

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 during the period 1973-1994. The patterns are, first, the positive cross sectional relation of happiness to income. Second is the time series change -- from year to year happiness is typically fairly constant. Third is the life cycle pattern of happiness -- a mild increase to midlife followed by a gradual decline. Last is the change across generations -- among younger birth cohorts, happiness is typically lower. The question is, if we know the domain satisfaction patterns with regard to each of these variables -- income, time, age, and birth cohort -- how well can we predict the observed pattern of happiness for each variable?

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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 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 to up 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 subjective 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, health, work, 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 circumstances to which people refer when asked about the factors affecting their happiness. 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 -- financial situation, 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-y-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, Fritjers, and Ferrer-y-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 (2005) 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 I have used the domain approach to study happiness over the life cycle (Easterlin 2006). The present paper is an extension of this earlier analysis.

Outside of economics work relating happiness to domain satisfaction is more extensive (see, for example, the bibliography in Veenhoven 2005, section 12-a). 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 interpersonal relationships (ibid, p. 227; on personal relationships, 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 happiness in relation to a single variable, usually happiness differences 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 as a whole in relation to each of four different variables -- by economic status (income), 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 income is this: if we know how financial satisfaction varies by income, and similarly for satisfaction with family life, work, and health, can we predict from these domain patterns the way that overall happiness varies by income?

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 3 options; for job satisfaction, 4 options; family satisfaction, 7 options; and health satisfaction, 7 options. The specific question for each variable is given in Appendix A. The response of an individual to each question is assigned an integer value here, 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).

Although the details vary somewhat (see Appendixes B, C, and D), the basic procedure is the same for all four variables and consists of the following steps:

1. A regression is fitted to the happiness data to obtain an estimate of the typical pattern of variation in actual happiness in relation to that variable. This is the pattern that is to be predicted. In the cross sectional analysis, for example, this would be the variation of mean happiness with income.
2. A similar regression estimate is derived of the typical pattern of variation of satisfaction in each of the four domains -- in the cross sectional analysis, this would be the variation of mean financial satisfaction with income, mean family satisfaction with income, mean work satisfaction with income, and mean health satisfaction with income.
3. A regression is computed from the individual data of the relation of happiness to the four domain satisfaction variables – financial satisfaction, family satisfaction, work satisfaction, and health satisfaction -- to establish the relative impact of each domain on happiness. This regression is the same for all four variables studied.
4. A prediction of the variation of happiness with regard to each variable is obtained by substituting in the regression equation of step 3, the mean domain satisfaction values estimated in step 2. For the cross section analysis, for example, predicted happiness for a given income level would be estimated by entering in the step 3 regression equation the four mean domain satisfaction values for that level of income derived in step 2.

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, 1999, p. 215, van Praag and Ferrer-y-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 goals. If one of them is neurotic, 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’s, because a neurotic tends to assess his or her circumstances more negatively than others (Diener and Lucas, 1999). However, the 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.

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 and income (Figure 1a). Also well-known is the fairly flat relation of happiness to time (Figure 1b). (The slightly negative slope in the figure is not significant.)

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). 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, like the two patterns in Figures 1a and 1b, it is essentially a bivariate relation.¹ The U-shaped happiness-age relation of the economic literature is the result of a multivariate regression in which life circumstances are controlled (Blanchflower and Oswald 2004, 2006). Controls for such conditions would be inappropriate here, because the specific purpose of the analysis is to test whether life circumstances, and specifically satisfaction with these circumstances, account for the happiness pattern observed in relation, not only to age, but also to income, time, and cohort.

Least studied is how happiness varies by cohort². For cohorts born between 1890 and 1975, the relation of happiness to cohort is negative and curvilinear (Figure 1d). Thus, controlling for age, the happiness of younger cohorts is, on average, significantly less than older, but among the most recent cohorts there is a slight upturn in happiness. The magnitude of the happiness differences by cohort is not very great, but is somewhat larger than the changes found in the time series and life cycle patterns.

Predicted happiness. -- Thus there are four fairly disparate patterns of happiness to be explained – a positive cross sectional relation to income, no significant trend in 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?

