



## 'Paradoxical' decline? Another look at the relative reduction in female happiness

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### ARTICLE INFO

#### Article history:

Received 27 October 2010  
Received in revised form 28 June 2011  
Accepted 1 July 2011  
Available online 8 July 2011

#### JEL classification:

I31  
J00  
J16  
J28

#### PsycINFO classification:

2950  
2970

#### Keywords:

Happiness  
Subjective well-being trends

### ABSTRACT

In a provocative paper, [Stevenson and Wolfers \(2009\)](#) provide evidence that women over the last several decades experienced an absolute and relative decline in happiness. The current paper draws upon novel data from the DDB Needham Life Style Survey to take another look at the evolution of women's subjective well-being. In contrast to [Stevenson and Wolfers](#), I find that men and women between 1985 and 2005 experienced similar decreases in life satisfaction. Furthermore, both sexes witnessed comparable slippages in self-confidence, growing regrets about the past, and declines in virtually every measure of self-reported physical and mental health. The data also show that men's well-being in recent years has begun to fall more rapidly than that for women. In the final section of the paper, I present some initial evidence that the steady erosion in social and civic engagement, interpersonal trust, and financial security could be partially responsible for the widespread decline in subjective well-being over the past few decades.

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## 1. Introduction

In a provocative paper, [Stevenson and Wolfers \(2009\)](#) uncover evidence that women over the last three decades experienced an absolute and relative decline in happiness. Relying primarily on data from the General Social Survey (GSS), the authors (hereafter referred to as SW) find that men's self-reported happiness changed very little since the early-1970s, while women experienced a sharp downward trend in well-being. Indeed, SW report that women in 1972 were substantially more likely to be "very happy." By 2006, that happiness gap in favor of women turned into a deficit, with men reporting higher levels of well-being. The differential decline in female happiness is evident across multiple datasets spanning a large number of Western industrialized countries, and it pervades most demographic groups.<sup>1</sup>

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<sup>1</sup> In addition to the GSS (observation period: 1972–2006), SW examine well-being trends using the Virginia Slims Survey of American Women (1972–2000), Monitoring the Future (1976–2005), and the Eurobarometer Trend File (1973–2002). The female trend in happiness/life satisfaction is estimated to be declining in all datasets except the Eurobarometer (for which it is increasing). The male trend in happiness/life satisfaction is estimated to be flat in the GSS, declining in the Virginia Slims survey, increasing in the Monitoring the Future survey, and increasing in the Eurobarometer survey. Results from all surveys point to a relative decline in women's subjective well-being.

This paper uses novel data from the DDB Needham Life Style Survey to provide another look at the evolution of women's subjective well-being over the last few decades. Data collection on the annual Life Style Survey began in the mid-1970s when the advertising agency DDB Needham commissioned the polling firm Market Facts to examine Americans' consumer habits and social activities. Fortunately for the purposes of this paper, the Life Style Survey also contains a large number of items on subjective well-being, ranging from life satisfaction and self-confidence to various measures of physical and mental health. This survey offers numerous benefits for scholars looking to take a fresh look at changes in subjective well-being over the last few decades.

In contrast to SW's results, I find that men and women between 1985 and 2005 experienced very similar declines in life satisfaction. The parallel reduction in well-being is evident throughout the distribution of life satisfaction, and it holds across a large number of demographic groups defined by age, marital and fertility status, educational attainment, and income level. Men and women have also experienced comparable slippages in self-confidence, growing regrets about the past, and declines in virtually every measure of self-reported health. In a further departure from SW's results, I find that although the downward trend in life satisfaction became less severe for men and women over time, the slowdown occurred more aggressively among *women*. As a result, men's life satisfaction began to fall more precipitously than that for women beginning in the late-1980s.

To explain the differential decline in women's happiness, SW posit that women may have been influenced by broad social and economic changes in ways that differ from men. For example, it is plausible that the constellation of structural changes in the economy, the rise in income inequality, or the deterioration in social and political trust decreased women's happiness without affecting men's well-being. In this paper, I use the Life Style Survey to examine whether economic conditions as well as personal views on trust and public safety have differential impacts on life satisfaction across men and women. Not surprisingly, I find consistent evidence that each of these economic and social forces is strongly associated with life satisfaction. In most cases, however, these factors influence the well-being of men and women in a similar manner. Such results are consistent with the main finding that men and women experienced parallel trends in subjective well-being.

The final section of the paper pursues several explanations for the widespread decline in subjective well-being found in the Life Style Survey. The investigation builds on Putnam's (2000) influential book *Bowling Alone*, which documents the causes and consequences of the erosion in Americans' social connectedness over the past few decades. I begin by exploring the extent to which various indicators of social and civic engagement, social and political trust, and financial well-being are related to self-reported life satisfaction. I then analyze trends in each of these social and economic indicators over the period 1985–2005. Consistent with Putnam's argument, I find strong evidence that attachments to friends, family, and the community as well as interpersonal trust are important correlates of life satisfaction. In the economic domain, virtually all proxies for financial stability—from expressing optimism about finding a good job to reporting low levels of household debt—are also found to translate into higher levels of well-being. Over the past two decades, however, the US population became increasingly detached socially and politically and experienced a steady decline in economic security. As with the reduction in life satisfaction, the erosion in Americans' social and economic fabric pervades most demographic groups, including men and women. In fact, insofar as these dramatic changes are responsible for the reduction in life satisfaction, it is difficult to believe that they could have influenced women's well-being without also influencing men's.

This paper makes several contributions to the literature on subjective well-being. First, I introduce a potentially useful dataset that may improve upon or augment analyses typically carried out using the GSS. The Life Style Survey's extensive time coverage, breadth and depth of available well-being measures, and large sample sizes make it an ideal data source for conducting research on Americans' quality-of-life. In addition, I provide new evidence on the evolution of life satisfaction for men and women. Results in this paper point to a population-wide decline in subjective well-being over the last 20 years. Americans—regardless of gender, age, marital status, and labor market outcomes—experienced deteriorating life satisfaction and self-confidence as well as increases in a range of physical and mental health problems. In contrast to SW's results, men have not been immune to the downward shift in subjective well-being. If anything, the evidence presented here suggests that men's well-being in recent years has declined more rapidly than that for women. Finally, this paper advances a plausible explanation for the observed deterioration in life satisfaction: the steady erosion in social and civic engagement and the rise in economic insecurity.

## 2. The growing literature on subjective well-being trends

Although the current study focuses primarily on SW's paper, it is important to situate this work within the rapidly expanding literature on subjective well-being trends. Indeed, gender differences in well-being have been studied for decades (e.g., Nolen-Hoeksema & Rusting, 1999), but it is only recently that researchers have begun to investigate how these differences evolved over time.

Sousa-Poza and Sousa-Poza (2003) produce an early contribution to the study of gender-specific trends in job satisfaction within the British population. The authors find that women's job satisfaction declined absolutely and relative to that of men throughout the period 1991–2000. To my knowledge, Blanchflower and Oswald (2004) provide the first evidence on gender-specific trends in overall happiness and life satisfaction. Their paper relies on the GSS between 1972 and 1998 to explore US happiness trends and the Eurobarometer Survey between 1975 and 1998 to report on British life satisfaction trends. Consistent with SW's results, Blanchflower and Oswald (2004) find that US and British women experienced relative reductions in well-being over the last several decades.

A small number of studies have begun to focus on subjective well-being trends for sub-sets of the female population, especially unmarried women with children (Herbst, 2010; Ifcher & Zarghamee, 2010). Such analyses are important in light of recent changes to the US social safety net through, for example, the passage of work-based welfare reform, expansions to the Earned Income Tax Credit (EITC), and revisions to the Medicaid program. Using the DDB Needham Life Style Survey, Herbst (2010) finds that, relative to other groups of women, single mothers experienced dramatic well-being improvements over the last two decades, marked by increases in life satisfaction, declining regrets about the past, and a growing sense of optimism about the future. The work by *r*, which makes use of the GSS, is consistent with this picture, finding that while single mothers are substantially less happy than other groups of women, much of this happiness gap disappeared over the last four decades.

Also relevant to the current study is the growing literature on trends in time allocation to leisure and other activities related to subjective well-being. An early contribution by Blau (1998) finds that married women in the US experienced reductions in home production that have been somewhat offset by the increased housework of men. More recently, the work of Ramey and Francis (2006) and Aguiar and Hurst (2007) has come to different conclusions about long-run changes in US women's leisure time. The former study documents very little change in women's leisure, due to increases in work and schooling time, whereas as the latter study finds larger increases in leisure that have been driven by reductions in home production. A recent paper by Krueger (2007) provides some reconciliation of these results by examining changes in the fraction of one's day spent engaged in pleasant versus unpleasant activities. While the increase in women's market work has been offset by equal-sized reductions in home production, there has been a shift away from the most pleasant leisure activities (e.g., recreation) toward those that generate less well-being (e.g., watching television). Therefore, women's absolute experiential well-being has changed very little, and may have even declined relative to the way in which men now spend their time.

