Happiness and Domain Satisfaction: Theory and Evidence

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Abstract

In the United States happiness, on average, varies positively with socio-economic status; is fairly constant over time; rises to midlife and then declines; and is lower among younger than older birth cohorts. These four patterns of mean happiness can be predicted rather closely from the mean satisfaction people report with each of four domains -- finances, family life, work, and health. Even though the domain satisfaction patterns typically differ from each other and from that for happiness, they come together in a way that explains quite well the overall patterns of happiness. The importance of any given domain depends on the happiness relation under study (by socio-economic status, time, age or birth cohort), and no single domain is invariably the key to happiness.

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Happiness and Domain Satisfaction: Theory and Evidence

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The purpose of this paper is to see to what extent the domain satisfaction model of psychology explains four different patterns of happiness in the United States (1) the positive cross sectional relation of happiness to socio-economic status, (2) the nearly horizontal time series trend, (3) the life cycle pattern of happiness, and (4) the change across generations. The domain model sees each of these patterns as the net result of satisfaction with each of several realms of life -- in the present analysis, finances, family life, work, and health. The domain satisfaction patterns do not simply replicate the happiness pattern -- happiness may go up, but satisfaction with, say, finances, down. Given disparate domain patterns, the question is, do they come together in a way that accounts for the pattern of happiness? Specifically, if we know with regard to each of the four variables above -- socio-economic status, time, age, and cohort -- how satisfied people are, on average, with their finances, family life, work and health, can we predict the observed pattern of happiness in relation to socio-economic status, time, age, and cohort?

Conceptual Framework

Economists typically adopt the view that well-being depends on actual life circumstances, and that one can safely infer well-being simply from observing these circumstances. The influence of this view is apparent even in the burgeoning literature on the economics of happiness where, despite frequent acknowledgment of subjective

factors, many studies consist mainly of regressing happiness on an array of objective variables – income, work status, health, marital status, and the like. (See the surveys in Clark, Frijters, and Shields 2006, DiTella and MacCulloch 2006, Frey and Stutzer 2002 ab, Graham 2005, forthcoming, Layard 2005.)

Psychologists, in contrast, view the effect on well-being of objective conditions as mediated by psychological processes through which people adjust somewhat to ups and downs in their life circumstances. Their skepticism of the economists' view is well represented by psychologist Angus Campbell's complaint over three decades ago: "I cannot feel satisfied that the correspondence between such objective measures as amount of money earned, number of rooms occupied, or type of job held, and the subjective satisfaction with these conditions of life, is close enough to warrant accepting the one as replacement for the other" (1972, p.442;cf. also Lyubomirsky, 2001). This statement appeared in a volume significantly titled *The **Human** Meaning of Social Change* (emphasis added).

In contrast to economists' focus on objective conditions, Campbell proposed a framework in which objective conditions were replaced by reports on the satisfaction people expressed with those conditions (Campbell et al 1976, Campbell 1981). This approach is sometimes termed multiple discrepancy theory (Michalos 1986, 1991, cf. also Diener et al 1999b; Solberg et al 2002). In this framework, global happiness or overall satisfaction with life is seen as the net outcome of reported satisfaction with major domains of life such as financial situation, family life, and so on. Satisfaction in each domain is, in turn, viewed as reflecting the extent to which objective outcomes in that domain match the respondent's goals or needs in that area, and satisfaction may vary with

changes in goals, objective conditions, or both. In economics similar models comparing attainments to aspirations date back to March and Simon 1968; for a recent example, see de la Croix 1998.

An advantage of this approach is that judgments on domain satisfaction reflect both subjective factors of the type emphasized in psychology and objective circumstances stressed by economics. In the domain of family life, for example, one's goals, simply put, might be a happy marriage with two children and warm family relationships. Satisfaction with family life would reflect the extent to which objective circumstances match these goals – the greater the shortfall, the less the satisfaction with family life. Over time, subjective goals, objective circumstances, or both may change, and thereby alter judgments on domain satisfaction. Given objective conditions, goals may be adjusted to accord more closely with actual circumstances, in line with the process of hedonic adaptation emphasized by psychologists. Given goals, objective circumstances may shift closer to or farther from goals, altering satisfaction along the lines stressed by economists. Thus, in contrast to the objective measures used in economic models -- in the case of family life, such things as marital status and number of children -- reports on satisfaction with family life reflect the influence of subjective norms as well as objective circumstances.