¹ I say “essentially” because the composition of persons at older compared with younger ages differs systematically by gender, race, education, and cohort. Because happiness differs significantly by these time-invariant characteristics, controls for these characteristics are needed to derive an unbiased estimate of the happiness - age relationship.

² 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.

The answer, based on the procedures outlined in steps 2-4 above is, reasonably well. The cross sectional relation of happiness to income is closely predicted by the cross sectional patterns of domain satisfaction to income (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 amplitude of the predicted movement 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 convex upward rather than concave, and the upturn among the youngest cohorts is totally missed (Figure 2d).

Domain satisfaction. -- One might suppose that the fairly good predictions overall result from a similarity between the satisfaction patterns in each domain and the happiness pattern, for example, that the time series trends in satisfaction with finances, family, health, and work are uniformly flat, and that the composite of these trends is necessarily a horizontal trend for happiness. But this is generally not the case. 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 domain patterns along with that for actual happiness. The domains that appear to be principally responsible for the actual movement of happiness are given in the left panel. The selection of the dominant domains is somewhat arbitrary, because all four domains together determine the observed

happiness pattern. I have chosen as the dominant domains those whose happiness patterns are closest to that observed for happiness.

Why, for example, does happiness increase steadily in relation to income? The answer appears to be that those with higher income are more satisfied with their finances (no surprise there), work, and health (Figure 3, panel a.1). Satisfaction with family life also rises with income, but only up to a point (panel a.2). The peak in family satisfaction occurs at about \$45,000 in 1986 dollars; at today's prices the peak would be in the neighborhood of \$100,000. Thereafter, as income increases, satisfaction with family life declines somewhat, an intriguing subject for future research.

Over time, the horizontal trend in happiness corresponds to a similar trend in satisfaction with family life (panel b.1). Financial and work satisfaction trend downward slightly but significantly, while health satisfaction first rises and then declines (panel b.2).

The hill pattern of life cycle happiness reflects similar hill patterns in satisfaction with family life and work (panel c.1). Satisfaction with finances has a pattern in regard to age almost the diametrical opposite of that for happiness (panel c.2). Satisfaction with health declines steadily over the life course, no doubt reflecting the corresponding trend of actual health in the population.

Finally, the lower happiness of younger compared with older cohorts is due to downtrends in satisfaction in the two economic domains, work and finances (Figure d.1). Satisfaction with family life does not differ between older and younger cohorts, despite the striking differences in family structure between today's cohorts and those of their parents and grandparents (panel d.2). Satisfaction with health rises among cohorts born through 1930, but has since declined.

If one simply counts in the left panel of Figure 3 the frequency of appearance of each domain, none of the four turns up in all four panels. Financial and family satisfaction turn up twice; job satisfaction, three times; and health satisfaction, once. Clearly there is no single domain that is the key to happiness. Rather, happiness is the net outcome of satisfaction with all of the major domains of life, and the effect of any given domain varies depending on the happiness relationship being studied -- cross sectionally by income, over time, through the life cycle, or across generations.

Conclusion

How well does the domain satisfaction model explain the way in which mean happiness varies by income, year, age, and birth cohort? The answer is quite well for the first three -- income, 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. I 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.

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? Why are today's cohorts less satisfied

than their parents and grandparents with their work and financial situation? Why does satisfaction with family life start to decline above a certain income level? Why has satisfaction with health been declining in recent years? The domain satisfaction model provides a new and reasonable start on unraveling 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
Happy	29,721	2.23	0.63	1	3
Age	29,651	45.1	17.65	18	89
Birth cohort (1890=0)	29,651	48.9	18.68	-6	86
Time	29,721	11.98	6.69	1	22
Log real p.c. income	27,392	9.03	0.94	3.97	12
Male	29,651	0.44	0.50	0	1
Black	29,651	0.11	0.32	0	1
Educ \leq 12 yrs.	29,651	0.61	0.49	0	1
Satfin	29,794	2.05	0.74	1	3
Satjob	23,854	3.29	0.81	1	4
Satfam	23,263	5.99	1.27	1	7
Sathealth	23,309	5.45	1.47	1	7

Appendix C

Step 1 and 2 Equations

Regression of Happiness and Each Domain Satisfaction Variable

on Specified Independent Variables:

