

# **Money, Sex and Happiness: An Empirical Study**

David G. Blanchflower  
Bruce V Rauner '78 Professor of Economics  
Dartmouth College and NBER  
USA  
blanchflower@dartmouth.edu

Andrew J. Oswald  
Professor of Economics  
Warwick University  
UK  
andrew.oswald@warwick.ac.uk

*June 21, 2003*

Submitted to the Behavioral Economics special issue of the Scandinavian Journal of Economics

Later note. ..We thank Richard Layard for helpful comments. Cite Robert Michael and John Hobcraft?

### Abstract

This paper studies the empirical patterns in money, sex and happiness. Using 1990s data from the General Social Surveys of the United States, the paper shows that sexual activity enters strongly positively in happiness equations. We calculate that the median American has sexual intercourse 2-3 times a month. In our data, close to half of American women over the age of 40 report that they did not have sex in the previous year; the figure for men is 20%. Among Americans under 40 years of age, approximately 80% of women and 70% of men had no more than one sexual partner in the previous year. Sex appears to have stronger effects on the happiness of highly educated people than those with low levels of education. The happiness-maximizing number of sexual partners in the previous year is 1. Homosexuality has no statistically significant effect on happiness, but a strong positive effect on the reported amount of sexual activity. Married people have more sex than those who are single, divorced, widowed, or separated. Money buys more sexual partners but not more sex.

# Money, Sex and Happiness: An Empirical Study

## 1. Introduction

An emerging branch of economics has begun to examine the empirical determinants of happiness (for example, Easterlin, 2001, and Frey and Stutzer, 2002). This paper continues that avenue of research in a different sphere. It focuses on the -- largely unexplored -- links between money, sexual activity and happiness.

Human beings are interested in sex. There are also scientific reasons to study it. New work by Daniel Kahneman, Alan Krueger, David Schkade, Norbert Schwarz and Arthur Stone (Kahneman et al 2003) finds, among a sample of 1000 employed women, that sex is rated retrospectively as the activity that produces the single largest amount of happiness. Commuting to and from work produces the lowest levels of happiness. These two activities come top and bottom, respectively, of a list of 19 activities.

In this paper we estimate what we believe are the first econometric happiness equations in which sexual activity is an independent variable. Like the rest of the recent literature, we study the numbers that people report when asked questions about how happy they feel with life. Our data set is a randomly selected group of 16,000 Americans. Although, for the sake of persuasive identification, it would be desirable to have instrumental variables for sexual activity, in this paper we follow the simpler route of providing single-equation estimates with no adjustment for possible endogeneity. Future work will have to return to this issue.

There are, transparently, limitations to wellbeing statistics, and an inquiry of this sort suffers the disadvantage that controlled experiments are out of reach. But it seems unlikely that human happiness can be understood without, in part, listening to what human beings say about their happiness. Sources of information exist that have for many years recorded individuals'

survey responses to questions about well-being. These responses have been studied intensively by psychologists<sup>1</sup>, examined a little by sociologists and political scientists<sup>2</sup>, and largely ignored by economists<sup>3</sup>.

## 2. On Happiness and Measurement

One definition of happiness is the degree to which an individual judges the overall quality of his or her life as favorable (Veenhoven 1991, 1993). Psychologists draw a distinction between the well-being from life as a whole and the well-being associated with a single area of life: these they term "context-free" and "context-specific". These researchers view it as natural that a concept such as happiness should be studied in part by asking people how they feel.

One issue in the psychology literature has been whether a well-being measure is, in their terminology, reliable and valid. Self-reported measures are recognized to be a reflection of at least four factors: circumstances, aspirations, comparisons with others, and a person's baseline happiness or dispositional outlook (e.g. Warr 1980, Chen and Spector, 1991)). Konow and Earley (1999) describes evidence that recorded happiness levels have been demonstrated to be correlated with:

1. Objective characteristics such as unemployment.
2. The person's recall of positive versus negative life-events.
3. Assessments of the person's happiness by friends and family members.
4. Assessments of the person's happiness by his or her spouse.