### 3. Data and empirical framework

#### 3.1. The DDB Needham Life Style Survey

I examine gender-specific trends in subjective well-being using the DDB Needham Life Style Survey. Each year since 1975, the advertising agency DDB Needham commissions Market Facts, a commercial polling firm, to conduct the survey on a sample of approximately 3500 Americans. The questionnaire covers a remarkably diverse set of topics, ranging from consumer behavior and product preferences to recreational activities and political attitudes. Importantly for the current study, the Life Style Survey contains a large number of items measuring multiple domains of subjective well-being.<sup>2</sup>

Given the uniqueness of the Life Style Survey, it is important to mention several noteworthy characteristics of these data. First, the questionnaire provides researchers with a unique opportunity to construct a textured and multidimensional understanding of subjective well-being. Specifically, the survey covers such issues as life satisfaction, feelings of regret about the past, optimism about the future, self-confidence, self-reported physical condition, and a variety of stress-related physical symptoms. Second, the Life Style Survey has been conducted annually since the mid-1970s, with all well-being questions asked in precisely the same manner each year and the data collection procedures remaining stable over time. However, between 1975 and 1984, the survey included only married individuals. To maintain consistency in the sampling frame, I begin the observation period in 1985.<sup>3</sup> Third, unlike the GSS data—which are collected through face-to-face interviews—the Life Style Survey is administered through the mail, thus allowing DDB Needham to inquire about sensitive issues while maintaining privacy and reducing social desirability biases (Dillman, Sangster, Tarnai, & Rockwood, 1996; Visser, Krosnick, Marquette, & Curtin, 1996).

Finally, the Life Style Survey is based on a form of quota sampling called the “mail panel.” Briefly, the process for creating the sample begins when Market Facts invites (by mail) large, representative samples to express a willingness to participate in future mail inquiries on consumer habits. From this pool of several hundred-thousand individuals, Market Facts then selects a demographically representative sample for the DDB Needham Life Style Survey. Approximately 5000 respondents are mailed a written questionnaire, for which the response rate is consistently between 70% and 80%. Mail panels in general and the Life Style Survey specifically have been subjected to extensive validity tests (e.g., Groeneman, 1994; Heberlein & Baumgartner, 1978; Putnam & Yonish, 1999; Visser et al., 1996). Results from these tests indicate a striking similarity in the distribution of demographic characteristics for respondents in the Life Style Survey and GSS; a close agreement in the trends of attitudinal variables common to both surveys; and a strong correspondence in the demographic correlates of those attitudinal variables. Table 1 provides additional comparisons between the Life Style Survey and GSS. I present summary statistics for a number of standard demographic variables found in both surveys. The GSS figures are calculated using SW's analysis dataset for the period 1972–2006 and 1985–2004.<sup>4</sup> With the exception of marital status, summary statistics in Life Style

<sup>2</sup> Putnam and Yonish (1999) and Groeneman (1994) provide detailed introductions to the Life Style Survey. It is important to note that this is a proprietary data archive, although the 1975–1998 surveys are freely available on Putnam's *Bowling Alone* (2000) website.

<sup>3</sup> The item on life satisfaction was introduced into the survey in 1983, precluding an analysis of well-being trends throughout the 1970s, as is possible with the GSS. The survey underwent a dramatic redesign in 2006. Therefore, I end the observation period in 2005.

<sup>4</sup> SW provide full access to their data and code, which can be found here: <http://bpp.wharton.upenn.edu/jwolffers/data.shtml#WomensHappinessData>. I end the GSS comparison period at 2004 because the survey was not conducted in 2005. Ending the comparison period in 2006 does not substantially alter the figures.

**Table 1**  
Summary statistics for the DDB Needham Life Style Survey and General Social Survey.

	Life Style Survey	General Social Survey		
	1985–2005	1972–2006	1985–2004	1985–2004: Alternate education measure
Female (%)	0.551 (0.497)	0.542 (0.498)	0.543 (0.498)	
Age (years)	47.11 (15.98)	44.05 (17.02)	44.30 (16.96)	
White (%)	0.859 (0.348)	0.840 (0.367)	0.823 (0.382)	
Black (%)	0.078 (0.268)	0.118 (0.323)	0.122 (0.327)	
Other race/ethnicity (%)	0.063 (0.243)	0.043 (0.202)	0.055 (0.227)	
Married (%)	0.707 (0.455)	0.628 (0.484)	0.590 (0.492)	
Widowed (%)	0.075 (0.263)	0.067 (0.250)	0.069 (0.253)	
Separated (%)	0.018 (0.134)	0.025 (0.157)	0.026 (0.160)	
Divorced (%)	0.086 (0.280)	0.084 (0.277)	0.101 (0.302)	
Never married (%)	0.115 (0.319)	0.197 (0.398)	0.213 (0.410)	
Children ages 0–17 (%)	0.382 (0.486)	0.424 (0.494)	0.392 (0.488)	
Less than high school (%)	0.092 (0.289)	0.230 (0.421)	0.183 (0.387)	0.198 (0.399)
High school (%)	0.330 (0.470)	0.530 (0.499)	0.542 (0.498)	0.312 (0.463)
Some college (%)	0.303 (0.460)	0.049 (0.216)	0.060 (0.237)	0.260 (0.439)
BA+ (%)	0.275 (0.447)	0.191 (0.393)	0.216 (0.411)	0.230 (0.421)
Employed (%)	0.661 (0.474)	0.610 (0.488)	0.644 (0.479)	

Notes: Standard deviations are shown in parentheses. The GSS figures are calculated from SW's analysis dataset. All calculations are based on respondents with non-missing information on a given demographic characteristic and with non-missing information on the relevant well-being outcome (GSS: happiness; Life Style Survey: life satisfaction). Some of the GSS variables in the table are recoded (from SW's original coding) in order to achieve greater consistency with the Life Style Survey data. However, with the exception of education, I use SW's raw GSS variable to construct the recodes. SW's analysis variables for education (shown in the third and fourth columns) are derived from the GSS variable "degree," while the alternate education variables (shown in the fifth column) are derived from "educ." All GSS figures are weighted using "wt," which is constructed by SW (and based on the GSS weight "wtssall") to adjust for differences in the questionnaire placement of the happiness question throughout the survey period. See [Stevenson and Wolfers \(2008\)](#) for a detailed description of the process for constructing the revised weight.

Survey match closely those derived from the GSS. Consistent with [Putnam and Yonish \(1999\)](#), the Life Style Survey appears to overcount married individuals and undercount never married individuals. Comparisons of educational attainment using SW's analysis variables reveal considerable differences between these surveys. However, the differences are largely driven by the GSS's severe undercounting of those with some college education. An alternative variable in the GSS provides more consistency in the distribution of educational attainment across both surveys.<sup>5</sup>

It is also useful to compare the primary measures of global subjective well-being in the GSS and Life Style Survey. *Happiness* in the GSS is measured with the following question: "Taken all together, how would you say things are these days—would you say that you are (3) very happy, (2) pretty happy, or (1) not too happy?" *Life satisfaction* in the Life Style Survey is ascertained by responses to the following statement: "I am very satisfied with the way things are going in my life these days" (response categories: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree). Life satisfaction's larger and more balanced set of response categories creates more space within which to express the direction and magnitude of subjective well-being. Conceptually, some argue that measures of life satisfaction are preferred over measures of happiness because the latter is more susceptible to measurement error arising from instantaneous or unpredictable affective responses (e.g., momentary mood swings) that have little to do with cognitive assessments of long-term well-being ([Fischer, 2009](#)). Moreover, the word "satisfaction" has been shown to suffer from fewer interpretation problems than "happiness" ([Bjørnskov, 2010](#)). In fact, a recent study finds that well-being statements containing the word "satisfaction" are easier to understand and elicit a more consistent interpretation across individuals in heterogeneous populations, thereby generating more reliable measures of subjective well-being ([Fischer & Kirchgassner, 2008](#)).

### 3.2. Empirical analysis of gender-specific trends in life satisfaction

Before proceeding to the regression analysis, it is useful to provide a graphical look at well-being trends for men and women between 1985 and 2005. [Fig. 1](#) displays raw means in the life satisfaction index (range: one to six), while [Fig. 2](#) shows time series movements in different parts of the life satisfaction distribution. Contrary to the descriptive evidence in SW, [Fig. 1](#) shows that women do not consistently report higher levels of subjective well-being than men. It also appears that men and women experienced similar declines in well-being over the last two decades. Average life satisfaction levels for men and women are indistinguishable in both 1985 (male average: 4.16; female average: 4.15) and 2005 (male average: 3.99; female average: 3.99). Interestingly, it appears that most of the slippage in life satisfaction occurred between 1985 and the early-1990s, followed by a considerable rebound that ended in the early-2000s. Such results suggest that macro-economic conditions play an important role in shaping subjective well-being. [Fig. 2](#) examines the proportion of respondents

<sup>5</sup> SW's analysis variables for education are based on the GSS variable "degree." The alternative, more comparable variables are derived from "educ."