Another advantage of Campbell's domain approach is that it classifies into a tractable set of life domains the everyday specific circumstances to which people refer when asked about the factors affecting their happiness (Cantril 1965, Kahneman et al 2004, Robinson and Godbey 1997, Ch.17). Of course, there is not complete agreement on what domains of life are conceptually preferable, and the classification of life domains

remains a subject of continuing research. Virtually all life domain studies agree, however, that four domains are of major importance -- finances, family circumstances, health, and work. These four, for example, with slightly different labels, are at the head of Cummins's (1996) meta-analysis of the domains of life satisfaction. It is these four that are studied here as predictors of happiness.

Prior Work

Economic research on domain satisfaction has heretofore been quite limited, and much of what has been done focuses on explaining, not overall happiness, but satisfaction with specific economic circumstances, e.g. job satisfaction, housing satisfaction, financial satisfaction, satisfaction with income, satisfaction with standard of living, and so on (Diaz-Serrano 2006, Hayo and Seifert 2003, Hsieh 2003, Solberg et al 2002, Vera-Toscano et al 2006, Warr 1999). Few studies explore the relation of global happiness to the different domains. An important exception is the work of van Praag and Ferrer-i-Carbonell (2004), which examines the extent to which differences among individuals in overall satisfaction are related to satisfaction with a variety of life domains, several of which correspond to those studied here (see chapters 3 and 4; also van Praag, Frijters, and Ferrer-i-Carbonell 2003). Their results, based on data for the United Kingdom and Germany, support the importance of the domains studied here, and suggest that domain satisfaction variables provide a better statistical explanation of happiness than objective conditions. In another interesting study Rojas (forthcoming) uses the domain satisfaction approach to study individual happiness in Mexico, focusing on domains deriving from the philosophical rather than social science literature. In a recent article Easterlin (2006)

uses the domain approach to study happiness over the life cycle. The present paper extends this analysis to the variation in happiness by socio-economic status, time, and birth cohort.

Outside of economics work relating happiness to domain satisfaction is more extensive (see, for example, the bibliography in Veenhoven 2005, section 12a). One of the most ambitious projects brings together studies of individual data for twelve European countries of both domain satisfaction and satisfaction with life in general (Saris et al 1996). The domains vary somewhat among countries, but one result common to all countries is that two domains are consistently positively related to overall life satisfaction -- material living conditions (captured in satisfaction with housing and satisfaction with finances) and "social contacts", reflecting the importance to well-being of personal relationships (*Ibid*, p. 227; on personal relationships and well-being, see Ryff 1995, Ryan and Deci 2000). The counterparts of these two in the present study are financial satisfaction and satisfaction with family life.

All of these earlier studies, both within and outside of economics, focus on explaining how happiness varies in relation to one particular variable, usually among individuals at a point in time. In contrast, the aim here is to test how well the domain satisfaction approach explains mean happiness within the United States population in relation to each of four different variables -- by socio-economic status (education), over time (*year*), over the life cycle (*age*), and across generations (*birth cohort*). For each variable the test is the same, to see how well the actual relation of happiness to that variable can be predicted from the corresponding patterns for the four domain satisfaction variables -- financial situation, family life, work, and health. Thus the question in regard,

say, to socio-economic status is this: if we know how financial satisfaction varies with years of schooling, and similarly for satisfaction with family life, work, and health, can we predict from these domain patterns the way that overall happiness varies with years of schooling?

Data and Methods

The data are from the United States General Social Survey (GSS) conducted by the National Opinion Research Center (Davis and Smith 2002). This is a nationally representative survey conducted annually from 1972 to 1993 (with a few exceptions) and biannually from 1994 to 2006. The present analysis is based on data for 1973-1994, because two of the variables of interest, family and health satisfaction, are included in the GSS only during this time span. The GSS is a survey of households, and weighted responses are used here to represent more accurately the population of persons (Davis and Smith, 2002, pp. 1392-1393 of Codebook).

For happiness there are three response options; for financial satisfaction, also three options; for job satisfaction (including housework), four options; family satisfaction, seven options; and health satisfaction, seven options. The specific question for each variable is given in Appendix A. In the present analysis, the response of an individual to each question is assigned an integer value, with a range from least satisfied (or happy) equal to 1, up to the total number of response options (e.g., 3 for happiness, 7 for health satisfaction).

Socio-economic status is measured by years of schooling, ranging from zero to 20. The age range is from 18 to 89; birth cohort, from 1884 to 1976. Year is in terms of

time dummies with 1973 being the reference year. Descriptive statistics are given in Appendix B.

