3: no matter what the controls, children are always associated with both more positive and more

Table 2. Characteristics of those aged 34–46 with and without children living at home

	No children	Children	Difference	t value
Married	0.46	0.80	0.34	197.3
Female	0.45	0.53	0.07	37.9
Hispanic	0.11	0.16	0.06	39.1
Age	41.4	40.1	−1.04	71.3
No high school	0.09	0.08	−0.00	2.3
HS diploma	0.36	0.31	−0.04	24.2
College	0.41	0.44	0.03	13.5
Postgraduate	0.14	0.16	0.02	15.1
Log income	8.12	8.40	0.28	70.2
Religious	0.56	0.68	0.11	60.5
Health limitation	0.31	0.25	−0.06	34.5
Disabled	0.22	0.14	−0.08	51.7
Health status	2.56	2.38	−0.18	37.5
Smoker	0.30	0.19	−0.11	65.3

Religious is coded as 1 if the respondents say that religion is very important in their life, log income is the natural log of household monthly income, disabled is 1 if the respondents reported that they had a health problem that prevented them from doing the things that people their age can normally do, health limited is 1 if the respondents reported that there was at least one day in the last month when poor health prevented them from doing their usual activities. Health status is the mean of self-reported health status scored as 1 for excellent, 2 very good, 3 good, 4 fair, and 5 poor, so higher numbers mean worse health. HS, high school.

negative emotions, although the size of the coefficients is larger the fewer the controls.

Table 4 provides a comparative analysis for the world as a whole, using the Gallup World Poll, which has surveyed around 1,000 adults (15 and over) for each of 161 countries in multiple polls from 2006 to 2012. For each country, we repeated the US analysis, comparing evaluative and hedonic outcomes for those with and without at least one child in the household, for all adults, as well as for adults in the 34–46 y age group. These results do not control for any other variables. We do not have the equivalent of the American Community Survey for other countries, so we do not know how to select a "parent" age group for each country separately. In the absence of this, and to be comparable to the US results, we use the same age range as before. We first calculate differences in subjective wellbeing (SWB) by child status for each country and then average over countries, counting each country equally, either for the whole world in the first row, or over regions of the world in the other rows. The regions were selected either because they were geographically obvious, e.g., Latin America and the Caribbean, because of likely cultural or income differences, or because previous work had suggested that outcomes might be special, as in the countries that were formerly Communist. To keep the number of analyses manageable, we have aggregated the hedonics into two groups, positive affect (the average of happiness, enjoyment, smiling, and minus sadness (the last on the grounds that negative sadness typically behaves similarly to positive affect) and negative affect (the average of worry, anger, and stress.) In the US results, items within the two groups behaved similarly as can be seen by looking at the members of the categories in Table 3.

The results from the United States are replicated for the group of English-speaking wealthy countries as a whole in the bottom row of the table, labeled "Anglo." People with children report slightly lower life evaluation than people without children, which is reversed among the parenting age group. However, this result does not hold outside the region. For the world as a whole, people with children have a slightly lower life evaluation than those with children, even among the restricted age group. In the non-Anglo regions, those with children sometimes have lower

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Table 3. Coefficients on presence of children with alternative sets of controls

	Minimal controls		Intermediate controls		Full controls	
	β	t	β	t	β	t
Ladder	0.187	(24.3)	0.048	(6.4)	−0.048	(6.1)
Happiness	0.036	(28.0)	0.025	(19.5)	0.015	(10.9)
Smiling	0.030	(19.7)	0.021	(13.8)	0.014	(8.3)
Enjoyment	0.025	(16.4)	0.013	(8.9)	0.005	(3.2)
Sadness	−0.023	(15.5)	−0.006	(4.0)	0.005	(3.0)
Anger	0.001	(0.7)	0.010	(6.8)	0.014	(8.9)
Worry	0.007	(3.8)	0.026	(13.5)	0.032	(16.2)
Stress	0.024	(12.2)	0.035	(17.9)	0.042	(20.1)
Physical pain	−0.006	(3.9)	0.005	(3.6)	0.006	(3.7)