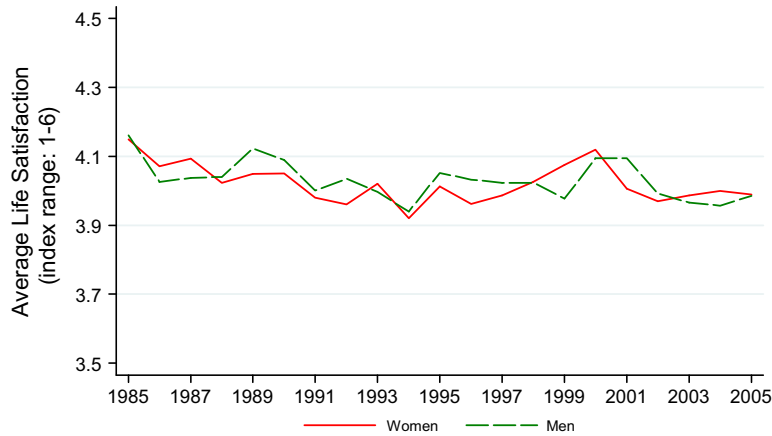


Fig. 1. Life satisfaction trends, 1985–2005. Source: DDB Needham Life Style Survey.

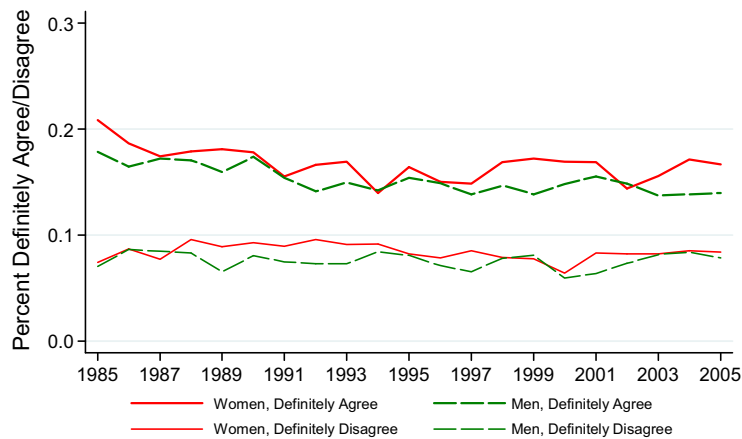


Fig. 2. The distribution of life satisfaction, 1985–2005. Source: DDB Needham Life Style Survey.

who “definitely agree” (top lines) and “definitely disagree” (bottom lines) that they are very satisfied with life. Women are consistently more likely than men to report extremely high and extremely low levels of life satisfaction. Once again, however, there are no discernible gender differences in the well-being trends. Women in 1985, for example, are 3% points more likely to “definitely agree” that they are very satisfied. By 2005, the well-being gap stood at 2.7% points. The figure also reveals that the reduction in life satisfaction overall has been driven by the decline among those self-reporting the highest levels of well-being (i.e., “definitely agree” with the life satisfaction statement).

The story emerging from Figs. 1 and 2 indicates that men and women experienced similar reductions in subjective well-being over the past 20 years. These raw trends, however, do not account for changes in potentially confounding variables. As pointed out by SW, the last several decades witnessed dramatic shifts in educational attainment and labor market outcomes that favor women. In addition, there have been important compositional changes in the population, including a shift to an older population and the rise in female-headed households. It is therefore important to condition the gender-specific trends on these observable characteristics. To permit direct comparisons between my results and those found in SW, I follow their empirical approach. In particular, I estimate permutations of the following regression model:

$$y_{it} = \beta_0 + \beta_1 female_{it} + \beta_2 (female_t \times trend) + \beta_3 (male_t \times trend) + \mathbf{D}'_{it} \gamma + \varepsilon_{it}, \tag{1}$$

for  $i = 1, \dots, I$ ;  $t = 1, \dots, T$ , where  $i$  indexes individuals and  $t$  indexes years. The dependent variable,  $y_{it}$ , represents various measures of life satisfaction for the  $i$ th respondent in year  $t$ . I model the full life satisfaction index using an ordered probit. In addition, separate binary indicators are created to equal unity for those reporting “definitely agree,” “definitely disagree,” and any agreement (“definitely,” “generally,” or “moderately”) with the life satisfaction statement. The binary outcomes are estimated using probit regression. The *female* is a dummy variable that equals unity if a given respondent is female and zero if the respondent is male. The interaction term ( $female_t \times trend$ ) is a female-specific linear time trend (/100), and the

Table 2

Life satisfaction trends by gender, 1985–2005. Survey item: “I am very satisfied with the way things are going in my life these days”.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: 1985–2005 (N = 75,609)</i>								
Female linear time	–0.333**	–1.237***	–0.593***	–1.286***	–0.209	0.635**	–0.271***	–1.270***
trend	(0.136)	(0.168)	(0.212)	(0.246)	(0.190)	(0.250)	(0.104)	(0.122)
Male linear time	–0.352**	–1.342***	–0.711***	–1.496***	–0.133	0.818***	–0.208	–1.337***
trend	(0.115)	(0.093)	(0.100)	(0.118)	(0.199)	(0.234)	(0.145)	(0.129)
Test of differential trends: <i>p</i> -value	0.874	0.475	0.551	0.415	0.731	0.461	0.669	0.648
<i>Panel B: 1985–1994 (N = 39,119)</i>								
Female linear time	–1.500***	–2.711***	–2.056***	–2.853***	1.054***	2.428***	–0.849***	–2.137***
trend	(0.276)	(0.268)	(0.468)	(0.447)	(0.401)	(0.453)	(0.211)	(0.196)
Male linear time	–1.019***	–2.299***	–1.537***	–2.174***	–0.227	1.555**	–0.917*	–2.520***
trend	(0.343)	(0.268)	(0.248)	(0.313)	(0.559)	(0.609)	(0.491)	(0.418)
Test of differential trends: <i>p</i> -value	<b>0.056</b>	0.136	0.281	0.299	<b>0.033</b>	0.270	0.894	0.397
<i>Panel C: 1995–2005 (N = 36,490)</i>								
Female linear time	–0.028	–0.713***	0.241	–0.306	0.227	0.821***	–0.247	–0.989***
trend	(0.202)	(0.251)	(0.327)	(0.332)	(0.200)	(0.282)	(0.291)	(0.371)
Male linear time	–0.463***	–1.132***	–0.388**	–0.971***	0.387	0.880*	–0.598***	–1.396***
trend	(0.131)	(0.183)	(0.185)	(0.197)	(0.425)	(0.506)	(0.158)	(0.235)
Test of differential trends: <i>p</i> -value	<b>0.030</b>	<b>0.050</b>	<b>0.060</b>	<b>0.045</b>	0.668	0.895	0.105	0.122
Dependent variable	Life Satisfaction Index	Life Satisfaction Index	Pr(definitely agree)	Pr(definitely agree)	Pr(definitely disagree)	Pr(definitely disagree)	Pr(any agreement)	Pr(any agreement)
Estimation method	Ordered Probit	Ordered Probit	Probit	Probit	Probit	Probit	Probit	Probit
Demographic controls		X		X		X		X

Notes: Analyses come from the DDB Needham Life Style Survey between 1985 and 2005. The dependent variable is based on the survey item: “I am very satisfied with the way things are going in my life these days” (response categories: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree). Raw probit coefficients are presented. The demographic controls include gender, age, age-squared, race, marital status, presence of children ages 0–17 in the household, educational attainment, employment status, household income, Census region indicators, and interactions between gender and all other controls. All models include dummy variables for missing values on each right-hand-side variable. Standard errors (in parentheses) are adjusted for clustering by year.

\*\*\* Statistical significance at the 1% level.

\*\* Statistical significance at the 5% level.

\* Statistical significance at the 10% level.

( $male_t \times trend$ ) is a male-specific linear time trend (/100). The  $D'$  is a vector of observable demographic characteristics, including age and age-squared, race and ethnicity, marital status, the presence of children ages 0–17 in the household, educational attainment, employment status, household income dummy variables, and nine Census region indicators.<sup>6,7,8</sup> I allow for the possibility that the demographic variables influence life satisfaction differently for men and women by incorporating a full set of interactions between  $female$  and  $D'$ . Finally, dummy variables are included to account for missing information in the demographic controls. Standard errors emerging from [1] are adjusted for year-specific clustering. The  $\beta_2$  and  $\beta_3$  are the parameters of interest in [1]. They report the average, annual change in well-being for women and men, respectively. For ease of exposition, I present only these trend coefficients in the tables. To determine whether men and women experienced different life

<sup>6</sup> There are some differences in the background variables included here and in SWs GSS model. In addition to those in [1], SW control for nativity, number of children (instead of just the presence of children), parent's education, and religion I estimate a GSS model using only the variables available in the LSS, and the finding of a differential female happiness decline is unchanged.

<sup>7</sup> As pointed out by SW, many of these characteristics are endogenous in a model of subjective well-being (e.g., educational attainment, employment status, and household income). Therefore, I estimate the well-being regressions with a smaller set of strictly exogenous characteristics, including gender, age, race/ethnicity, and interactions between gender and age/race/ethnicity. Trend results from this model are qualitatively similar to those reported here: men and women continue to show similar declines in life satisfaction (the *p*-value on the test of differential trends is 0.471), although only the male time trend is statistically significant. It should also be noted that numerous potentially important determinants of well-being are unobserved in this model (e.g., tastes and preferences, genetic endowments and personality traits, and social and cultural values). However, even if one were to measure these attributes, it is not clear that they should be included in the model, as all of them are likely to be endogenous. In any case, it is possible that the included covariates—especially gender, race/ethnicity, educational attainment, and income—are correlated with these unobserved factors, thereby minimizing their impact on the estimated trends.