---

<sup>1</sup> Earlier work includes Andrews (1991), Argyle (1989), Campbell, Converse and Rodgers (1976), Campbell (1981), Diener (1984), Diener et al (1999), Douthitt et al (1992), Fox and Kahneman (1992), Larsen et al (1984), Morawetz et al (1977), Mullis (1992), Shin (1980), Veenhoven (1991, 1993), Van Praag, Bernard and Kapteyn (1973), and Warr (1990).

<sup>2</sup> For example, Inglehart (1990) and Gallie et al (1998).

<sup>3</sup> However, see the work of Andrew Clark, Bruno Frey and Yew Kwang Ng (Clark, 1996; Clark and Oswald, 1994; Frey and Stutzer, 1999, 2000; Ng, 1996, 1997). See also Easterlin and Schaeffer (1999), Frank (1985, 1997), Blanchflower and Oswald (1998, 2000), Blanchflower, Oswald and Warr (1993), MacCulloch (1996), Di Tella and MacCulloch (1999), and Di Tella et al (2001, 2003). New work has also been done by Graham (2001), Graham and Pettinato (2002) and Helliwell (2001). Clark and Oswald (2002b) is a review written for epidemiologists.

5. Duration of authentic or so-called Duchenne smiles (a Duchenne smile occurs when both the zygomatic major and orbicularis oris facial muscles fire, and human beings identify these as ‘genuine’ smiles).
6. Heart rate and blood-pressure measures responses to stress, and psychosomatic illnesses such as digestive disorders and headaches.
7. Skin-resistance measures of response to stress
8. Electroencephelogram measures of prefrontal brain activity.

Rather than summarize the psychological literature’s assessment of well-being data, this paper refers readers to the checks on self-reported happiness statistics that are discussed in Argyle (1989) and Myers (1993), and to psychologists’ articles on reliability and validity, such as Fordyce (1985), Larsen, Diener, and Emmons (1984), Pavot and Diener (1993), and Watson and Clark (1991).

The idea used in the paper is that there exists a reported well-being function

$$r = h(u(y, s, z, t)) + e \quad (1)$$

where  $r$  is some self-reported number or level (perhaps the integer 4 on a satisfaction scale, or “very happy” on an ordinal happiness scale),  $u(\dots)$  is to be thought of as the person’s true well-being or utility,  $h(\cdot)$  is a continuous non-differentiable function relating actual to reported well-being,  $y$  is real income,  $s$  is sexual activity,  $z$  is a set of demographic and personal characteristics,  $t$  is the time period, and  $e$  is an error term. As plotted in Figure 1, the function  $h(\cdot)$  rises in steps as  $u$  increases. It is assumed, as seems plausible, that  $u(\dots)$  is a function that is observable only to the individual. Its structure cannot be conveyed unambiguously to the interviewer or any other individual. The error term,  $e$ , then subsumes among other factors the inability of human beings to communicate accurately their happiness level (your ‘two’ may be

my 'three')<sup>4</sup>. The measurement error in reported well-being data would be less easily handled if well-being were to be used as an independent variable.

This approach has a Benthamite utilitarian flavor. It may be viewed as an empirical cousin of the experienced-utility idea advocated by Kahneman et al (1997). The structure of equation 1 makes it suitable for estimation as an ordered probit or logit. In this way, 'true' utility is the latent variable, and the subjectivity of responses can be thought of as being swept into the error term.

It is possible to view some of the self-reported well-being questions in the psychology literature as assessments of a person's lifetime or expected stock value of future utilities. Equation 1 would then be rewritten as an integral over the  $u(\dots)$  terms. This paper, however, will use a happiness question that seems more naturally interpreted as a flow rather than a stock.

