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Life Cycle Happiness and Its Sources

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Abstract

Happiness rises slightly, on average, as people progress from age18 to 45, and declines slowly thereafter. This pattern is the net result of disparate life cycle movements in the satisfaction people get from the principal sources of happiness: their financial situation, family life, health, and work. The slight rise in happiness through midlife is due chiefly to growing satisfaction with one's family life and job, which in combination more than offset decreasing satisfaction with one's health. Beyond midlife, happiness edges downward as a continuing decline in satisfaction with health is joined by diminishing satisfaction with one's family situation and job. These negative trends beyond midlife are offset to a considerable extent, however, by a sizeable upturn in people's satisfaction with their financial situation, particularly in older age.

These findings are based on an analysis of the United States General Social Surveys conducted between 1972 and 2002. Life cycle patterns are derived from an ordered logit regression of happiness and each domain-specific satisfaction variable on age, controlling for year of birth, gender, race, and education.

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At what stage of life are people happiest – when they are on the threshold of their adult lives, at mid-life when families are complete and many are close to the peak of their careers, or in the golden years of retirement? What are the factors responsible for the life cycle pattern of happiness; do major transitions over the life course in areas such as work and family leave their imprint on happiness? These are the questions to which this paper is addressed.

Background

The conclusions of scholarly research on life cycle happiness are ambiguous at best. Psychologists, especially those guided by the so-called setpoint model, tend to see happiness as unchanging over the life cycle. Happiness, it is argued, is essentially determined by personality and genetic factors, and like these factors, is highly stable (Costa et al. 1987, Cummins et al. 2003, Kammann 1983; for a good overview, see Lucas et al. 2002). Important life events, such as a major accident or serious disease, loss of a job, the formation or dissolution of unions, birth of a child, and death of a partner, only temporarily deflect a person's happiness from a setpoint given by personality and genetic traits (Diener and Lucas 1999, Lykken and Tellegen 1996,

Myers 1992, Wilson 2002).[1]

The empirical support usually cited for the constancy of life cycle happiness is point-of-time data on happiness by age (e.g., Myers 1992), used apparently without awareness that the relationship of happiness to age has reversed over time (Campbell 1981, p. 245; George 1992). Longitudinal studies following the happiness of the same people as they age are typically limited to only a few years of the life span; the longest with which I am familiar extends over 10 years and, consistent with the setpoint model, reports no trend in subjective well-being (Costa et al. 1987). Previous work in which I have participated using the demographers' technique of birth cohort analysis to follow 10-year birth cohorts over up to 24 years of the life cycle has also concluded that life cycle happiness is constant (Easterlin and Schaeffer 1999, Easterlin 2001a).

Whether economists have any theory of life cycle happiness is debatable, but based on recent empirical research they typically assert that happiness is lower at mid-life than at earlier and later stages of the adult life cycle (Blanchflower and Oswald 2004, Frey and Stutzer 2002, pp. 53, 62). The basis for this generalization is a multivariate analysis in which happiness is regressed on age, marital status, work status, income, health, and various demographic characteristics, and found to yield a U-shaped relation to age.

The economists' empirical result does not necessarily contradict that typical of the psychological literature, because the question being investigated is different. The psychological literature (and also this article and other studies in which I have been engaged) are interested in whether people get more or less happy as they age taking account of the fact that their economic,

[1] A modified model with a slightly larger role for life events is proposed by Headey and Waring , 1989, but in this model "life events" for an individual are simply the net score on a predetermined inventory of 26 events of favorable minus unfavorable experiences, each event being given equal weight.

family, health, and other circumstances change as they get older. If one wants to know whether people are happier in their golden years than when forming families, one would clearly not want to control for the fact that older people are likely to be less healthy than younger and more likely to have lost a spouse and be living alone. In contrast, the economists' approach seeks to identify what one might think of as the "pure" effect of aging itself, abstracting from the fact that life circumstances change systematically with age. This is a legitimate and intriguing question, but a difficult one to answer. The problem with the economists' empirical conclusion is that the life circumstances for which one is actually able to control are limited in number; consequently, it is far from clear that the U-shaped pattern economists attribute to age reflects the effect of aging alone. For example, people's perceptions of their material needs may rise to midlife and then decline, an inference suggested by some of the results presented below (see also Gardes and Merrigan 2003). If happiness varies inversely with perceived needs, other things constant, then over the life cycle the rise and fall of perceived needs would in itself cause happiness to move inversely, following the U-shaped pattern attributed by economists to age. What economists identify as the pure effect of aging would actually be the effect of changing perceptions of material needs associated with age.