<sup>8</sup> In robustness checks, I experiment with a continuous measure of family income. In particular, it is expressed as real total family income, plus quadratic, cubic, and quartic polynomials in income. The raw income variable in the Life Style Survey is categorical. Therefore, I assign the mid-point of the income category into which each respondent falls and express that amount in constant 2005 dollars. The trend results are robust to this change in the measurement of family income.

satisfaction trends between 1985 and 2005, I report  $p$ -values from a test of the null hypothesis of the equality of estimated trends for men and women.

#### 4. Estimated trends in subjective well-being

##### 4.1. Comparison of life satisfaction trends for men and women

Consistent with the raw life satisfaction trends presented in Fig. 1, the regression estimates in column (1), Panel A of Table 2 imply that women and men experienced similar reductions in well-being between 1985 and 2005. Indeed, the specification test fails to reject the null hypothesis of equal linear trend coefficients for women and men throughout this period ( $p = 0.874$ ). Adding the full set of demographic controls in column (2) increases the magnitude of the downward well-being trends, although life satisfaction continues to decline at the same rate for both groups ( $p = 0.475$ ).<sup>9</sup> In light of these results, it is important to clarify how these results differ from those in SW. Whereas men and women in the Life Style Survey show absolute declines in subjective well-being, only female respondents in the GSS do so. Male GSS respondents reveal flat happiness trends. Therefore, it appears that the GSS overstates the trajectory of men's subjective well-being in comparison to the Life Style Survey.<sup>10</sup> Columns (3)–(8) examine the nature of well-being trends at different points in the life satisfaction distribution. In particular, columns (3) and (4) examine the probability that respondents “definitely agree” that they are very satisfied with life; columns (4) and (5) examine the probability that respondents “definitely disagree” that they are very satisfied with life; and columns (7) and (8) examine the likelihood of any agreement with the life satisfaction statement. Trend coefficients in these columns indicate that well-being is deteriorating throughout the distribution of life satisfaction. Nevertheless, a comparison of columns (4) and (6) reveals that most of the decline in well-being is driven by a sharp reduction in the number of individuals at the top of the satisfaction distribution (i.e., those most satisfied with life). In most cases, the magnitude of the trend coefficients imply steeper well-being declines among men, although the specification tests once again reveal that the estimated trends are never statistically significantly different. How much did life satisfaction decline for men and women between 1985 and 2005? As of 1985, fully 18% and 21% of men and women, respectively, reported that they “definitely agree” they are satisfied with life. Findings from a regression model that includes the full set of demographic controls and a vector of year fixed effects indicate that men's satisfaction by 2005 fell 5.6% points and women's satisfaction fell 6.0% points. This amounts to about a 30% reduction in the number of men and women who “definitely agree” with the life satisfaction statement over this 20-year period. In 1985, a similar fraction of men and women (7%) reported that they “definitely disagree” they are satisfied with life. By 2005, both groups became 3.5% points more likely to respond in this manner, representing a nearly 50% rise in the number of men and women in the category of the most dissatisfied.

The story above changes dramatically, however, when subsets of the full observation period are examined separately (Panels B and C). To preface this discussion, it is important to note that adding quadratic time trends to the model reveals that the reduction in life satisfaction for men and women occurs at a decreasing rate over time. However, this slowdown is considerably more aggressive for women than it is for men.<sup>11</sup> Consistent with these results, when the start date for the analysis is moved forward to virtually any year after the mid-1980s, the trend coefficients for men and women are generally smaller than those estimated from the full sample period, but the coefficient for men consistently shows significantly steeper declines in life satisfaction. In fact, this relative drop in men's subjective well-being is evident when the observation period begins in any year between 1986 and 1995 (with the exception of 1993) and most years after 1999. Panels B and C in Table 2 provide illustrative evidence on this issue by running separate life satisfaction regressions for the period 1985–1994 and 1995–2005. As shown in Panel B, men and women experienced similar declines in well-being throughout the late-1980s and early-1990s. In models with the demographic controls included, the trend coefficients for men and women are always statistically indistinguishable. When the analysis period is constrained to the years 1995–2005 (Panel C), the trend coefficients for both sexes are smaller than those from the prior decade. However, men now show significantly greater reductions in life satisfaction that are

<sup>9</sup> Coefficients on the interactions between *female* and *D*' are rarely statistically significant, suggesting that the effect of these demographic covariates does not differ much across men and women. The one consistent exception is the effect of family income on life satisfaction. In particular, it appears that women's life satisfaction increases less than men's as family income increases. In addition, only three of the eight Census region controls are statistically significant. Specifically, reported life satisfaction for individuals in Iowa, Kansas, Minnesota, Missouri, North Dakota, Nebraska, South Dakota, District of Columbia, Delaware, Florida, Georgia, Maryland, North/South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, and Tennessee is higher on average than that in the omitted Census region category (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, and Vermont).

<sup>10</sup> In robustness checks, I add a proxy for physical health (based on the item “I am in very good physical health”) to control for unobserved shifts in population health between 1985 and 2005 that may be correlated with trends in life satisfaction. Those agreeing with this statement report higher levels of life satisfaction. Inclusion of this variable substantially reduces the magnitude of the estimated male and female time trends, with men now revealing a significantly steeper decline in life satisfaction than women ( $p = 0.092$ ). Interacting this health statement with the *female* dummy variable does little to change the results, and the coefficient on the interaction term is statistically insignificant.

<sup>11</sup> Female linear time trend coefficient (standard error):  $-2.971$  (0.428). Male linear time trend coefficient (standard error):  $-2.192$  (0.361). Female quadratic trend coefficient (standard error):  $8.854$  (2.077). Male quadratic trend coefficient (standard error):  $4.313$  (1.882). In addition, I estimate a model that replaces the time trends with a set of *female*-by-year interactions (including year dummy variables but excluding *female*) to obtain annual estimates of the female-male life satisfaction gap. In line with the main results, the *female*-by-year interactions indicate that women consistently report higher levels of well-being, but the gap remains remarkably stable over time. For example, the life satisfaction gap in 1985, 1986, and 1987 (the first three years of the study) is 0.092, 0.072, and 0.077, respectively. In 2003, 2004, and 2005 (the last three years of the study), the gap is 0.073, 0.075, and 0.084, respectively. Such results bolster the finding that men and women have not experienced differential changes in well-being over time.

**Table 3**  
Heterogeneous life satisfaction trends.

	N (1)	Female linear time trend (2)	Male linear time trend (3)	Differential trends: <i>p</i> -value (4)
Ages 18–29	11,070	–1.166*** (0.154)	–1.111*** (0.259)	0.864
Ages 30 to 44	26,426	–1.007*** (0.168)	–0.821*** (0.184)	0.405
Ages 45–59	18,921	–1.303*** (0.266)	–1.635*** (0.146)	0.187
Ages 60+	19,189	–1.042*** (0.311)	–1.378*** (0.218)	0.210
White	64,604	–1.329*** (0.188)	–1.535*** (0.109)	0.282
Black	5875	–0.462* (0.243)	0.846** (0.411)	<b>0.008</b>
Married	52,657	–1.392*** (0.174)	–1.353*** (0.125)	0.820
Widowed	5565	–1.516*** (0.262)	–2.868*** (0.663)	<b>0.051</b>
Separated/divorced	7746	–0.426 (0.265)	–1.171*** (0.381)	0.112
Never married	8539	–0.818** (0.353)	–1.288*** (0.407)	0.347
Children ages 0–17	28,706	–0.883*** (0.129)	–0.836*** (0.193)	0.850
No children ages 0–17	46,531	–1.476*** (0.258)	–1.668*** (0.137)	0.296
Less than high school	6806	–1.460*** (0.220)	–1.551*** (0.317)	0.840
High school	24,455	–1.138*** (0.244)	–1.553*** (0.156)	0.102
Some college	22,487	–1.214*** (0.224)	–1.326*** (0.161)	0.662
BA+	20,380	–1.360*** (0.222)	–0.939*** (0.152)	<b>0.038</b>
Employed	49,802	–1.134*** (0.218)	–1.187*** (0.117)	0.795
Not employed	25,571	–1.311*** (0.186)	–1.734*** (0.184)	0.110

Notes: Analyses are based on the DDB Needham Life Style Survey between 1985 and 2005. The dependent variable is based on the survey item: “I am very satisfied with the way things are going in my life these days” (response categories: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree). Each row presents results from a separate life satisfaction regression for individuals in the relevant sub-group. Raw coefficients from an ordered probit are presented. The demographic controls include gender, age, age-squared, race, marital status, presence of children ages 0–17 in the household, educational attainment, employment status, household income, Census region indicators, and interactions between gender and all other controls. All models include dummy variables for missing values on each right-hand-side variable. Standard errors (in parentheses) are adjusted for clustering by year.