The basic procedure consists of the following steps:

1. A regression of happiness on age, cohort, education, gender, race, and year (in dummy form) is estimated from the individual data for 1973-1994 (see Appendix C, column 1). Both linear and quadratic forms are tried for the age, cohort, and education variables, and the form yielding the best fit in terms of significant t-statistics is selected. This single regression is then used to estimate how happiness varies in relation to each of the four variables (age, cohort, education and year) controlling for the other three. We call these estimated values "*actual happiness*". Actual happiness differs from the raw mean of happiness in relation to any given variable, such as education, in that it controls for other, essentially fixed, characteristics of individuals. Thus, in the case of education, the estimated happiness-education pattern controls for differences from one level of education to another in the composition of the population by age, cohort, gender, and race, and also in period effects.

Formally, we have:

Happy = $C^{(1)}$(age, cohort, education, gender, race, year dummy),

where $C^{(1)}$ denotes equation (1) in Appendix C. The typical pattern of variation of happiness in regard to a given variable, say, years of schooling, is then estimated by entering in this regression the mean values of the other variables (age, cohort, gender, race, and year), while allowing that variable to range from its minimum to maximum value as given in Appendix B (for education, from zero to 20 years of schooling). Thus,

Happy for the ith year of schooling

$$+ C^{(i)}(\overline{age}, \overline{cohort}, \overline{male}, \overline{black}, education_i, i1973, i1974, \ldots, i1994)$$

where $\overline{age}$ is the mean age, $\overline{cohort}$ is the mean birth cohort, and so on. Since years of schooling range from 0 to 20, following the above procedure for each level of education results in a series:

Happy_Ed(0), Happy_Ed(1), . . ., Happy_Ed(20),

where Happy_Ed(j) is actual happiness of a person with j years of schooling. This series is plotted in Figures 1(a) and 2(a) as actual happiness, the happiness pattern that is to be predicted.

2. A similar procedure is followed to derive the typical pattern of variation of satisfaction in each of the four domains. First, a regression is estimated of satisfaction in a given domain in relation to age, cohort, education, gender, race, and year (in dummy form) as presented in Appendix C, columns 2-5. Then, the typical pattern of variation of satisfaction in that domain in regard to a given variable, say, education, is estimated by entering in the regression the mean values of all other variables, while allowing that variable to range from its lowest to highest value as given in Appendix B.

Thus, similarly to the computation of actual happiness by level of education, the series of actual domain satisfaction by education can be obtained from $C^{(1)}$, $C^{(2)}$, $C^{(3)}$, and $C^{(4)}$, respectively:

(i) Satfin_Ed(0), Satfin_Ed(1), . . ., Satfin_Ed(20);

(ii) Satfam_Ed(0), Satfam_Ed(1), . . ., Satfam_Ed(20);

(iii) Satjob_Ed(0), Satjob_Ed(1), . . ., Satjob_Ed(20); and

(iv) Sathealth_Ed(0), Sathealth_Ed(1), .Sathealth_Educ(20).

These series are plotted in Figure 3(a).

3. A regression is estimated from the individual data of the relation of happiness to the four domain satisfaction variables -- financial satisfaction (Satfin), family satisfaction (Satfam), work satisfaction (Satjob), and health satisfaction (Satheath) -- to establish the relative impact of each domain on happiness (Appendix D). Formally,

Happy = D(Satfin, Satfam, Satjob, Satheath).

All domains turn out to have a significant positive effect on happiness, as one might expect, with family and financial satisfaction having the greatest weight.

4. A prediction of the variation of happiness with regard to each variable (education, time, age, and cohort) is obtained by substituting in the step 3 regression equation the domain satisfaction values estimated in step 2. For the cross section analysis, for example, predicted happiness for a given education level is estimated by entering in the step 3 regression equation the four domain satisfaction values for that level of education derived in step 2. Thus, mean predicted happiness for zero years of schooling, controlling for age, cohort, gender, race, and year, is computed as:

PredHappy_Ed(0)

= D(Satfin_Ed(0), Satfam_Ed(0), Satjob_Ed(0), Satheath_Ed(0)).

Similarly,

PredHappy_Ed(1)

= D(Satfin_Ed(1), Satfam_Ed(1), Satjob_Ed(1), Satheath_Ed(1)).

This procedure is repeated for all other levels of education to obtain the predicted pattern of happiness in relation to education. The series

PredHappy_Ed(0), PredHappy_Ed(1), . . . PredHappy_Ed(20)

is then plotted as predicted happiness in Figure 2(a).

The regression technique used is ordered logit, because responses to the several variables are categorical and number three or more. Ordinary least squares regressions yield virtually identical results, suggesting that the findings are robust with regard to methodology.