Ordered Logit Statistics

(In paren, $P > |z|$)

1. Analysis by age and cohort

Independent Variable	Dependent Variable				
	Happy (1)	Satfin (2)	Satjob (3)	Satfam (4)	Sathealth (5)
Age	.020686 (0.001)	-.030693 (0.000)	.046965 (0.000)	.044662 (0.000)	-.032047 (0.000)
Age ²	-.000203 (0.001)	.000432 (0.000)	-.000394 (0.000)	-.000453 (0.000)	.000142 (0.042)
Cohort	-.017975 (0.001)	-.010219 (0.000)	-.022615 (0.002)	--	.028104 (0.000)
Cohort ²	.000129 (0.014)	--	.000114 (0.091)	--	-.000336 (0.000)
Male	-.101324 (0.000)	.016625 (0.483)	.023647 (0.381)	-.180871 (0.000)	.121271 (0.000)
Black	-.735731 (0.000)	-.671642 (0.000)	-.461883 (0.000)	-.480112 (0.000)	-.238758 (0.000)

Ed ≤ 12	-.260456 (0.000)	-.392832 (0.000)	-.216605 (0.000)	-.097925 (0.000)	-.238501 (0.000)
Cut1	-2.510397	-2.360142	-3.027477	-3.68573	-4.751097
Cut2	.316674	-.32067	-1.678026	-2.780609	-3.637703
Cut3	--	--	.272434	-2.12574	-2.99655
Cut4	--	--	--	-1.244581	-1.881087
Cut5	--	--	--	-.4823342	-1.16334
Cut6	--	--	--	1.035689	.279621
n	29,651	29,728	23,808	23,207	23,252
Chi ²	508	1492	812	279	802
LR	-27,395	-30,852	-25,397	-31,446	-37,218
Pseudo R ²	.0119	.0270	.0187	.0055	.0117

2. Analysis by survey year

Independent Variable	Dependent Variable				
	Happy (1)	Satfin (2)	Satjob (3)	Satfam (4)	Sathealth (5)
Year	-0.002708 (0.133)	-0.005936 (0.000)	-0.008938 (0.000)	0.001781 (0.386)	0.022812 (0.005)
Year ²	-- --	-- --	-- --	-- --	-0.001203 (0.001)
Cut1	-2.142575	-1.17509	-3.228313	-4.397699	-3.87656
Cut2	0.631857	0.774741	-1.895404	-3.495136	-2.774446
Cut3	--	--	-0.002593	-2.841827	-2.143859
Cut4	--	--	--	-1.963394	-1.056613
Cut5	--	--	--	-1.207845	-0.359381
Cut6	--	--	--	0.291578	1.053418
n	29721	29794	23854	23263	23309
Chi ²	2.255	12.158	21.345	0.751	13.139
LR	-27796.21	-31774.44	-25914.99	-31708.91	-37748.35
Pseudo R ²	0	0	0	0	0

3. Analysis by level of income

Independent Variable	Dependent Variable				
	Happy (1)	Satfin (2)	Satjob (3)	Satfam (4)	Sathealth (5)
Log pcinc	0.305725 (0.000)	0.672817 (0.000)	0.305458 (0.000)	0.769491 (0.000)	0.262292 (0.000)
Log pcinc ²	-- --	-- --	-- --	-0.03596 (0.000)	-- --
Cut1	0.608039	4.920392	-0.392129	-0.456051	-1.681998
Cut2	3.445068	7.014333	0.956832	0.457994	-0.557747
Cut3	--	--	2.889125	1.102446	0.09313
Cut4	--	--	--	1.975406	1.211437
Cut5	--	--	--	2.736548	1.924749
Cut6	--	--	--	4.247854	3.370677
n	27223	27324	22151	21394	21439
Chi ²	425.534	1694.116	378.964	96.837	300.78
LR	-25109.79	-27824.49	-23816.41	-28966.74	-34292.04
Pseudo R ²	0.011	0.047	0.01	0.002	0.006