\*\*\* Statistical significance at the 1% level.

\*\* Statistical significance at the 5% level.

\* Statistical significance at the 10% level.

evident at the top and bottom ends of the distribution. The null hypothesis of equal trend coefficients is rejected in four of eight models, and is close to rejection in another two models.

#### 4.2. Heterogeneous life satisfaction trends

The results summarized so far indicate that men and women experienced similar, absolute declines in life satisfaction between 1985 and 2005. However, the estimated trends have been averaged over all men and women, regardless of age, race and ethnicity, marital and fertility status, educational attainment, and labor market outcomes. Individuals in various demographic sub-groups may have experienced different changes in well-being over time, in part due to structural changes in the economy, recent reforms to the US tax and transfer system, and dramatic shifts in household structures. It is important to note that SW also examine heterogeneity in well-being trends across sub-groups of men and women.<sup>12</sup> Their results suggest that women in virtually every demographic sub-group experienced declines in happiness over time, while men’s well-being remained flat. Such findings point to the pervasiveness of the relative decline in women’s happiness.

Table 3 shows the trend results for a comparable set of analyses using the Life Style Survey’s question on life satisfaction. In particular, I estimate separate well-being regressions for respondents in various age categories, racial groups, marital and fertility statuses, educational classifications, and employment statuses. Results in this table consistently show declines in life satisfaction for men and women, irrespective of the sub-group examined. The only exception to this is black men, who experienced a statistically significant increase in well-being between 1985 and 2005. Relative to individuals in other marital statuses, widowed men and women experienced the largest declines in life satisfaction over time. Not surprisingly, the downward shift in well-being has been greater among the non-working than the working. There is also evidence that men and women without children in the household experienced larger well-being declines than those with children. Nevertheless, in contrast to SW’s results, the life satisfaction trend for women is statistically indistinguishable from the trend for men in 15 of the 18 sub-groups examined. Among the demographic groups for which differential trends are present, no discernible patterns emerge. Black women and those with at least a bachelor’s degree experienced larger decreases in life satisfaction than their male counterparts in these groups. On the other hand, widowed men experienced relatively larger declines in well-being. In results not reported, I estimate the sub-group models on the period 1995–2005 to determine whether men once again show steeper declines in well-being. I find fairly consistent evidence that life satisfaction for

<sup>12</sup> Curiously, SW conduct the sub-group analyses only among white men and women.



**Table 4**  
Trends in additional domains of subjective well-being.

	N (1)	Female linear time trend (2)	Male linear time trend (3)	Differential trends: <i>p</i> - value (4)
<i>Panel A: Proxies for life satisfaction</i>				
"I wish I could leave my present life and do something entirely different"	75,761	0.704*** (0.079)	0.719*** (0.138)	0.909
"If I had my life to live over, I would sure do things differently"	75,710	1.075*** (0.137)	1.152*** (0.138)	0.556
"I dread the future"	75,809	-0.526** (0.230)	-0.106 (0.224)	<b>0.014</b>
"I have more self-confidence than most people"	75,722	-1.090*** (0.086)	-0.838*** (0.109)	<b>0.032</b>
<i>Panel B: Health</i>				
"I am in very good physical condition"	75,578	-2.194*** (0.234)	-1.717*** (0.149)	<b>0.001</b>
"I get more headaches than most people"	75,636	0.894*** (0.162)	0.986*** (0.173)	0.464
"I have trouble getting to sleep"	75,600	1.831*** (0.158)	1.759*** (0.172)	0.657
"I wish I knew how to relax"	75,462	0.556*** (0.105)	0.475*** (0.102)	0.536
"I feel I am under a great deal of pressure most of the time"	75,628	0.450** (0.195)	0.590*** (0.147)	0.420

Notes: Analyses are based on the DDB Needham Life Style Survey between 1985 and 2005. The response categories for all dependent variables are: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree). Each row presents the coefficient on a female and male linear time trend from a separate subjective well-being regression. Raw coefficients from an ordered probit are presented. The demographic controls include gender, age, age-squared, race, marital status, presence of children ages 0–17 in the household, educational attainment, employment status, household income, Census region indicators, and interactions between gender and all other controls. All models include dummy variables for missing values on each right-hand-side variable. Standard errors (in parentheses) are adjusted for clustering by year.

\* Statistical significance at the 10% level.

\*\*\* Statistical significance at the 1% level.

\*\* Statistical significance at the 5% level.

sub-groups of men fell more sharply than that for women, although in most cases the smaller sample sizes preclude estimating differential trends with much precision.

#### 4.3. Additional domains of subjective well-being

I now focus on gender-specific trends in other domains of subjective well-being. Specifically, I examine several proxies for life satisfaction, including regrets about the past, optimism about future, and self-confidence. I then turn to a number of items inquiring about physical and mental health: self-reported physical condition, the prevalence of headaches and quality of sleep, and the ability to relax. Such alternative measures are important to consider in part because they provide an opportunity to check the robustness of the life satisfaction trend results, and in part because they represent many of the conditions that either facilitate or stymie a happy and productive life. Results in Panel A of Table 4 provide fairly consistent evidence men and women have indeed witnessed equal-sized reductions in subjective well-being. The first two indicators evaluate respondents' regrets about the past. Both measures point in a consistent direction: men and women over the last two decades increasingly feel that they would live life differently if given another chance. The rising regrets about the past, moreover, have been experienced in a similar manner by both sexes, as evidenced by non-significant differences in the trend coefficients ( $p = 0.909$  and  $p = 0.556$ ). The next item ("I dread the future") assesses respondents' optimism about the future, with greater scores on this measure indicating less optimism. The gender-specific trend coefficients indicate that women became less likely to dread the future over time, while men's sense of optimism held steady. The trend coefficients in this case are statistically significantly different, suggesting that men experienced a comparatively greater deterioration in this well-being domain. The final item in Panel A examines self-esteem through the statement "I have more self-confidence than most people." Consistent with the slippage in other dimensions of subjective well-being, men and women witnessed reductions in self-confidence between 1985 and 2005, although in this case it declined more among women.

Turning to the physical and mental health indicators in Panel B, I continue to find evidence of pervasive and equal declines in well-being. Men and women are less likely to report being in "very good physical condition" and more likely to report headaches, sleeping problems, and an inability to relax. With the exception of self-reported physical condition, the magnitudes of the observed health declines have been identical for men and women. Interestingly, women experienced significantly greater slippages in perceived physical condition over the last 20 years ( $p = 0.001$ ), although the reductions have been striking for both sexes. In 1985, for example, 64% of women agreed with the statement that "I am in very good physical condition." By 2005, the level of agreement fell to 51%. Fully 69% of men in 1985 agreed that they were in very good physical condition, a figure that declined to 59% by 2005.

#### 4.4. Gender differences in the economic and socio-political determinants of life satisfaction

To explain the relative drop in women's happiness, SW posit that men and women might have responded differently to broad changes in the economy, the nature of social and political trust, and family structures. Indeed, SW argue that "while each of these trends have impacted men and women, it is possible for even apparently gender-neutral trends to have

**Table 5**  
Gender differences in economic, political, and familial forces shaping life satisfaction.

	N (1)	Dependent variable: life satisfaction index	
		(2)	(3)
<i>Panel A: Macro-economic conditions</i>			
State unemployment rate	75,609	-0.022*** (0.004)	-0.027*** (0.005)
State unemployment rate × female			0.009* (0.005)
<i>Panel B: Heterogeneity in macro-economic conditions</i>			
Variability in county unemployment rates	72,452	-0.029*** (0.007)	-0.034*** (0.009)
Variability in county unemployment rates × female			0.008 (0.006)
<i>Panel C: Social cohesion and trust ("Most people are honest")</i>			
Any agreement with the Life Style Survey item	75,103	0.259*** (0.012)	0.249*** (0.012)
Life Style Survey item × female			0.018 (0.017)
<i>Panel D: Trust in political institution and leaders ("An honest man cannot get elected to high office")</i>			
Any agreement with the Life Style Survey item	75,175	-0.118*** (0.009)	-0.124*** (0.010)
Life Style Survey item × female			0.012 (0.013)
<i>Panel E: Public safety ("I worry a lot about myself/family member becoming a victim of crime")</i>			
Any agreement with the Life Style Survey item	59,187	-0.128*** (0.010)	-0.118*** (0.014)
Life Style Survey item × female			-0.017 (0.021)

Notes: Analyses are based on the DDB Needham Life Style Survey. The analyses in Panel A are based on 1985–2005; Panel B is based on 1985–2004; Panel C is based on 1985–2005; Panel D is based on 1985–2005; and Panel E is based on 1989–2005. The response categories for the dependent variables are as follows: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree. All models are estimated using an ordered probit. The independent variables in Panels C–E are dummies that equal unity if a given respondent indicates any agreement with each statement. The models include the controls in Table 1, four income dummies, state fixed effects, and year dummies. All models include dummy variables for missing values on each right-hand-side variable. Standard errors (in parentheses) are adjusted for clustering by state (Panels A and B) year (Panels C–E).

\*\* Statistical significance at the 1% level.