In step 3, in estimating the relation of happiness to domain satisfaction from individual data, a question arises about possible bias in reports on satisfaction (cf. Diener and Lucas, 1999a, p. 215, van Praag and Ferrer-i-Carbonell 2004, chapter 4). Responses on satisfaction – whether with life in general or an individual domain – are known to be influenced by personality traits. Consider two persons with identical objective conditions and subjective goals. If one of them is neurotic, then it is likely that this person's responses on satisfaction with both life in general and the various domains of life will be lower than the other person's, because a neurotic tends to assess his or her circumstances more negatively than others (Diener and Lucas, 1999a). However, a purpose of the step 3 regression is to establish the relative weights in determining happiness of the four domain satisfaction variables. Because the happiness and domain satisfaction responses for any given individual would be similarly biased by personality, the estimate of relative weights for that individual, and correspondingly for the population as a whole, should be free of personality bias.

Another purpose of the step 3 regression is to predict actual happiness from domain satisfaction. If personality bias exists in an individual's report on happiness, then actual happiness, which is based on this report, is biased by personality. Similarly,, personality bias in an individual's report on domain satisfaction leads to personality bias

in actual domain satisfaction. Therefore, predicted happiness, derived from actual domain satisfaction, is also biased by personality. But since the personality bias in actual happiness is the same as that in actual domain satisfaction and, thus, in predicted happiness, the comparison between actual happiness and predicted happiness should also be free of personality bias.

Results

Actual happiness. -- The happiness patterns to be explained are both familiar and unfamiliar. Most familiar, perhaps, is the positive cross sectional association of happiness to socio-economic status (Figure 1a). Also well-known is the fairly flat relation of happiness to time (Figure 1b). (The fluctuations in the figure are due to the use of time dummies.)

Less familiar are the patterns in relation to age and cohort. Over the life cycle happiness rises slightly to midlife and declines slowly thereafter (Figure 1c; cf. also Easterlin 2006, Mroczek and Spiro 2005). Although the swing in happiness is mild, it is statistically significant. The pattern differs from the usual U-shaped relation to age reported in the economics literature, because the U-shaped happiness-age relation is the result of a multivariate regression in which controls are included, not only for the variables used here (education, time, cohort, gender, race), but also for life circumstances (income, work status, marital status, health) (Blanchflower and Oswald 2004, 2006). Controls for life circumstances would be inappropriate here and also in regard to the happiness patterns for education, time, and cohort, because the specific purpose of the analysis is to test whether satisfaction with life circumstances, which reflects both

objective life circumstances and subjective norms, explains the happiness patterns observed.

Least studied is how happiness varies by cohort[7]. For cohorts born between the late nineteenth century and the 1970s, the relation of happiness to cohort is negative and curvilinear, with the lowest happiness levels found in the cohorts born in the mid-1950s (Figure 1d). Thus, the happiness of younger cohorts is, on average, significantly less than older, except that among the most recent cohorts there is a slight upturn in happiness. The magnitude of the happiness differences among cohorts is not very great, but it is somewhat larger than the changes found in the time series and life cycle patterns.

The difference among cohorts found here is after controlling for cohort differences in age, education, period influences, gender and race. If data were available for a single year only, then it would be impossible to distinguish the cohort pattern from that for age. If, for example, in the survey year 1980 mean happiness were to increase from age 20 (*i.e.*, persons born in 1960) to age 80 (persons born in 1900), then the cohort pattern would be negative, the reverse of that for age, with happiness declining from the cohort of 1900 to that of 1960. (If the age pattern were hill-shaped moving from left to right on the x-axis, the cohort pattern would be hill-shaped too – in effect, the cohort pattern traverses the same hill in reverse fashion.) With data for only one year, there would be no way of deciding whether one is observing the relation of happiness to age or to cohort.

Our data, however, span 21 years, and thus in deriving cohort effects we compare the happiness of 21 different cohorts at a given age, and, correspondingly, in deriving age effects the happiness at 21 different ages of a given cohort. The fact that our age and

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[7] An exception is the article by Blanchflower and Oswald (2000), which focuses on the trend of happiness among younger persons since 1972. However, their analysis controls for differences among cohorts in life circumstances, whereas the present analysis does not.

cohort patterns of happiness are not simply the reverse of each other (as is true also of the age and cohort patterns for the individual domains) indicates that we are successfully differentiating between age and cohort influences.

Predicted happiness. -- There are four fairly disparate patterns of happiness to be explained – a positive cross sectional relation to education, a fairly flat relation to time, the "hill" pattern of the life cycle, and a negative curvilinear relation across cohorts. How well do the corresponding domain satisfaction patterns predict these patterns of happiness?