Beyond the issue of the nature of change in life cycle happiness is the question of what factors determine happiness at various points in the life course. When asked an open-ended question about their sources of happiness or unhappiness people typically cite those things that occupy most of their time and thought, and are somewhat within their control, what social psychologist Hadley Cantril (1965) long ago labeled "human concerns." Although people's

concerns are numerous and varied, the ones that are by far most frequently cited fall under the headings of material well-being, family life, physical well-being and work (ibid.).

As these sources of well-being have become increasingly recognized, the study of happiness has expanded to encompass satisfaction with these specific aspects of life, or what psychologists have termed "domain satisfaction", and of the relations between satisfaction in specific domains and "global" happiness. The benchmark work in this regard is that of psychologist Angus Campbell (1981) and his collaborators; in economics this tradition has been taken up recently by Bernard M.S. van Praag and Ada Ferrer-i-Carbonell (2004; see also van Praag, Frijters, and Ferrer-i-Carbonell, 2003).

This paper builds on these various strands of work. First, in the tradition of the psychological literature it seeks to identify the life cycle pattern of happiness as people undergo the normal transitions in work, family, and economic status. It uses social survey data collected from 1972 to 2002 and a statistically refined variant of the demographer's technique of birth cohort analysis that draws on the economists' regression approach. This technique seeks to generalize from the experience of different birth cohorts, some younger, some older, as they age. However, instead of following exactly the same individuals as they age, as in a panel study, a nationally representative sample of the same individuals is followed from year to year, what is sometimes called a "synthetic panel." The advantage of this technique is that one can use social survey data spanning a much longer segment of the life cycle (in this case 30 years) than is possible in panel studies.

Next, the paper uses the same data set and methodology to identify the life cycle pattern of satisfaction with each of the four main sources of well-being – financial situation, family life,

health, and work. It then asks in the tradition of Campbell and van Praag and Ferrer-i-Carbonell to what extent each individual domain contributes to global happiness. Finally, it considers whether the life cycle patterns in the four domains taken together can actually predict the observed life cycle pattern of happiness.

Data and Methods

The survey 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 2002. For happiness, which is asked in every survey, there are three response options. The domain satisfaction variables comprise financial satisfaction (3 response options), 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 analysis here for the domain satisfaction variables is based on data for 1973-1994, because family and health satisfaction were included in the GSS only during this time span. Satisfaction with place of residence, friends, and "hobbies" are also reported in the GSS, but are omitted here because their inclusion added nothing to the prediction of life cycle happiness.

In seeking to establish the life cycle pattern of happiness I control for year of birth, or birth cohort. The happiness data cover three decades, 1972 – 2002; hence for any given year of age there are observations spanning thirty cohorts; for example, the observations for those aged 18 years refer to cohorts born from 1954 to 1984. Although there is a fairly wide range of birth

cohorts included for any given year of age, the cohort composition at each successive year of age changes progressively by one year, and turns over completely after 30 years of age are covered. By age 49, the cohort composition comprises persons born from 1923 to 1953, and by age 80, from 1892 to 1922. It is reasonable to suppose that differences among cohorts in their life histories (whether they reached adulthood during boom or bust, whether in war or peacetime, etc.) may have had a lasting effect on their average level of happiness or satisfaction (Easterlin 1987), and that comparisons across ages that fail to control for differences by age in cohort composition would be correspondingly distorted. The control here is not perfect (one would need 71 years of data before each cohort was represented at each year of age), but it is certainly better than none.