Each β is the coefficient on an indicator for the presence of children in a regression with the outcome as dependent variable. The columns differ in which other covariates are included in the regression. The "full controls" are marital status, household size, single years of age, religiosity, smoking, health limitation and disability, race, Hispanic status, education, income categories, sex, and state of residence; self-reported health status is not used as a control to preclude a spurious correlation resulting from dispositional factors influencing both the outcome and self-reported health. "Intermediate controls" are the full controls less marital status and household size. "Minimal controls" are sex, age, education, health limitations, disability, race, Hispanic status, and state of residence.

life evaluation irrespective of age (Africa, Latin America and Caribbean, Middle East, and South Asia) and sometimes the opposite, i.e., higher life evaluation irrespective of age (East Asia, the former Communist countries, and the non-English-speaking countries of northern and southern Europe). The phenomenon of higher positive and higher negative affect among those with children is only somewhat more uniform; it holds on average over the 161 countries, and in more regions than not. Our main point here is to note the nongeneralizability of the US results to the rest of the world. It is also worth noting that in Table 4 for the world, in contrast to Table 1 for the United States, there are differences between men and women in the response of the ladder to the presence of children. The numbers in the second column of Table 4 are either less favorable or more unfavorable for women than for men and women together; this is true region by region, and in almost two-thirds of the countries.

We do not attempt here to discover the reasons for the differences across countries, but it should be noted that the fraction of individuals with children at home is very different in different regions—see the last two columns of Table 4. In the high-fertility areas of the world, where having many children is common, people who live in households with children tend to report lower wellbeing. By contrast, in the regions where fertility is low and children are scarcer, people who live in households with children tend to report relatively higher wellbeing. This regional relationship extends to a negative correlation across countries; for those aged 34–46, the average difference in ladder scores between those with and without children has a significant negative correlation ($\rho = -0.24$, $p = 0.003$) with total fertility rates across the 159 countries for which have data on both. The higher the fertility rate, the more likely are people living with children to report lower life evaluation than those who do not. It is interesting to note that although the differences for women are less favorable, the correlation with total fertility rates for women is no longer detectable ($\rho = -0.05$, $p = 0.510$). When these calculations are repeated for the 50 states of the United States, the correlation is small, positive, and insignificant. We shall discuss the interpretation of these findings below.

Discussion

Our results for the United States show that comparisons of life evaluation between those with and without children at home depend on what else is held constant. For hedonic experience, there is much more robustness of the effects to the choice of controls, in sign if not in magnitude, and both positive and negative affect are more prevalent among those with children. For life evaluation, the factors that cause people to select into parenthood are essentially indistinguishable from the factors that generate wellbeing directly, which makes it difficult or impossible to know exactly which factors should be held constant in comparing those with and without children. The sensitivity to choice of controls, as well as to choice of wellbeing measure, may help explain the variety of results in the literature. The same is true of our evaluative wellbeing results for the world as a whole, which vary by region, and where children tend to lower (raise) life evaluation in higher (lower) fertility countries. What might explain such diverse findings?

Suppose that people wish to make their lives as good as possible, where good is measured as life evaluation, and that they choose whether or not to have children by thinking about their life evaluations in alternative futures with and without children. Suppose also that they have enough information to make unbiased (if noisy) estimates of what their life evaluations will be with and without children. In such a case, people who have children think that children will make their lives better in that they anticipate that, taking everything into account—new responsibilities, financial costs, the joys and disappointments, as well as the children themselves—they will be better off with children. Similarly, people who choose not to have children anticipate that they will be better off without them. People who want to be parents would have lower life evaluations if they were unable to have children, and those who do not want to be parents would have lower life evaluations if, by mischance, they became

Table 4. Children, life evaluation, and emotions around the world

	Ladder		Positive affect		Negative affect		Fractions with children	
	All ages	34–46	All ages	34–46	All ages	34–46	All ages	34–46
World	−0.021	−0.007	0.014	0.016	0.021	0.005	0.56	0.71
Africa	−0.132	−0.109	0.000	0.010	0.001	−0.007	0.78	0.83
East Asia	0.058	0.126	0.011	0.025	0.033	0.016	0.45	0.64
Ex-Comm.	0.117	0.058	0.053	0.045	0.014	−0.003	0.43	0.61
LAC	−0.095	−0.179	−0.004	−0.020	0.025	0.019	0.62	0.73
M. East	−0.063	−0.032	−0.001	0.003	0.020	0.013	0.66	0.76
N. Europe	0.189	0.366	0.028	0.039	0.053	−0.000	0.30	0.66
S. Asia	−0.148	−0.149	−0.012	−0.012	0.022	0.015	0.66	0.74
S. Europe	0.197	0.187	0.037	0.040	0.039	−0.004	0.33	0.66
Anglo	−0.034	0.300	0.016	0.043	0.065	0.016	0.35	0.66