The answer, based on the procedures outlined in steps 2-4 above is, reasonably well. The cross sectional relation of happiness to education is closely predicted by the cross sectional patterns of domain satisfaction to education (Figure 2a). The predicted time series pattern of happiness based on the time series patterns of satisfaction in each domain corresponds closely to the actual horizontal time series pattern (Figure 2b). The "hill" pattern of life cycle happiness is predicted by the life cycle patterns of domain satisfaction, although the predicted movement peaks slightly earlier, at age 43 compared with 52, and the amplitude is slightly less than the actual (Figure 2c). Least satisfactory is the prediction of the cohort pattern. Although happiness of younger cohorts is correctly predicted to be less than older, the predicted curve is virtually linear rather than concave upward, so that the upturn among the youngest cohorts is missed (Figure 2d).

Table 1 compares the mean squared error of the prediction of happiness by education, year, age, and cohort. The most satisfactory prediction is that for life cycle happiness. It is closely followed by the predictions for years of schooling and the time series pattern of happiness. Confirming the visual observation of Figure 2, the least

satisfactory is the prediction of the cohort pattern, with a mean squared error more than five times that of the life-cycle prediction.

Table 1: Mean Squared Error of the Prediction of Happiness

Variable	Mean Squared Error
Years of Schooling	0.00033
Year	0.00054
Age	0.00028
Birth Cohort	0.00152

Domain satisfaction. -- As a general matter, the four domain patterns for any one variable typically differ from each other, and the domains dominating the prediction of happiness are not the same for all four variables. This is brought out in Figure 3, which presents for each variable the actual domain pattern and, for comparison, that for actual happiness. The left hand panel presents the patterns for the domains of family life and financial satisfaction; the right hand panel, the patterns for satisfaction with work and health. By comparing the actual domain patterns with that for actual happiness, one is able to form a tentative impression of which domains are chiefly responsible for the happiness pattern for any given variable.

Perhaps most striking is that more educated persons are happier because they enjoy greater satisfaction in all four realms of life. For family life, finances, work, and health, satisfaction trends upward with the level of education (Figure 3, panels a.1 and a.2). The rate of change, however, varies among the domains. Satisfaction with family life and health increases at a decreasing rate, while satisfaction with finances grows at an increasing rate. Only for satisfaction with work is the trend linear like that for actual happiness.

The fairly flat relation of happiness to time appears from the figure to reflect similar patterns in the four domains (panels b.1 and b.2). However, if one fits ordinary least squares trend lines to the fluctuating lines in the figures, some subtle differences emerge. All of the patterns have very slight, but significant trends. Actual happiness has a small uptrend, amounting to a total increase for the period of .013 on the happiness scale of one to three. This is the equivalent of a net upward shift by one response category -- say, from "pretty happy" to "very happy" -- of 1.3 percent of respondents over the entire twenty-one year period. This is not very much of a shift, although it is statistically significant. Based on the fitted trends, the corresponding shift for each domain (all of them significant) are for financial satisfaction +3.2 percent, work satisfaction +2.3 percent, family life satisfaction -0.5 percent, and health satisfaction +1.4 percent. Thus, the very slight uptrend for actual happiness is the net outcome of the slight positive trends in satisfaction with finances, work, and health outweighing the slight negative trend in satisfaction with family life.

Turning to the age pattern, one finds that the increase to midlife of life cycle happiness is due to increasing satisfaction with family life and work outweighing negative changes in satisfaction with finances and health (panels c.1 and c.2). The decline of happiness beyond midlife occurs because declines in satisfaction with family life and work join the downtrend in satisfaction with health. The adverse impact on happiness of these negative trends is moderated, however, by increasing satisfaction that people express with their financial situation as they move into older age.

Finally, the lower happiness of younger compared with older cohorts is due to downtrends in satisfaction in three domains -- finances, work, and health (panels d.1 and

d.2). Satisfaction with family life does not differ between older and younger cohorts, despite the striking differences in family life between today's cohorts and those of their parents and grandparents. The slight upturn in actual happiness among the youngest cohorts cannot be explained by the domains studied here, because none of the domains shows an improvement of younger relative to older cohorts.

One important conclusion that emerges from surveying the domain patterns is that no single domain is the key to happiness. Rather, happiness is the net outcome of satisfaction with all of the major life domains, and the domain patterns frequently differ from each other. Moreover, the importance of any given domain varies depending on the happiness relationship being studied -- cross sectionally by education, over time, through the life cycle, or across generations.