The number of birth cohorts included in the analysis is 102 and the life cycle pattern of happiness derived here can be thought of as an average from the life cycle experience of these cohorts. Each of the 42 cohorts born from 1913 to 1954 is followed over a 30 year time span, the former starting at age 59, the latter at age 18. For the other 60 cohorts the time span covered ranges from 29 years (for the cohorts of 1912 and 1955) down to 1 year (for the cohorts of 1883 and 1984), with a mean time span for these 60 cohorts of 15 years.

I control also for gender, race, and education, traits that are fixed throughout the life cycle, or, in the case of education, fixed early in the adult life cycle for almost all persons. I control for gender, race, and education, because older persons and older cohorts differ somewhat in their demographic composition from younger. In the course of aging, mortality takes a heavier toll on males, blacks, and less educated persons. Also, throughout the twentieth century, mortality has fallen more slowly in each of these three groups than among their demographic counterparts. As a result, comparisons seeking to generalize about differences by age or cohort will be distorted if

happiness or domain satisfaction varies by gender, race, and education, as it typically does (Argyle 1999, Blanchflower and Oswald 2004, Easterlin 2001b, 2003b, Frey and Stutzer 2002).

Happiness and each domain satisfaction variable is regressed on age, cohort, gender, race (black or nonblack), and years of education (12 years or less or 13 years or more). Means and standard deviations of the variables are presented in Appendix B. The regression technique used throughout is ordered logit, because responses to the several variables comprise three or more categories. Ordinary least squares regressions yield virtually identical results. Various combinations have been tried of age, age squared, cohort, and cohort squared; the regression yielding the best fit for each variable is used here. The life cycle pattern for each domain satisfaction variable is the predicted value at each age 18 to 89 when mean values for all independent variables other than age are entered in the regression.

The relation of global happiness to the individual domain satisfaction variables is then derived by regressing global happiness on the four domain satisfaction variables – financial, job, family, and health. Finally, predicted happiness at each age is obtained by entering in this regression the predicted value at each age 18 to 89 of each domain satisfaction variable.

Results

Life cycle happiness

Happiness rises slightly, on average, as people progress from age 18 to 45 and then declines slowly thereafter (Figure 1). The size of the life cycle swing in happiness is so small as to be barely perceptible, but it is statistically significant. On the happiness scale of 1 to 3, the increase is a mere .02 from age 18 to 45. This is equivalent to an upward shift over 27 years of

only 2 percent of the population by one response category, say from "not too happy" to "pretty happy." In the ensuing 27 years happiness drops at the same rate as it previously rose, so that by age 72 it is back to the level of age 18. Thereafter, the rate of decline picks up slightly and by age 89 happiness is .04 below the level at age 72, but this is still equivalent to a downward shift of one response category between ages 72 and 89 for only 4 percent of the population.

This inverted U-shaped pattern is the opposite of that reported by of Blanchflower and Oswald (2004) and other economists. This difference results from their including controls for circumstances that change over the life course such as work, marital, and economic status. Blanchflower and Oswald also regress happiness on age, controlling only for gender and race, and report the inverted U found here. However, they do not control for birth cohort, and without a cohort control the regression coefficient on age is greater and yields a somewhat larger and longer predicted increase in happiness over the life cycle. Older cohorts (those born earlier in the century) are somewhat happier than younger. Because older cohorts are disproportionately represented at older ages, the coefficient on age is biased upward when cohort is not controlled, because the age variable includes this cohort effect.

As mentioned, other longitudinal studies have typically reported constancy in happiness over the life cycle. Whether a panel study (Costa et al. 1987) or the demographic technique of cohort analysis (Easterlin 2001a), these inquiries have examined happiness only over segments of the life cycle; usually only a few years and at most about 25 years. These are time spans in which the small swing in happiness reported here is unlikely to be detected. Indeed, given the problem of attrition in panel data, it is unlikely that any panel study would replicate the present results.

Domain satisfaction

On the face of it, the life cycle happiness pattern would seem largely to support the setpoint model. True, there is some evidence of change, but it is so small as hardly to contradict the model seriously.

If the setpoint model is correct, however, one ought to find little change over the life cycle in satisfaction with particular aspects of life. With regard to marriage, for example, a recent study by psychologists specifically argues that adaptation is quick and complete (Lucas et al. 2002); the same has been claimed for adaptation to injury or disease (the oft-cited seminal paper is Brickman et al. 1978). Such rapid and full adaptation ought to result in a high degree of constancy over the life cycle in satisfaction with domains such as family and health. Is this, in fact, the case?