Positive affect is the sum of happiness, enjoyment, and smiling less sadness, all divided by 4. Negative affect is the average of worry, stress, and anger. The differences in SWB are calculated country by country, either for everyone, or for the selected age group, and the numbers shown are the unweighted averages over all countries, each country counting the same. LAC, Latin America and the Caribbean; Anglo comprises the English-speaking rich countries, the United States, Canada, Ireland, Britain, Australia, and New Zealand; N. Europe is the non-Anglo part of northern Europe, or France, Germany, Netherlands, Belgium, Sweden, Denmark, Austria, Finland, Iceland, Luxemburg, Norway, and Switzerland. S Europe is Spain, Italy, Greece, Israel, Malta, Cyprus, Portugal, and Northern Cyprus. Ex-Comm comprises the formerly communist countries of Eastern Europe, Russia, and Central Asia.

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parents. However, this is all that we can know. Because parents and nonparents are different groups of people, with different tastes, the fact that parenthood is a deliberate choice tells us nothing about whether parents or nonparents will have lower or higher life evaluations. Those without children are not failed parents, and those with children are not failed nonparents. We believe that it is a mistake to suppose that because people want children, and deliberately bring them into being, that parents should have higher wellbeing than nonparents.

The US results in Table 3 are consistent with this line of argument. Without any allowance for the things that cause people to select into being parents, parents have higher life evaluation than nonparents. However, once we adjust for the differences in background characteristics that help select people into parenthood, the difference changes sign, with nonparents very slightly better off than parents.

Of course, we do not know that people choose their families to maximize their life evaluations, and we do not know exactly what people include in their life evaluations and what they do not, but see ref. 11 for evidence that the Cantril ladder is a good predictor of a (different) major life choice. An alternative possibility is that people maximize their happiness, or at least their positive affect, or that they seek to minimize negative affect. Our results make this unlikely because, no matter what controls we use to capture selection into parenthood, children are associated with both more positive and more negative affect. By the same argument as above, these differences are not predicted if positive or negative emotion is what people are targeting. A story about maximization of life evaluation is consistent with the hedonic associations of parenthood. People know that children will bring them joys and sorrows—as well as financial costs and other changes in their lives—but they expect, taking all things together, which is what life evaluation presumably does, that the costs will be less than the benefits.

The results for the United States do not hold for other countries, at least those outside the rich English-speaking world. Our results for the world as a whole, as well as for Africa, Latin America, the Middle East, and South Asia are consistent with the most common finding in the literature, that those with children have lower life evaluation. We found a significant negative correlation between the total fertility rate in a country and the difference in life-evaluation between those who do and do not live with children. This correlation is (trivially) inconsistent with the supposition that fertility is higher in places where people get the largest increases in life evaluation from having children. More seriously, it is inconsistent with our leading hypothesis for the United States and other rich countries, that people choose children to maximize their life evaluation.

Suppose instead that high fertility comes about for other reasons, either because people have no choice in the matter, or because they do have a choice, but children bring benefits that are somehow not captured in measures of life evaluation. Children may help work the family farm or provide security to their parents in old age. As countries get richer and pass through the demographic transition, and children move from being productive assets to financial burdens (9), they become a matter of parental preference and choice, and the negative effects on life evaluation are eliminated. Because of social norms, or pressure from their own parents and communities, or because of the productive contributions of children, people may have children even when, on a purely personal level, they would rather not do so. This story works only if life evaluation does not include everything that people care about, so that, in some circumstances, they will trade life evaluation for other things that matter. So children might be associated with lower life evaluation if there is some compensating benefit that is sufficiently important. For example, there is evidence that people do not include other people's feelings in their life evaluation and that they will make

choices contrary to their own life evaluation to satisfy others' wishes (10, 11); if so, some people might have children even when it lowers their own life evaluation. In the United States and other rich countries, by contrast, children are a matter of parental choice, their costs and benefits are internalized into life evaluation and there is no relationship between total fertility and the difference in life evaluation between those who do and do not have children.