Conclusions

How well does the domain satisfaction model explain the way in which mean happiness varies by socio-economic status, year, age, and birth cohort? The answer is quite well for the first three -- education, year, and age -- and not too badly for the fourth, cohort. It would be interesting to see if happiness regressions of the type found in the economics literature, based only on objective variables, do as well as the domain satisfaction variables used here. We venture that the answer is no -- that Angus Campbell is right when he says that subjective well-being depends not on objective conditions alone, but on the psychological processing of objective circumstances, as captured in reports on satisfaction with these conditions.

The fact that the domain patterns studied here come together reasonably well to predict actual happiness provides new support for the meaningfulness of subjective data on well-being and its components. This contrasts with the view expressed in a recent economics article, "Do People Mean What They Say? Implications for Subjective Survey Data", that purports in six pages to turn economists' "vague implicit distrust [of subjective survey data] into an explicit position grounded in facts" (Bertrand and Mullainathan, 2001, p. 67). Thus, while a skeptic of the present analysis might point to the startling contrast between the life cycle pattern for happiness and that for satisfaction with finances -- almost diametrical opposites -- it turns out that when the movements in the other domains are accounted for, along with that for financial satisfaction, the hill pattern observed for actual happiness is predicted fairly closely by the domains. This close prediction would be unlikely to occur if no credence could be given to what people say.

In addition, the similarity between the present patterns of predicted and actual happiness supports the conclusion that the four domains studied here are probably the most important in determining happiness, a result consistent with the literature on domain satisfaction. But these four domains do not tell the whole story of happiness movements, as is made especially clear here by the disparity between the predicted and actual happiness patterns by birth cohort.

Finally, depending on the happiness relationship being studied -- by socio-economic status, time, age, or cohort -- the role played by different domains in determining happiness tends to vary. Happiness is the net outcome of satisfaction with

all of the major domains of life, and no single domain is sufficient to explain overall happiness.

This is in many ways a first pass at testing fairly comprehensively Campbell's domain satisfaction model, and while the model performs reasonably well, the results raise a number of questions for further research. For example, would increasing the number of life domains improve the predictions? What chiefly determines the domain satisfaction patterns -- objective conditions like those emphasized in economics or subjective factors stressed in psychology? To what extent are there interrelations between personality and domain satisfaction, and among the various domains themselves? The domain satisfaction model provides a new and reasonable start on unravelling the mysteries of happiness -- a new direction, perhaps, for research on the economics of happiness. But it is only a start.

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Appendix A

Questions and Response Categories for Happiness and Satisfaction Variables

HAPPY: 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? (Coded 3, 2, 1 respectively)

SATFIN: We are interested in how people are getting along financially these days. So far as you and your family are concerned, would you say that you are pretty well satisfied with your present financial situation, more or less satisfied, or not satisfied at all? (Coded 3, 2, 1 respectively)

SATJOB: (Asked of persons currently working, temporarily not at work, or keeping house.) On the whole, how satisfied are you with the work you do – would you say you are very satisfied, moderately satisfied, a little dissatisfied, or very dissatisfied? (Coded from 4 down to 1)

SATFAM: For each area of life I am going to name, tell me the number that shows how much satisfaction you get from that area.

Your family life
1. A very great deal
2. A great deal
3. Quite a bit
4. A fair amount
5. Some
6. A little
7. None

(Reverse coded here)

SATHEALTH: Same as SATFAM, except "Your family life" is replaced by "Your health and physical condition."