The answer is no. In the individual domains there is a sizeable amount of change over the life cycle (Figure 2). Satisfaction with health declines steadily throughout the life course. Satisfaction with family life rises slightly to about age 40, after which it drops considerably. Satisfaction with one's work rises to age 58, and then drops. Satisfaction with one's financial situation declines very slightly through age 36, but thereafter rises considerably with the biggest increase in older age.

The size of the changes in satisfaction with particular aspects of life are, on average, considerably greater than for happiness. In the case of health, the total decline over the life cycle amounts to a downward shift for the entire population of somewhat more than one response category. For the other domains, the shifts are not as large as for health, but still much more than for happiness. Between ages 40 and 89 satisfaction with family life declines by an amount

equivalent to a one category decrease for almost 70 percent of the population. Between ages 18 and 58 satisfaction with one's work rises by an amount equivalent to an upward shift of one category for 25 percent of the population. From age 36 to 89, financial satisfaction improves by an amount equal to an upward shift of one category for 40 percent of the population.

Aside from financial satisfaction, the number of response categories for the domain variables are greater than for happiness. For satisfaction with work there are four, not three, response categories, and for satisfaction with health and family life, seven response categories. Hence a one category shift in the domain variables other than financial satisfaction cannot be assumed to signify as great a response shift as a one category shift for happiness. To allow for this the scales in Figure 2 have been correspondingly adjusted; for example, health and family satisfaction which have a response range of 6 compared with a range of 2 for happiness, are drawn to a scale one-third as great as that for happiness. Even with this adjustment of scales, it is clear from Figure 2 that the amplitude of life cycle change for each of the domain satisfaction variables is considerably greater than that for happiness.[2]

Comparison of the domain patterns appears to support the view that over the life cycle goals or aspirations change more in pecuniary than nonpecuniary areas of satisfaction such as health, family life, and work (Easterlin 2003a). If one thinks of satisfaction with a particular aspect of life as inversely related to the size of the shortfall between goals and actual circumstances, one finds that in the nonpecuniary domains, satisfaction largely mirrors the change in actual circumstances, implying that goals are fairly constant. Satisfaction with family

[2] Two of the three GSS satisfaction variables not included here, satisfaction with friends and "hobbies," change very little over the life cycle. Satisfaction with "the city or place you live in" changes much like job satisfaction.

life rises as people marry and form families, reducing the shortfall relative to family life goals, and then declines as divorce and widowhood increasingly take their toll. Satisfaction with work rises in the ages when people are moving up the career ladder, increasingly fulfilling their career goals. Satisfaction with health follows a downtrend in actual health over the life cycle, implying a growing shortfall between health standards and actual circumstances. In contrast financial satisfaction moves almost inversely with one's objective financial situation – falling slightly when income is rising most, and rising most in old age when income is constant or declining. This implies that the "needs" or goals underlying judgments of one's financial situation are increasing considerably to midlife, offsetting the effect on satisfaction of the actual improvement in financial circumstances, and declining thereafter, especially in older age. Thus, the judgments regarding health, work, and family life appear to be made with reference to a more constant standard than that regarding financial situation. This is not to say nonpecuniary standards are completely fixed, but clearly the fact that in these domains the responses on the satisfaction variables accord more closely with life cycle movements in actual circumstances than does satisfaction with financial situation suggests that standards regarding nonpecuniary concerns are more constant than for pecuniary.

Domain satisfaction and happiness

On average, happiness varies directly and significantly with each dimension of people's lives included here: with one's financial situation, family life, health, and work (Appendix Table D , column 4). In total the four domain satisfaction variables account for about one-seventh of the variance in happiness, as measured by the pseudo $-R^2$.

The individual domain satisfaction variables array in roughly the following order from high to low with regard to magnitude of effect: family life, financial situation, job, and health. This judgment is based on the comparative magnitude of the change in pseudo $-R^2$ associated with each domain variable in ordered logit regressions. When each is considered singly, family satisfaction has the greatest explanatory power. After family satisfaction, the pseudo $-R^2$ increases most with the addition of financial satisfaction; then comes satisfaction with work, and finally satisfaction with health (Appendix Table D, columns 1-4).