Much of the literature ostensibly aims to estimate the causal effect of children on wellbeing. Not the least of the difficulties here is the question of what such a concept might mean. Holland (12) argues the (extreme) position that a causal effect can only be measured when it is possible to imagine (if not to implement) an experiment in which one randomly selected group is treated (in this case perhaps by blindfolded storks) while another (control) group is not. Quite apart from the practical and ethical issues, it is clear that such an effect, even if well-defined, is of no interest in this context; children do not arrive at random, and whatever are the effects we are seeking, they are not those that would be measured if they were; shock and awe are hardly our targets here. The differences between those with and without children, conditional on various controls—as presented here, and in the literature—are statistically well defined. Our argument is that the appropriate use of these differences is to cast light on theoretical predictions, not to try to estimate some ill-defined effect of children on wellbeing. For example, our "well-informed and deliberate childbearing theory" implies that, conditional on wealth, education, religion, and other factors that predispose people to become parents, there is no reason to expect any difference in life evaluation between those with and without children.

An alternative (standard) approach to estimating a causal parameter would be to control for selection into parenthood more formally than we have done in Table 3, for example by using propensity score matching methods. Such techniques are often valuable but, like other methods such as instrumental variable estimation, require the identification of some background variable or variables that select people into parenthood, yet have no direct effect on wellbeing except through its effect on selection into parenthood. Such variables do not generally exist, and if they did, they, like randomization into parenthood, would likely identify effects other than those of interest.

Another approach to the causal question is to use longitudinal data to follow individuals before and after the birth of a child, and there are several data sets from Great Britain, Germany, and Switzerland that permit this kind of event study. Several such studies find effects on evaluative wellbeing that are small relative to those of other life events such as marriage, divorce, or the death of a spouse; they have found either a temporary increase in life satisfaction around the birth (13) or have found an anticipatory increase in satisfaction that is actually reversed not long after the birth (14). However these effects, interesting and well defined although they are, are also not what we are looking for. Babies do not come as a surprise to their parents, so that the change in evaluative wellbeing should have registered well before the actual birth of the child. We could instead take a baseline of conception or even to the date when the parents decided that they had found the partners with whom they are going to procreate. And indeed the German data appear to show that wellbeing of women who are going to have children begins to diverge from those who are not five years before the event (15). So longitudinal data does not help identify a causal effect any better than the cross-sectional data that we use here.

Methods

The Gallup–Healthways Wellbeing Index Survey is a daily telephone (landline and cell phone) survey of ~1,000 respondents; the sample used here runs from January 2, 2008 to December 30, 2012. A description of the sample

procedure is given in Stone et al. (16). Gallup's World Poll uses an identical questionnaire throughout the world, translated into the major languages of each country. Telephone surveys are used in countries where at least 80% of the population is covered by telephones; otherwise, face-to-face interviews are used in a multistage, nationally representative sample (in a few cases, the country cannot be completely covered.) Weights are used to adjust to external control totals, and these are used in all of the calculations in this paper. The first interviews in the World Poll were conducted late in 2005, with 2006 as the first full year. The data used here run through the end of 2012, by which date 161 countries had been covered; more than half of them at least five times. The typical sample size in each wave is 1,000. Summaries of the measures, documentation, and methodology are available at https://worldview.gallup.com. The footnotes to the Tables 1–3 describe the variables we use. In telephone interviews, it should be borne in mind that the probability of agreeing to be interviewed may vary with outcome levels, or with the presence of a child in the home.

The results are obtained by weighted linear regression; the weights inflate the sample to the population so that, for example, the weighted regression of life evaluation on an indicator for whether or not there is a child in the home consistently estimates the population difference in life evaluation between those with and without children. For some variables, such as income, there are substantial numbers of missing values. To avoid dropping observations where any variable is missing, we treat missing values as a separate category in all categorical variables, for example all variables in Table 3. For income, for example, the results suggest that people who do not report their incomes are among the best-off households.

We only occasionally report significance levels because, with so many observations, nearly all coefficients are statistically significant at conventional levels.

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