\*\*\* Statistical significance at the 1% level.

\* Statistical significance at the 10% level.

gender-biased impacts if men and women respond differently to these forces" (p. 222). To examine this assertion, I use the Life Style Survey to assess whether life satisfaction among men and women is differentially influenced by several economic and socio-political forces that are known to shape subjective well-being. A finding that life satisfaction is gender-blind with respect to these forces would bolster confidence in this paper's key result that men and women experienced parallel reductions in subjective well-being. I begin by exploring the differential effects of macro-economic conditions on life satisfaction. While previous work finds that local and national labor market conditions are highly correlated with physical health outcomes (e.g., Ruhm, 2000, 2005), comparatively little research focuses on the relationship between economic conditions and subjective well-being. I then turn to the Life Style Survey to exploit several measures of social cohesion and political trust. Such forces are important contributors to life satisfaction (Helliwell, 2003a, 2003b; Twenge, 2002), and previous work documents a steep decline in both in recent decades (Putnam, 2000). Finally, I explore the differential effects of a survey item tapping perceptions about public safety, followed by an analysis of actual state-level crime rates. I do so in light of previous research which finds a connection between crime and self-reports of happiness (Powdthavee, 2005).

Table 5 reports the main results from this exercise. The first set of regression results [column (2)] explores the impact of each factor on life satisfaction using an ordered probit. Each coefficient should be interpreted as the *average* response in life satisfaction over all survey participants to a change in the relevant right-hand-side variable. The results presented in column (3) allow the impact of each factor to vary across men and women. A statistically significant coefficient on the interaction term provides evidence of a differential life satisfaction response across men and women.

Panels A and B test for the presence of a differential effect of macro-economic conditions on life satisfaction. I parameterize economic conditions using the average, annual state unemployment rate (Panel A) and a measure of the amount of variability in county-level unemployment rates around the state rate (Panel B).<sup>13</sup> The latter measure is intended to be a rough indicator of within-state inequalities in labor market outcomes and wealth. As shown column (2), increases in both measures are found to significantly reduce life satisfaction for the average respondent in the Life Style Survey. A 1% point increase in the unemployment rate is associated with a 0.7% point decrease in the probability of any agreement with the life satisfaction

<sup>13</sup> To create the measure of economic variability, EV, I first collected county-level unemployment rate data for each state and year over the period 1985–2004. I then define the measure in the following manner:

$$EV_{w, st} = \frac{\sum (|CUR_{st} - SUR_{st}|w_{st})}{\sum w_{st}}$$

where  $w$  indicates a weighted version of EV calculated for each state,  $s$ , in year  $t$ . The CUR denotes a given county-level unemployment rate, SUR denotes the state unemployment rate, and  $n$  denotes the number of counties in  $s$ . The weight,  $w$ , is the size of a county's labor force, and is used to adjust for the differential size of labor markets both within and across states. This measure represents the absolute value of the average county-level deviation in unemployment rates from the overall, state-level unemployment rate. Higher values for EV indicate a greater spread of county-level unemployment rates around the state unemployment rate, and therefore increasingly heterogeneous labor market conditions.

**Table 6**

The determinants of life satisfaction and happiness.

	Life Style Survey	General Social Survey	
	Life satisfaction	Happiness	
	1985–2005	1972–2006	1985–2004
Female	0.052*** (0.009)	0.104*** (0.017)	0.068*** (0.019)
Age	–0.027*** (0.002)	–0.018*** (0.003)	–0.022*** (0.003)
Age-squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Black	–0.209*** (0.016)	–0.264*** (0.029)	–0.229*** (0.033)
Other race/ethnicity	–0.034** (0.015)	–0.079* (0.044)	–0.098 (0.060)
Widowed	–0.267*** (0.017)	–0.630*** (0.022)	–0.607*** (0.027)
Separated	–0.627*** (0.042)	–0.748*** (0.035)	–0.787*** (0.048)
Divorced	–0.390*** (0.017)	–0.597*** (0.016)	–0.582*** (0.016)
Never married	–0.383*** (0.012)	–0.438*** (0.038)	–0.446*** (0.050)
Children ages 0–17	–0.120*** (0.012)	–0.067*** (0.014)	–0.061*** (0.021)
High school	0.140*** (0.015)	0.136*** (0.018)	0.134*** (0.021)
Some college	0.182*** (0.014)	0.222*** (0.042)	0.217*** (0.046)
BA+	0.343*** (0.016)	0.296*** (0.024)	0.295*** (0.028)
Employed	0.028*** (0.011)	0.085*** (0.016)	0.088*** (0.025)
N	75,609	45,452	26,025

Notes: The dependent variable for the DDB Needham Life Style Survey is: “I am very satisfied with the way things are going in my life these days” (response categories: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree). The dependent variable for the General Social Survey (GSS) is: “Taken all together, how would you say things are these days—would you say that you are (3) very happy, (2) pretty happy, or (1) not too happy?” All models are estimated using an ordered probit, with the standard errors (in parentheses) adjusted for clustering by year. Some of the GSS variables in the table are parameterized differently from SW’s analysis in order to achieve greater consistency with the Life Style Survey data. All models include dummy variables for the nine census regions and for missing values on each right-hand-side variable. The GSS estimates are weighted using “wt.”

\*\*\* Statistical significance at the 1% level.

\*\* Statistical significance at the 5% level.

\* Statistical significance at the 10% level.

statement. The analogous marginal effect for the measure of economic variability is a 0.6% point decrease in the probability of any agreement. However, as shown in column (2), men and women appear to respond largely the same to changes in local economic conditions. The coefficient on the interaction term is small in magnitude and only marginally significant in the unemployment rate model, and it is insignificant in the economic variability model. In results not shown, I also test for a differential response to (the log of) state-level per capita incomes. The findings once again fail to show that life satisfaction for men and women is differentially sensitive to economic conditions. Panels C through E test various responses to statements measuring social cohesion, political trust, and views on public safety. Consistent with previous work, I find a downward trend in the probability that respondents agree with the statement that “most people are honest” and an upward trend in the probability of agreeing with the statement that “an honest man cannot get elected to high office.” As shown in column (2), any agreement with these statements is strongly associated with the global assessment of life satisfaction. When these survey items are interacted with the gender indicator, in no case is the coefficient on the interaction term large in magnitude or precisely estimated, implying that views on social and political trust influence life satisfaction for men and women in a similar manner. The final survey item attempts to elicit views on public safety through the statement “I worry a lot about myself or a family member becoming a victim of crime.” Not surprisingly, any agreement with this statement is negatively associated with life satisfaction. However, the results fail to show that life satisfaction for men and women is differentially affected by perceptions of safety. To assess whether perceptions about crime differs from actual crime rates, in results not reported I estimate the life satisfaction model using interactions of (the log of) state-level violent and property crime rates with the gender indicator. I do not uncover evidence of gender-specific responses to reported crime rates.

## 5. Potential explanations for the divergent results

The main result presented in this paper—that of a similar downward shift in life satisfaction for men and women—is at odds with that of SW, who find that women’s happiness fell more sharply than men’s over the past several decades. This section attempts to reconcile these divergent results by considering three key differences between the papers: (1) the use of different subjective well-being measures in the GSS (in particular) and Life Style Survey, (2) the estimation of well-being trends using different time periods, and (3) differences in data collection techniques between the GSS (in particular) and Life Style Survey.

### 5.1. Comparability of happiness and life satisfaction measures

Recall that SW rely primarily on a GSS question measuring respondent *happiness*, whereas the main Life Style Survey results are based on a statement measuring *life satisfaction*. These measures are known to capture global assessments of

**Table 7**

The influence of using different time periods in the estimation of subjective well-being trends.

	N (1)	Female linear time trend (2)	Male linear time trend (3)	Differential trends: <i>p</i> - value (4)
<i>Panel A: Examine the role of using different time periods in the GSS and Virginia Slims Survey</i>				
General Social Survey, 1972–2006	45,452	−0.400*** (0.119)	0.061 (0.119)	<b>0.008</b>
General Social Survey, 1985–2006	28,853	−0.333** (0.164)	−0.156 (0.203)	0.512
Virginia Slims, 1972–2000	26,701	−1.095*** (0.231)	−0.539** (0.233)	<b>0.002</b>
Virginia Slims, 1985–2000	14,951	−1.194** (0.507)	−0.478* (0.246)	<b>0.007</b>
<i>Panel B: Examine the role of using different time periods in the Life Style Survey</i>				
"I wish I could leave my present life..." 1975–2005, married respondents	83,408	0.720*** (0.010)	0.485*** (0.105)	<b>0.002</b>
"I wish I could leave my present life..." 1985–2005, married respondents	52,761	0.169 (0.122)	0.072 (0.171)	0.631
"If I had my life to live over..." 1975–2005, married respondents	83,318	−0.696*** (0.085)	−0.414*** (0.070)	<b>0.000</b>
"If I had my life to live over..." 1985–2005, married respondents	52,734	0.375** (0.157)	0.335* (0.179)	0.819
"I dread the future" 1975–2005, married respondents	83,355	−0.258 (0.268)	−0.059 (0.247)	<b>0.024</b>
"I dread the future" 1985–2005, married respondents	52,808	−1.639*** (0.229)	−1.254*** (0.215)	<b>0.008</b>
"I have more self-confidence..." 1975–2005, married respondents	83,302	0.402*** (0.070)	0.339*** (0.083)	0.391
"I have more self-confidence..." 1985–2005, married respondents	52,715	0.105 (0.108)	0.132 (0.120)	0.809
"I wish I knew how to relax" 1975–2005, married respondents	83,079	−0.172*** (0.062)	−0.209*** (0.070)	0.590
"I wish I knew how to relax" 1975–2005, married respondents	52,571	−0.089 (0.101)	−0.032 (0.120)	0.668