Appendix B

Descriptive Statistics

Variable	Number of Observations	Mean	Standard Deviation	Minimum	Maximum

Ranger	29651	2.22	0.63	–	–	–	–	3
Sandy	29708	2.64	0.52	–	–	–	–	5
Lynch	29808	7.64	0.52	–	–	–	–	8
Gulch	29811	2.64	0.52	–	–	–	–	7
Suburb	22152	4.24	1.68	–	–	–	–	7
Air								
Year of Schooling								
Black								
1973	29953	0.95	0.32	0	0	0	0	–
1974	29953	0.95	0.32	0	0	0	0	–
1975	29953	0.95	0.32	0	0	0	0	–
1976	29953	0.95	0.32	0	0	0	0	–
1977	29953	0.95	0.32	0	0	0	0	–
1978	29953	0.95	0.32	0	0	0	0	–
1979	29953	0.95	0.32	0	0	0	0	–
1980	29953	0.95	0.32	0	0	0	0	–
1981	29953	0.95	0.32	0	0	0	0	–
1982	29953	0.95	0.32	0	0	0	0	–
1983	29953	0.95	0.32	0	0	0	0	–
1984	29953	0.95	0.32	0	0	0	0	–
1985	29953	0.95	0.32	0	0	0	0	–
1986	29953	0.95	0.32	0	0	0	0	–
1987	29953	0.95	0.32	0	0	0	0	–
1988	29953	0.95	0.32	0	0	0	0	–
1989	29953	0.95	0.32	0	0	0	0	–
1990	29953	0.95	0.32	0	0	0	0	–
1991	29953	0.95	0.32	0	0	0	0	–
1992	29953	0.95	0.32	0	0	0	0	–
1993	29953	0.95	0.32	0	0	0	0	–
1994	29953	0.95	0.32	0	0	0	0	–
1995	29953	0.95	0.32	0	0	0	0	–
1996	29953	0.95	0.32	0	0	0	0	–
1997	29953	0.95	0.32	0	0	0	0	–
1998	29953	0.95	0.32	0	0	0	0	–
1999	29953	0.95	0.32	0	0	0	0	–
2000	29953	0.95	0.32	0	0	0	0	–
2001	29953	0.95	0.32	0	0	0	0	–
2002	29953	0.95	0.32	0	0	0	0	–
2003	29953	0.95	0.32	0	0	0	0	–

Appendix C

Steps 1 and 2 Equations

Regression of Happiness and Each Domain Satisfaction Variable on Specified Independent Variables: Ordered Logit Statistics

(Robust p-value in parentheses)

	Dependent Variable				
Independent Variable	**Happy (1)**	**Satlin (2)**	**Satfam (3)**	**Satjob (4)**	**Satheakth (5)**
Age	0.022772	-0.06344	0.044879	0.043668	-0.01198
	[0.0001]**	[0.0000]**	[0.0003]**	[0.0000]**	[0.0601]+
Agesq	-0.00012	0.000514	-0.00043	-0.0004	-0.0001
	[0.0001]**	[0.0000]**	[0.0001]**	[0.0000]**	[0.0182]*
Cath	-0.02811	-0.01713		-0.03556	-0.0089
	[0.0001]**	[0.0000]**		[0.0000]**	[0.0642]+
Cathsq	0.000275			0.000337	
	[0.0000]**			[0.0183]*	
Educ	0.055533	0.035612	0.075085	0.047991	0.210914
	[0.0000]**	[0.0502]+	[0.0000]**	[0.0000]**	[0.0000]**
Educsq		0.002054	-0.00192		-0.00179
		[0.0052]**	[0.0232]*		[0.0000]**
Male	-0.008206	0.012652	-0.17479	0.021695	0.138811
	[0.0000]**	[0.0000]**	[0.0000]**	[0.0000]**	[0.0000]**
Black	-0.08839	-0.0383	-0.45077	-0.43641	-0.16603
	[0.0000]**	[0.0000]**	[0.0000]**	[0.0000]**	[0.0000]**
t1973	————	————	Reference year	————	————
t1974	0.035135	-0.00994	0.036678	-0.07021	0.038031
	[0.648]	[0.886]	[0.281]	[0.373]	[0.503]
t1975	-0.09603	-0.05083	0.171288	0.187315	0.014605
	[0.199]	[0.466]	[0.019]*	[0.021]*	[0.826]
t1976	-0.05226	-0.01693	-0.05673	0.060301	-0.00767
	[0.471]	[0.800]	[0.419]	[0.441]	[0.966]
t1977	0.043856	0.224268	0.039403	0.06468	0.075327
	[0.611]	[0.000]**	[0.671]	[0.488]	[0.377]
t1978	0.10862	0.133804	0.007053	0.159489	-0.01169
	[0.110]	[0.051]+	[0.923]	[0.034]*	[0.856]
t1980	0.006386	-0.08415	0.199211	-0.04797	0.177236
	[0.927]	[0.197]	[0.007]**	[0.520]	[0.009]**
t1982	0.017871	-0.1206	0.303385	0.02714	0.352281
	[0.793]	[0.054]+	[0.000]**	[0.707]	[0.000]**

Appendix C (cont.)