Predicted happiness

The life course change in satisfaction with each of four major aspects of people's lives – family life, health, work, and financial situation – is, on average, substantially greater than that in their happiness. The directions of change, however, are often in offsetting directions. Could the disparate movements in the domain satisfaction variables be responsible for the very mild inverted-U life cycle pattern of happiness?

The answer is yes. The four domain satisfaction variables predict very closely the actual change in life cycle happiness (Figure 3). Predicted happiness at ages 18 and 89 is almost the same as actually happiness, and rises and falls over the life cycle by virtually the same amount as actual happiness. The peak in predicted happiness, however, occurs slightly earlier than in actual happiness, at age 40 instead of 45, and also returns to the level of age 18 somewhat earlier, at age 69 instead of 72.

The virtual congruence of predicted with actual happiness implies that the slight rise in happiness through midlife that occurs in the population as a whole is due, on average, chiefly to

growing satisfaction with family life and work, which in combination more than offset diminishing satisfaction with health. As individuals marry and form families and progress in their careers, the enhanced happiness they obtain from these sources offsets the adverse impact on happiness of a gradual deterioration in health. Beyond midlife, however, happiness decreases slowly, because the continuing decline in satisfaction with health is joined by diminishing satisfaction with family situation and work. These negative influences on happiness are considerably offset, however, by an upswing in people's satisfaction with their financial situation. This upswing, which is most marked at the oldest ages clearly cannot be due to an upsurge in income at older age, but must reflect a decrease in emotional strain as financial pressures and material needs diminish in the later stages of the life cycle.

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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?

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?

SATJOB: 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? (Asked of persons currently working, temporarily not at work, or keeping house.)

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

(In this article, these items are reverse coded)

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

Appendix B
Basic Statistics for Variables in Analysis

Variable	Number of observations	Mean	Standard deviation	Min.	Max.
Happy	41,174	2.20	0.63	1	3
Age	41,174	45.35	17.73	18	89
Birth cohort (1890=0)	41,174	51.61	19.66	-7	94
Male	41,174	0.44	0.50	0	1
Black	41,174	0.12	0.32	0	1
Educ $\leq$ 12 yrs.	41,174	0.58	0.49	0	1
Satfin	29,710	2.04	0.74	1	3
Satjob	23,816	3.29	0.82	1	4
Satfam	23,189	5.91	1.36	1	7
Sathealth	23,235	5.43	1.49	1	7

Appendix C
Happy and Specified Domain Satisfaction Variable:
Ordered Logit Regression Statistics
(In paren, $P > |z|$)

	Dependent Variable				
Independent Variable	Happy (1)	Satfin (2)	Satjob (3)	Satfam (4)	Sathealth (5)
Age	.008002	-.026918	.04546	.029533	-.034841
	(0.011)	(0.000)	(0.000)	(0.000)	(0.000)
Age^2	-.000090	.000375	-.000395	-.000365	.000139
	(0.002)	(0.000)	(0.000)	(0.000)	(0.028)
Cohort	-.005916	-.013026	-.025895	-.004026	.024266
	(0.0000)	(0.000)	(0.000)	(0.041)	(0.000)
$Cohort^2$	--	--	.000139	--	-.000327
	--	--	(0.031)	--	(0.000)
Male	-.057443	.050159	.030240	-.205047	.106025
	(0.003)	(0.023)	(0.234)	(0.000)	(0.000)
Black	-.673972	-.686270	-.449089	-.475853	-.263866
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ed ≤ 12	-.285580	-.407715	-.221237	-.070838	-.251980
	(0.000)	(0.000)	(0.000)	(0.006)	(0.000)
Cut1	-2.45388	-2.39196	-3.14577	-3.96060	-5.00275
Cut2	.332442	-.366436	-1.81305	-3.13664	-3.91395
Cut3	--	--	.118279	-2.54034	-3.27805
Cut4	--	--	--	-1.74330	-2.17604
Cut5	--	--	--	-1.03424	-1.45935
Cut6	--	--	--	0.42733	-0.01585
n	41,174	29,710	23,816	23,189	23,235
Chi^2	805.8	1977.0	912.8	314.5	969.2
LR	-38465	-30799	-25481	-32582	-37419
Pseudo R^2	.0104	.0311	.0176	.0048	.0128