Notes: Analyses in Panel A come from SW's GSS and Virginia Slims analysis datasets. The dependent variable for the GSS is: "Taken all together, how would you say things are these days—would you say that you are (1) very happy, (2) pretty happy, or (3) not too happy?" The dependent variable for the Virginia Slims Survey is: "In general, how satisfied would you say you personally are with your life today?" (response categories: 4 = very satisfied, 3 = somewhat satisfied, 2 = only slightly satisfied, and 4 = not at all satisfied). Analyses in Panel B are based on the DDB Needham Life Style Survey between 1975 and 2005. The response categories for all dependent variables are as follows: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree. All models are estimated using an ordered probit. All models include only a control for gender. Standard errors (in parentheses) are adjusted for clustering by year.

\*\*\* Statistical significance at the 1% level.

\*\* Statistical significance at the 5% level.

\* Statistical significance at the 10% level.

subjective well-being, and both represent the cognitive rather than affective dimensions of quality-of-life. For these reasons, most studies treat happiness and life satisfaction measures interchangeably, although some have recently voiced concerns over their similarity.<sup>14</sup> Therefore, it is important to provide evidence on the comparability of survey items on happiness and life satisfaction. To do so, I estimate ordered probit regressions of each on a common set of demographic characteristics in the Life Style Survey and GSS.<sup>15</sup> Estimated coefficients from these models, which are shown in Table 6, reveal that the demographic determinants of life satisfaction and happiness are remarkably similar in sign and magnitude. Age reveals a highly non-linear relationship with both measures, and separated individuals show the lowest levels of well-being relative to those who are married. Life satisfaction and happiness are both increasing monotonically in education, and employed individuals report higher levels of well-being than the unemployed. Together, this evidence suggests that differences in subjective well-being measures are not primarily responsible for the divergent results. This is not surprising given that these measures are found to be highly correlated in the raw data (Stevenson & Wolfers, 2009).

## 5.2. The impact of using different time periods to analyze well-being trends

I now explore the role of using different time periods in the analyses. The datasets used by SW generally begin to track subjective well-being in the early-1970s, whereas life satisfaction data become available in the Life Style Survey starting in the mid-1980s. Such temporal differences are potentially important in light of SW's graphical evidence suggesting that most of the differential decline in women's happiness occurred throughout the 1970s. Results in Table 7 explore the role of using different time periods in the GSS, Virginia Slims Survey, and Life Style Survey. Panel A re-estimates SW's well-being regressions in the GSS and Virginia Slims Survey, first on the full observation period and then on the sub-set of years that overlaps with the availability of Life Style Survey data. As shown in the first row, I recreate SW's original GSS results showing the

<sup>14</sup> For example, some argue that cultural and language barriers make it difficult to create a consistent understanding of subjective well-being using the words "happiness" and "life satisfaction." In particular, some ethnic groups apply multiple meanings to these words, while others are required to experience substantially more happiness to feel a comparable level of life satisfaction (Björnskov, 2010; Kitayama & Marcus, 2000). It is also conceivable that the experience of happiness is more malleable than life satisfaction, making it sensitive to momentary changes in reported well-being. Indeed, some argue that happiness has a strong affective component that may not be present to the same extent in evaluations of life satisfaction (e.g., Layard, 2005).

<sup>15</sup> The GSS happiness models are estimated using SW's analysis dataset. The use of an ordered probit, which conditionally standardizes the regression coefficients, allows for direct comparisons between the coefficients in the life satisfaction and happiness equations.

differential decline in female happiness over the period 1972–2006. However, constraining the analysis to the years 1985–2006 causes the differential decline to disappear. The analogous set of results for the Virginia Slims Survey is presented in the next two rows of Panel A. Once again, I recreate SW's original results; however, in this case, the differential decline in women's well-being remains detectable when the analysis begins in 1985. In results not reported, the Eurobarometer also continues to show a relative decline in women's life satisfaction when the analysis begins in 1985. Together, such findings suggest that differences in the analysis period are not likely to play a major role.

Panel B takes a different approach. It presents a comparison of Life Style Survey trend results for married individuals during 1975–2005 and 1985–2005. The analyses do not use the life satisfaction index, as this question was not included in the early surveys.<sup>16</sup> I instead examine five survey items tapping other domains of subjective well-being. This exercise should provide a rough picture of the impact of changes in the analysis period on the estimated well-being trends. Results in Panel B provide fairly consistent evidence that the well-being trends are not sensitive to the analysis period. In particular, the outcomes “I dread the future,” “I have more self-confidence than most people,” and “I wish I knew how to relax” show remarkable consistency across both time periods. It is reassuring that the self-confidence trends do not change with the observation period, given that it is the most highly correlated outcome with life satisfaction. Overall, these results suggest that differences in the observation period likely play only a minor role in explaining the divergent results.

### 5.3. The role of survey mode

The final avenue I pursue focuses on the data collection strategies used by the Life Style Survey and GSS. In particular, I consider two potentially important differences between self-administered mail (Life Style Survey) and face-to-face (GSS) surveys that are cited throughout the survey methodology literature (e.g., Dillman et al., 1996).<sup>17</sup> First, face-to-face modes require the presence of an interviewer—typically a stranger—to administer the survey, while mail surveys are private and ensure respondent anonymity. One concern is that participants in face-to-face surveys provide more socially desirable answers and fewer truthful disclosures than those using self-administered surveys (de Leeuw, 1992). The empirical evidence supports this concern (de Leeuw, 2005; Gmel, 2000; Schuman & Presser, 1981) across a range of sensitive phenomena, including drinking and driving (Dillman & Tarnai, 1991) and self-reported mental health and quality-of-life (Perkins & Sanson-Fisher, 1998). Importantly, a major study by de Leeuw (1992) finds that individuals randomly assigned to a face-to-face interview reported lower levels of loneliness and unhappiness and more positive self-evaluations than individuals completing an identical mail survey. Second, face-to-face interviewers control the survey pace and sequence in which questionnaire items are completed, while mail respondents determine on their own the pacing question ordering. Face-to-face participants are therefore susceptible to time pressures and cognitive limitations that alter survey responses. For example, such respondents provide more extreme (positive) responses on questions using ordinal answer scales (Dillman et al., 1996, 2009; Krysan, Schuman, Scott, & Beatty, 1994; Tarnai & Dillman, 1992). Another consequence of reduced control is that survey responses are prone to question order effects—or the tendency for previous questionnaire items to influence subsequent answers (Dillman et al., 1996). This is a greater concern in the face-to-face context because respondents are presumably under pressure to maintain answer consistency throughout the survey. Schuman and Presser (1981) uncover evidence that prefacing questions about happiness with an item about marital satisfaction has large effects on reported well-being, and SW uncover similar question order effects in the GSS's happiness question. It is important to note that two conditions must hold in order for the differences between mail and face-to-face surveys to account for the divergent results. First, the effect of survey mode needs to differentially influence the responses provided by men and women. Although it is reasonable to suspect that social desirability affects men and women in different ways, the survey methodology literature does not provide much evidence on this issue. Second, the effect of survey mode must change over time for one gender but not the other. In other words, the nature and prevalence of providing socially desirable answers, for example, would need to vary for one gender while remaining constant for the other. Recall that while the Life Style Survey is able to recreate the GSS finding of an absolute decline in women's well-being, it is not able to recreate the flat well-being trend among men. This is suggestive of a male-specific change in responses over time, but data limitations preclude a thorough analysis of this possibility. Together, the evidence on response differences between mail and face-to-face surveys should be interpreted with caution but is nonetheless provocative enough to consider them among the candidate explanations.

## 6. Conclusion

In this paper, I present new evidence on the evolution of subjective well-being among men and women. Using heretofore untapped data from the DDB Needham Life Style Survey, I examine trends in life satisfaction between 1985 and 2005. I find that men and women over the last two decades experienced very similar declines in life satisfaction. Moreover, the parallel

<sup>16</sup> The analysis is constrained to married individuals because it is the only group sampled throughout the first decade of the Life Style Survey. In addition, missing demographic information also prevents me from adding the typical controls to the well-being regressions.

<sup>17</sup> It is important to note that, although this discussion highlights the advantages of mail-based surveys relative to aural surveys, there are some important disadvantages. First, aural surveys are more flexible, allowing for complex skip patterns to be integrated into the questionnaire. Second, aural surveys generally allow administrators to clarify ambiguous answers, elicit critical information from hesitant respondents, and keep respondents motivated to complete the questionnaire. In addition, by entering respondent data through a computer and controlling the tempo of an interview, aural administrators can reduce misreporting and other errors. Finally, mail-based surveys are less useful for collecting answers to open-ended questions.