Appendix D

Step 3 Equation

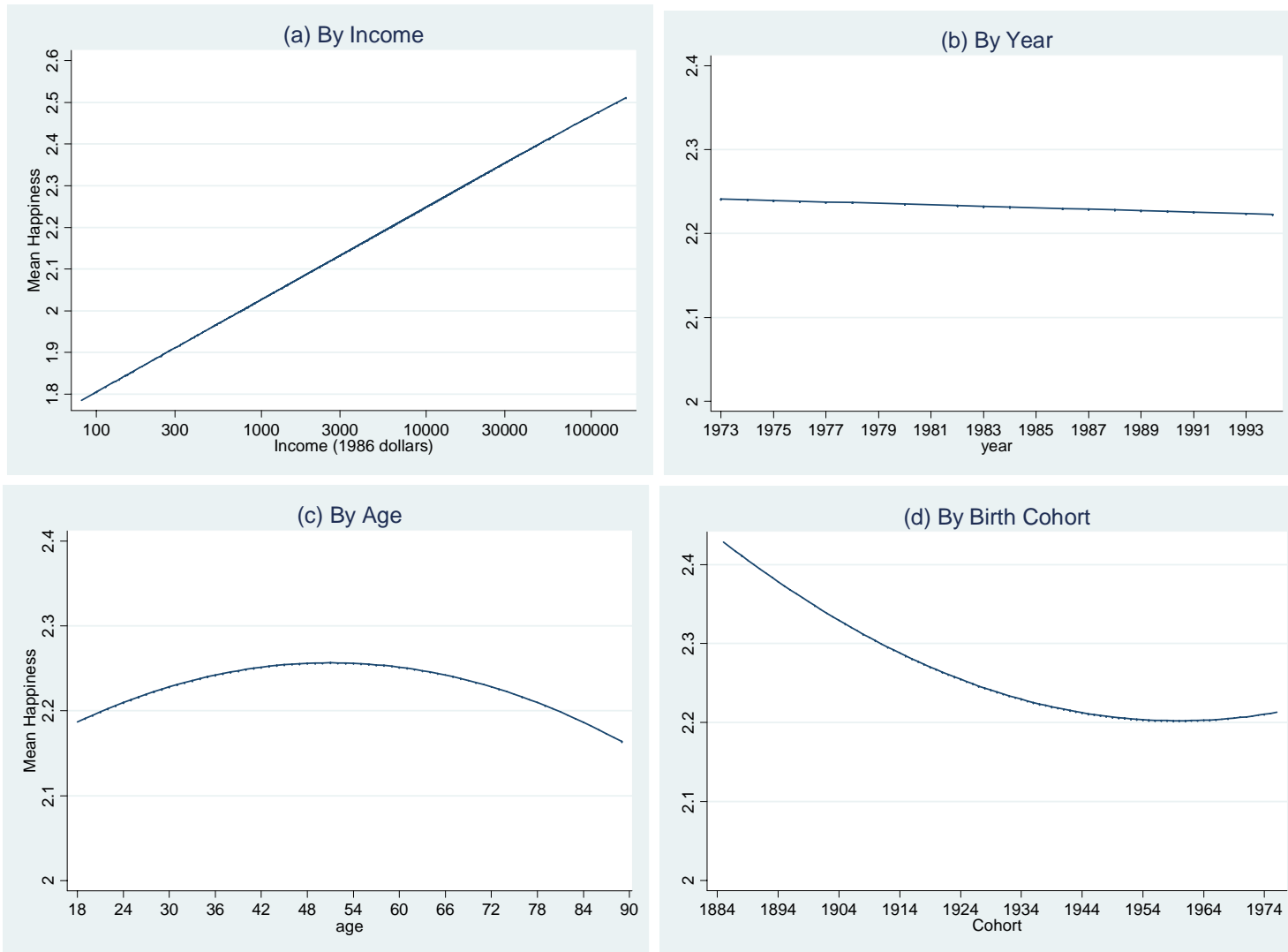
Regression of Happiness on Domain Satisfaction Variables:

Ordered Logit Statistics

Independent Variable	Coefficient and goodness of fit ^a
Satfam	.4604225
Satfin	.5730191
Satjob	.4982003
Sathealth	.2424195
Cut1	4.299545
Cut2	7.743151
n	18,440
Chi ²	3200.65
LR	-14556
Pseudo R ²	.1333

a. For all coefficients, $P > |z| = 0.000$

Figure 1: Mean Happiness by Income, Year, Age, and Birth Cohort, 1973-94



Source: Appendix C

Figure 2: Predicted and Actual Mean Happiness by Income, Year, Age, and Birth Cohort