Appendix D
Happy on Specified Domain Satisfaction Variables: Ordered Logit Regression Statistics
(In paren, $P > |z|$)

	Model			
Independent Variable	(1)	(2)	(3)	(4)
Satfam	.556677	.523660	.492810	.430216
	(0.000)	(0.000)	(0.000)	(0.000)
Satfin	--	.737456	.623704	.595230
	--	(0.000)	(0.000)	(0.000)
Satjob	--	--	.528721	.502769
	--	--	(0.000)	(0.000)
Sathealth	--	--	--	.251542
	--	--	--	(0.000)
Cut1	1.00298	2.18560	3.43508	4.26734
Cut2	4.08493	5.43157	6.79212	7.69116
n	18,457	18,457	18,457	18,457
Chi^2	2218.5	3498.5	4236.6	4697.6
LR	-16177	-15537	-15168	-14937
Pseudo R^2	.0642	.1012	.1225	.1359

Fig.1 Life Cycle Happiness

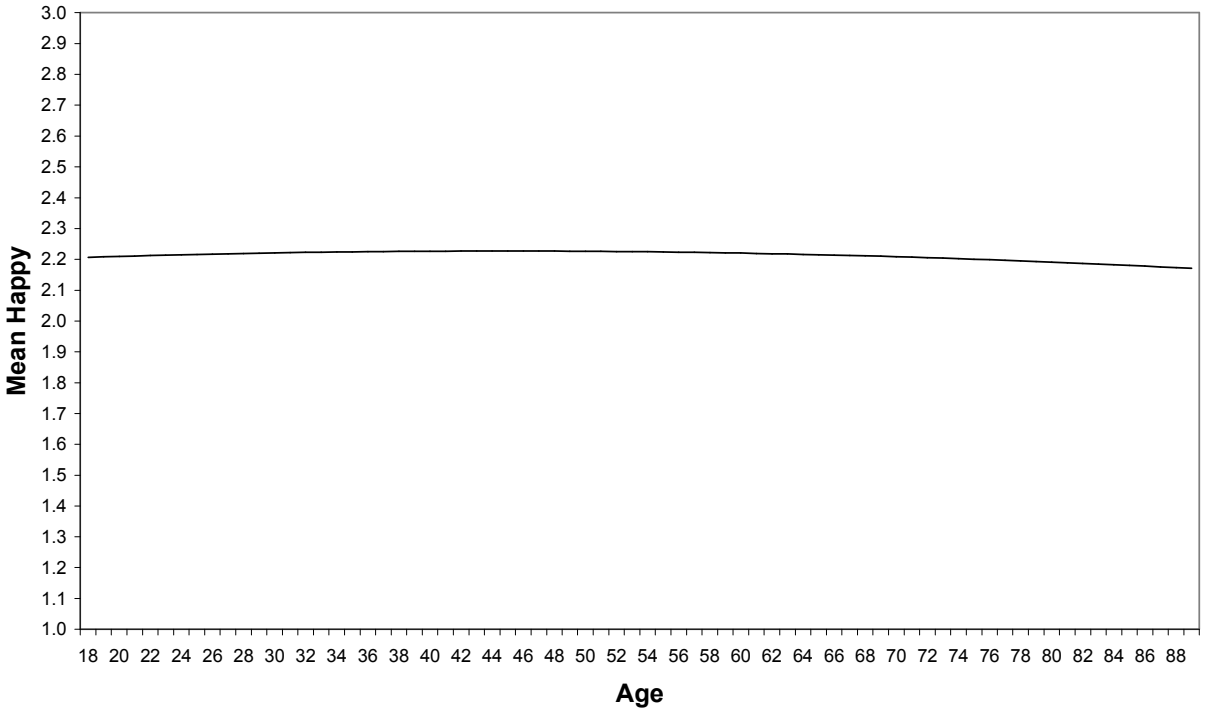

Fig.2 Life Cycle Happiness and Domain Satisfaction

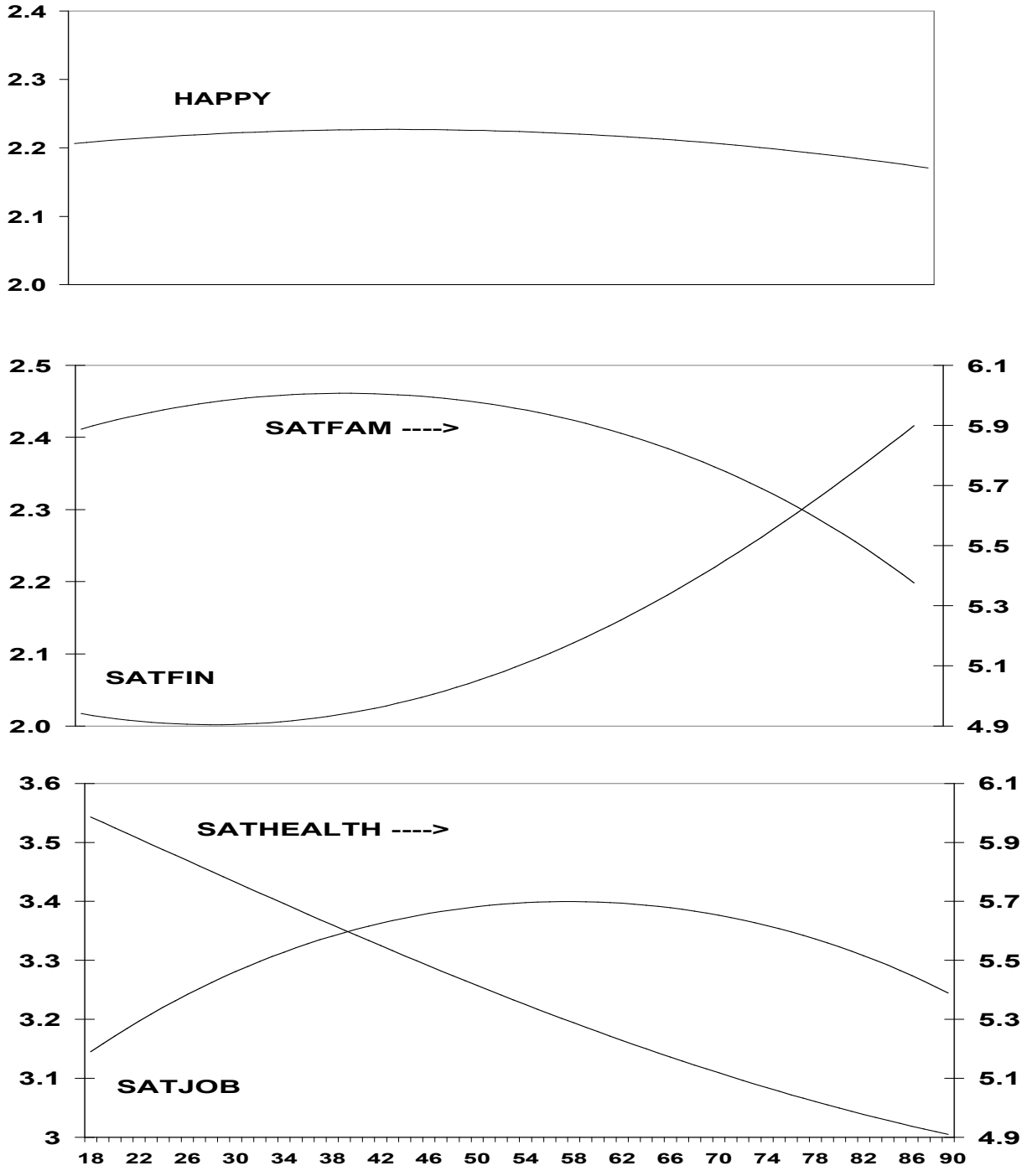

Fig 3. Life Cycle Happiness, Actual and Predicted