**Table 8**

Why has subjective well-being declined in the United States?

	N (1)	DV: Life satisfaction index (2)	DV: Variable in Panel A/B/C/ D (3)
<i>Panel A: Civic and social activities</i>			
Did volunteer work last year	74,577/ 75,186	0.142*** (0.007)	−0.172*** (0.066)
Worked on a community project last year	74,704/ 75,308	0.132*** (0.008)	−0.707*** (0.065)
Attended a club meeting last year	74,583/ 75,189	0.096*** (0.007)	−1.556*** (0.055)
<i>Panel B: Social, civic, and political engagement</i>			
“I like to be considered a leader”	75,109/ 75,707	0.156*** (0.008)	−0.456*** (0.047)
“I spend a lot of time visiting friends”	75,306/ 75,697	0.221*** (0.008)	−0.150*** (0.044)
“I need to get the news everyday”	71,152/ 71,691	0.099*** (0.008)	−0.832*** (0.108)
“I am interested in politics”	75,109/ 75,680	0.086*** (0.007)	−0.701*** (0.061)
<i>Panel C: Social and political trust</i>			
“Most people are honest”	75,103/ 75,472	0.258*** (0.008)	−0.794*** (0.072)
“An honest man cannot get elected to high office”	75,175/ 75,575	−0.117*** (0.007)	0.143 (0.116)
<i>Panel D: Financial well-being</i>			
“It is hard to get a good job these days”	75,017/ 75,475	−0.291*** (0.008)	−0.089 (0.185)
“Our family income is high enough to satisfy nearly all our important desires”	75,157/ 75,488	0.895*** (0.008)	−0.898*** (0.071)
“No matter how fast our income goes up we never seem to get ahead”	75,134/ 75,731	−0.526*** (0.008)	0.311*** (0.067)
“Our family is too heavily in debt”	75,049/ 75,653	−0.469*** (0.008)	0.758*** (0.076)

Notes: Analyses are based on the DDB Needham Life Style Survey between 1985 and 2005. DV = dependent variable. The dependent variable in column (2) is the life satisfaction index (response categories: 6 = definitely agree, 5 = generally agree, 4 = moderately agree, 3 = moderately disagree, 2 = generally disagree, and 1 = definitely disagree), and is specified as a function of the survey items in the first column (coefficient presented in the table). Each item is measured as a binary indicator that equals unity if a respondent participated in a given activity (Panel A) or agrees with each statement (Panels B through D). The model is estimated using an ordered probit. The dependent variables in column (3) are the binary indicators in Panels A through D, and are specified as a function of a linear time trend (coefficient presented in the table). The models are estimated using a linear probability model (OLS). The models in column (2) include the controls in Table 1 (plus family income) as well as state and year fixed effects. The models in column (3) include the controls in Table 1 (plus family income) as well as Census region dummy variables.

\*\* Statistical significance at the 5% level.

\* Statistical significance at the 10% level.

\*\*\* Statistical significance at the 1% level.

reduction in subjective well-being is evident in several other domains. Indeed, I find similar increases in regrets about the past, comparable slippages in self-confidence, and a deterioration in subjective health status. These results apply to virtually every demographic sub-group available in the Life Style Survey. Finally, I uncover evidence that men and women experienced slowdowns in the reduction of life satisfaction between 1985 and 2005, although this slowdown occurred more aggressively among *women*. As of the late-1980s, men's life satisfaction began to fall more sharply.

In addition to introducing a potentially useful dataset, this study makes several other contributions to the literature on subjective well-being. To explain the relative drop in women's happiness, SW argue that women might have responded more negatively to broad changes in macro-economic conditions, social and political trust, and family life. In this paper, I directly assess whether life satisfaction among men and women is differentially shaped by these forces. Consistent with the main result of parallel changes in life satisfaction, I find that men and women respond similarly to changes in a variety of economic and socio-political variables. In addition, this paper attempts to reconcile the results found here with those in SW. Differences in subjective well-being measures and analysis time periods do not appear to be convincing explanations. Although the survey methodology literature provides robust evidence that respondents answer similar questions differently across mail and face-to-face questionnaires, a number of complex conditions must hold for the survey design differences between the Life Style Survey and GSS to explain the divergent results. Nevertheless, future work should evaluate whether differences in survey administration affect responses to subjective well-being questions.<sup>18</sup>

<sup>18</sup> Several literature reviews have been recently published by happiness researchers (e.g., Diener & Seligman, 2004; Frey & Stutzer, 2002a; Frey & Stutzer, 2002b; Kahneman & Krueger, 2006), and none of them discusses the comparability of well-being measures drawn from datasets using different interview techniques.

Given the lack of evidence to reconcile the differing results, I conclude with a discussion of possible explanations for why the US population witnessed broad declines in subjective well-being over the past two decades. Indeed, this paper finds that Americans—regardless of gender, age, marital status, and educational attainment—experienced deteriorating life satisfaction and self-confidence, rising regrets about the past, and decreases in physical and mental health. Table 8 draws on the Life Style Survey to explore a number of potential explanations organized around changes in social and civic engagement (Panels A and B), social and political trust (Panel C) and financial security (Panel D). Many of these themes were studied extensively in Putnam's (2000) book *Bowling Alone*, in which it is documented that Americans over the past several decades became increasingly detached from friends and family, participated in fewer social and civic activities, and expressed greater mistrust over political institutions. Such changes are significant because, according to Putnam, they have profound consequences for everything from national economic prosperity and community health to individual happiness. Importantly for this study, there is indeed a large body of evidence indicating that social connectedness—what Putnam refers to as social capital—has a powerful influence on self-reported health (e.g., Kawachi, Kennedy, & Glass, 1999), anxiety and depression (e.g., Sherbourne, Hays, & Wells, 1995), and happiness (e.g., Myers, 1999). In fact, Putnam's own analysis of the Life Style Survey finds that regular participation in clubs and other social activities increases happiness as much as obtaining a college degree or doubling one's income. I extend Putnam's analysis first by examining the extent to which various measures of social engagement, social and political trust, and economic security are related to self-reported life satisfaction [column (2)]. Specifically, I estimate separate regressions of life satisfaction on dummy variables indicating any agreement with the statements listed in Panels A through D, the standard set of demographic covariates, and state and year fixed effects. Column (2) displays the coefficient on each statement. I then explore trends in these activities and attitudes over the period 1985–2005 to determine whether they are becoming more or less prevalent within the US population [column (3)]. To do so, I regress the binary indicator of any agreement with each statement on a linear time trend as well as the full set of demographic covariates. Column (3) displays the coefficient on the time trend.

The results in column (2) are strongly supportive of Putnam's argument that greater social and political connectedness is associated with enhanced life satisfaction. I find that individuals who volunteer and participate in clubs, "spend a lot of time visiting friends," and show interest in politics are substantially more satisfied with life. In addition, subjective well-being is higher among those who believe that "most people are honest" and among those with greater faith in elected officials. The measures of economic security and life satisfaction are also highly correlated, with those agreeing that "...family income is high enough to satisfy...important desires" revealing more life satisfaction and those confiding that "our family is too heavily in debt" revealing less life satisfaction.

Over the past two decades, however, there has been persistent erosion in virtually all of these social, political, and economic domains. Consistent again with Putnam's work, column (3) finds that volunteerism and club attendance fell dramatically between 1985 and 2005. Respondents have also become less likely to spend time with friends, "get the news everyday," and remain interested in politics. Not surprisingly, social and political trust was substantially lower in 2005 than in 1985, and economic insecurity is on the rise. Indeed, individuals are now less likely to feel that their income is high enough to satisfy nearly all important desires, and, perhaps because of that, are more likely to agree that their family is too heavily in debt. As with the life satisfaction trends, the drop in social connectedness and the rise in economic insecurity applies to men and women, the young and old, single and married individuals, and those with high and low levels of education. According to the Life Style Survey, 60% of Americans near the close of the 20th century believed that things were changing too rapidly, and 55% longed for a return to the "good old days." Perhaps many of these individuals recognized intuitively what the findings above indicate—that many of the social and economic forces facilitating a happy and content life eroded steadily over the past two decades. Indeed, the growing social disconnectedness and economic insecurity constitute a powerful set of societal changes that may explain the widespread decline in subjective well-being documented in this study. Of course, future work should conduct a rigorous evaluation of the precise channels through which well-being declined. Regardless of which social and economic factors are ultimately responsible for the decline in subjective well-being, it is difficult to believe that changes of this magnitude could have influenced women's well-being without also influencing men's.

## Acknowledgements

I would like to thank participants in the College of Public Programs Quantitative Analysis Working Group, Laura Peck, Jeff Chapman, Mark Lopez, Tom Catlaw, John Ifcher, Justin Wolfers, Betsey Stevenson, and two anonymous referees for helpful comments. I am also grateful to Chris Callahan, at DDB Needham, who provided the Life Style Survey data between 1999 and 2005 and answered many questions along the way.

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