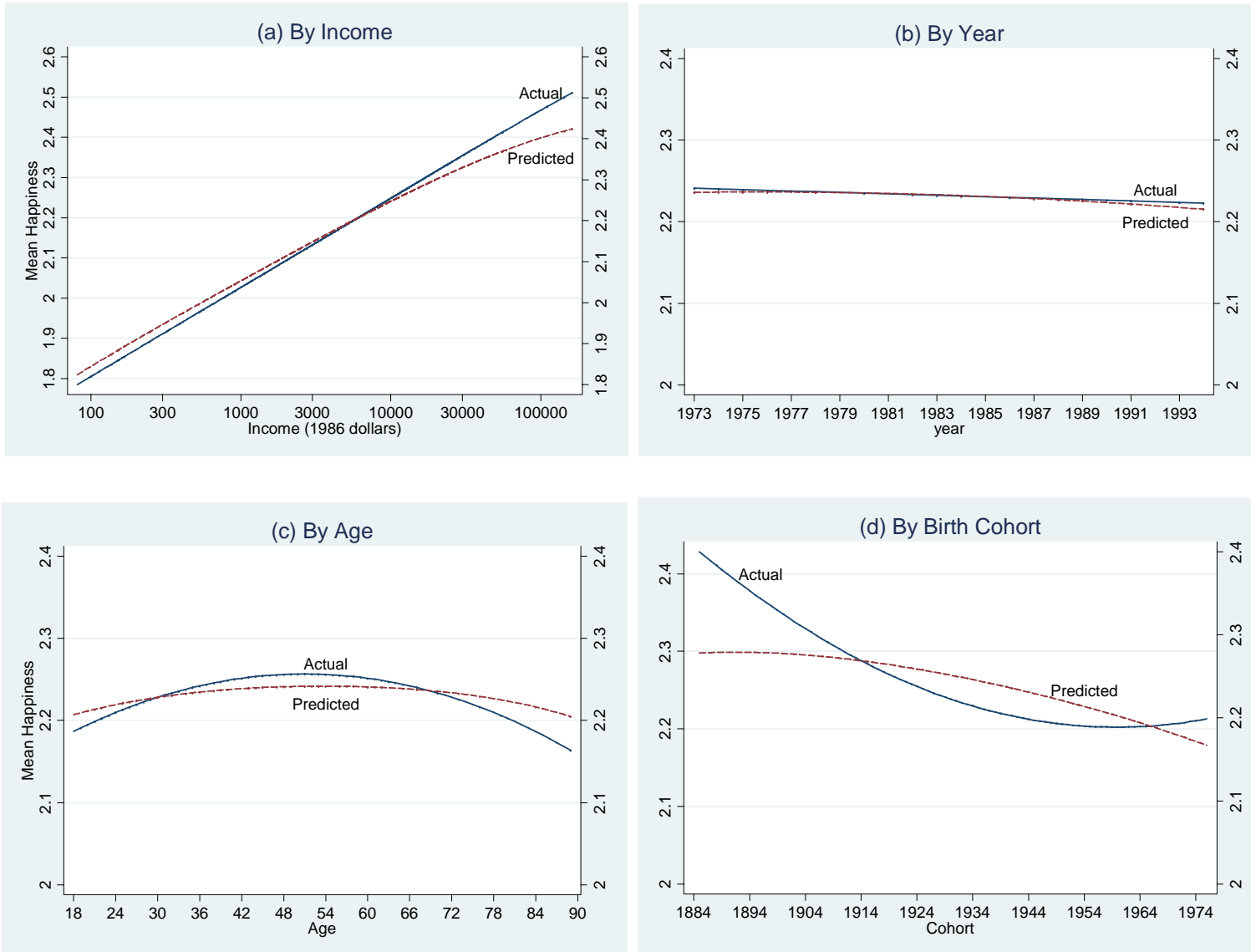


Figure 3: Domain Satisfaction and Actual Happiness by Income, Year, Age, and Birth Cohort, 1973-94