	Dependent Variable				
Independent Variable	**Happy (1)**	**Satlife (2)**	**Satfam (3)**	**Satjob (4)**	**Satlwahlt (5)**
cr983	-0.12173	-0.1065	-0.03378	0.141839	-0.0688
	[0.0621]+	[0.0995]+	[0.637]	[0.0405]*	[0.319]
cr984	0.07414	0.021233	0.208851	-0.01138	0.212522
	[0.281]	[0.737]	[0.0051]**	[0.881]	[0.0033]**
cr985	-0.02414	0.0187		-0.00414	
	[0.634]*	[0.697]		[0.302]	
cr986	0.022754	0.090113	-0.12431	0.231755	-0.11249
	[0.732]	[0.178]	[0.0851]+	[0.0022]**	[0.141]
cr987	-0.02126	0.172839	0.06154	-0.04379	0.163291
	[0.759]	[0.0062]**	[0.410]	[0.154]	[0.0189]*
cr988	0.162877	0.158873	0.107415	0.121667	0.087871
	[0.0000]**	[0.0000]**	[0.0000]**	[0.000]	[0.0000]**
cr989	0.060958	-0.119368	0.096921	0.09811	0.001555
	[0.307]	[0.0762]+	[0.407]	[0.194]	[0.986]
cr990	0.13064	0.054572	-0.052268	0.115772	0.144139
	[0.0323]*	[0.473]	[0.526]	[0.145]	[0.136]
cr991	0.013087	0.077566	0.065499	0.100156	-0.01768
	[0.852]	[0.252]	[0.420]	[0.200]	[0.855]
cr993			0.000145		0.019645
			[0.621]		[0.845]
cr994	-0.124405	0.120657	0.028085	0.12954	
	[0.059]+	[0.0665]+	[0.780]	[0.0754]+	
cut1:Constant	-2.03753	-2.19873	-2.92248	-3.07668	-3.54667
	[0.0000]**	[0.0000]**	[0.0000]**	[0.0000]**	[0.0000]**
cut2:Constant	0.79869	-0.14451	-1.0171	-1.72014	-2.42659
	[0.0523]+	[0.713]	[0.0000]**	[0.0000]**	[0.0000]**
cut3:Constant			-1.36141	0.234316	-1.77893
			[0.0000]**	[0.608]	[0.0000]**
cut4:Constant			-0.47002		-0.65057
			[0.0002]**		[0.189]
cut5:Constant			0.96969		0.00145
			[0.102]		[0.878]
cut6:Constant			1.808822		1.529096
			[0.0000]**		[0.0022]**
Observations	29051	39728	23207	23808	23252
Pseudo R-squared	0.014	0.020	0.007	0.012	0.012
Chi²	607.512	1734.832	371.977	879.21	1052.814
Log Likelihood	-27328.6	-30710.4	-31389.3	-25354	-37052.7

+ significant at 10%; * significant at 5%; ** significant at 1%

Appendix D

Step 3 Equation

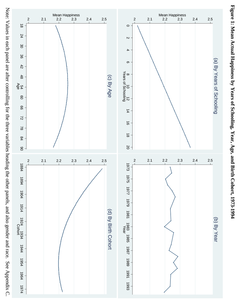
Regression of Happiness on Domain Satisfaction Variables: Ordered Logit Statistics

(Robust p-value in parentheses)

Independent Variable	Happy
Satfin	0.573019 (0.000)**
Satjob	0.498200 (0.000)**
Satfam	0.460422 (0.000)**
Sathealt	0.343419 (0.000)**
cut1:Constant	4.299545 (0.000)**
cut2:Constant	7.743151 (0.000)**
Observations	18440
Pseudo R-squared	0.133
Chi²	3200.648
Log Likelihood	-14855.8

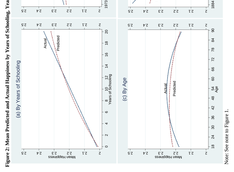
+ significant at 10%; * significant at 5%; ** significant at 1%

Figure 1: Mean Actual Happiness, by Years of Schooling, Year, Age, and Birth Cohort, 1972-1994



Note: Values are net panel set after controlling via fixed effects linear regression for other variables, having the age, year, and cohort panels, and dropping the upper and lower tails. See Appendix C.

Figure 1: Mean Predicted and Actual Dispersion by Years of Schooling, Year, Age, and Birth Cohort



Note: See note to Figure 1.

Figure 3: Mean Domain Satisfaction and Actual Happiness by Years of Schooling, Year, Age, and Birth Cohort, 1973-1994

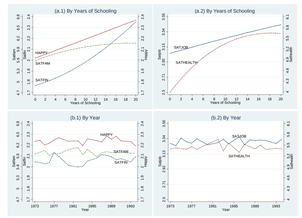
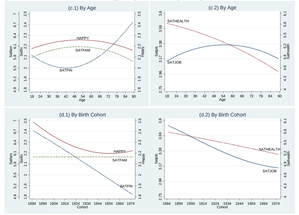


Figure 3: Mean Domain Satisfaction and Actual Happiness by Years of Schooling, Year, Age, and Birth Cohort, 1973-1994



Note: See note to Figure 1.