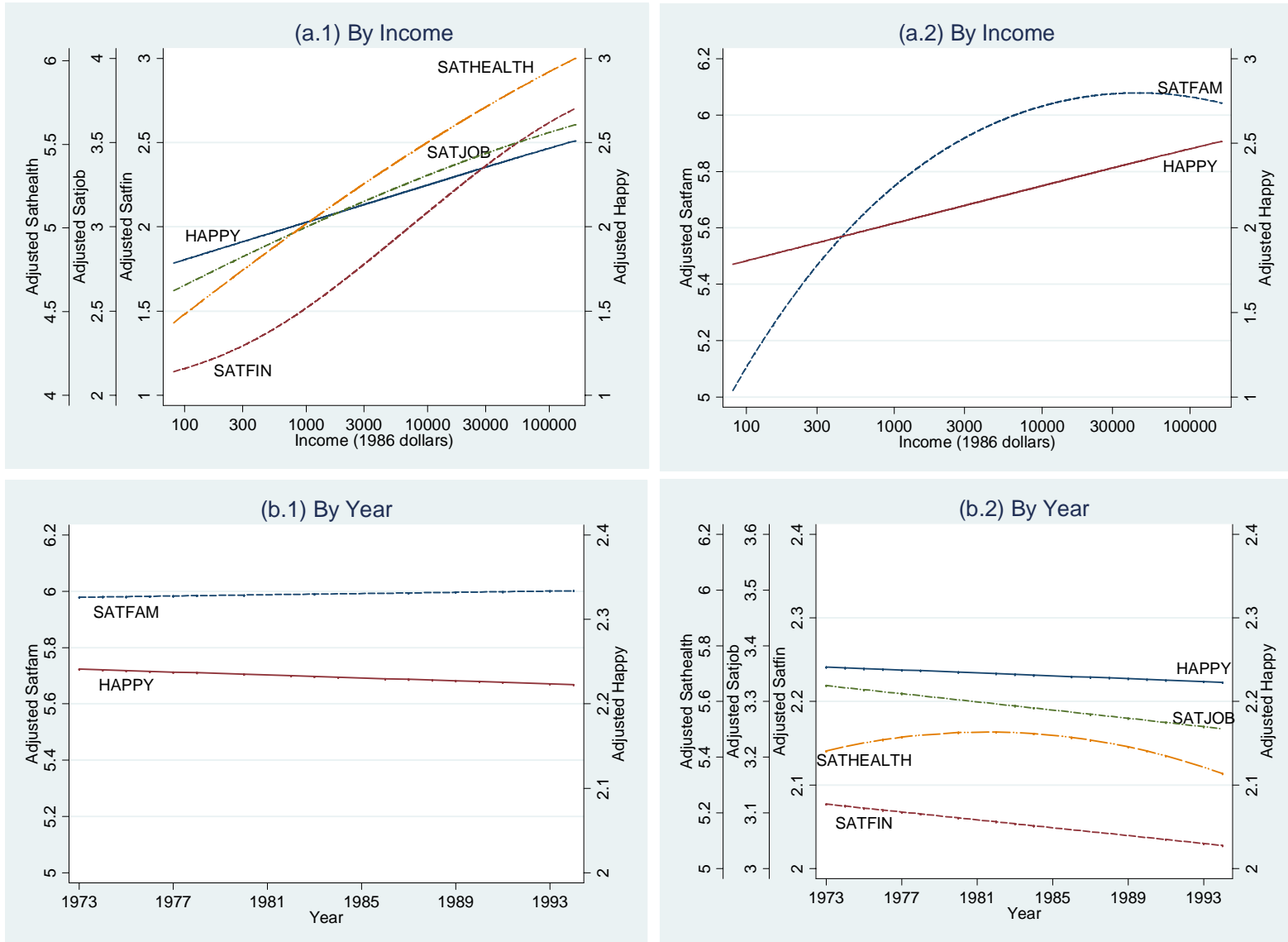


Figure 3 (cont.): Domain Satisfaction and Actual Happiness by Income, Year, Age, and Birth Cohort, 1973-94