In what has since emerged as seminal research, Easterlin (1974, and more recently 1995, 2001) was one of the first social scientists to study data over time on the reported level of happiness in the United States. One of his aims was to argue that individual well-being is the same across poor countries and rich countries. The author suggests that we should think of people as getting utility from a comparison of themselves with others close to them: happiness is relative. Hirsch (1976), Scitovsky (1976), Layard (1980), Frank (1985, 1999) and Schor (1998) have argued a similar thesis; a different tradition, with equivalent implications, begins with Cooper, Garcia-Penalosa and Funk (2001) and Keely (1999). A slightly different form of wellbeing data is used by Ravallion and Lokshin (2001).

---

<sup>4</sup> This recognises the social scientist's distrust of a single person's subjective 'utility'. An analogy might be to a time before human beings had accurate ways of measuring people's height. Self-reported heights would contain information but be subject to large error. They would predominantly be useful as ordinal data, and would be more valuable when averaged across people than used as individual observations.

This paper draws upon the General Social Surveys of the United States. In order to obtain information on sexual behaviour, income and reported happiness, we use cross-sections from the years 1988 to 2000. The key question asked is:

*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? (GSS Question 157)*

The same wording has been used in each year. It is known that there is a reasonable amount of stability in the proportion of people giving different well-being scores, and that, not unexpectedly, the bulk of survey respondents place themselves in the middle category (pretty happy) of those offered. More precisely, approximately 12% of Americans describe their lives as not too happy, while 58% say they are pretty happy, and 30% say they are very happy. The exact interpretation of these words is open to debate. As with most of the emerging literature on the economics of happiness, our paper uses only the ordering of people's answers.

### 3. Measuring Sexual Activity

Before reporting the structure of the estimated happiness equations, it is useful to describe the GSS data set's information on sexual activity.

Respondents are asked about how many sexual partners they had in the previous year, how many times they had sexual intercourse in the previous year, and the gender of their sexual partners. The GSS is a confidential face-to-face survey. As with other survey variables, however, there is likely to be measurement error in these sexual data. One bias might stem from bravado; people may wish to appear to the survey interviewer to be enjoying more sex than they do. Another might stem from a wish to conceal extra-marital affairs; this would tend to lead to under-reporting. Our instinct from examining the data is that, if anything, the former bias dominates, especially among men. Nevertheless, in this paper we take the data at face value and study the implied patterns in American society.

According to the data, Americans have less dramatic sex lives than might have been imagined from the television and other media.

First, the modal and median American had one sexual partner last year. Even among people under the age of 40, 84% of US women and 70% of US men had at most one sexual partner in the previous year. For this age group, 3% of US women and 10% of US men say they had 4 or more sexual partners in the previous year. Among those over the age of 40, 96% of women and 89% of men say they had at most one sexual partner. Indeed 40% of American females over the age of 40 did not have sexual intercourse in the previous year. The figure for American males is 20%.

Second, a small proportion of people report homosexual activity. Among males, 3% say they had a male sexual partner in the previous year. Among females, just under 2% report having had a female partner. About 0.5% of females and 0.5% of males report themselves as bisexual.

Third, among those aged under 40 years old, the median individual has sex once a week. This is true both for men and women. About 10% of under-40 Americans say they have sexual intercourse at least 4 times a week. Approximately the same proportion say they are celibate. In the over-40 category, among women the median amount of sex is once a month, while for males it is 2-3 times a month. We cannot tell whether this discrepancy is because males, relatively, have exaggerated memories, or have younger sexual partners, or visit female prostitutes. Among Americans over 40, 13% of women and 20% of men say they have sexual intercourse twice or more times a week.

Fourth, a few men report large numbers of sexual partners (4 males in our sample of approximately 7000 said they had more than 100 partners in the previous year, whereas no women said that, and only 4 women out of 9000 reported having more than 20 partners in the



year). Taking the data set as a whole, almost the only way to make the men's and women's answers consistent is for there to be some women in the United States who have enormous numbers of sexual partners without reporting that fact in our survey data. It is possible that this is because of the existence of prostitutes. An alternative, and perhaps more likely, explanation is that men overestimate.

#### 4. Happiness Equations with Sexual-Activity Variables

Table 1 reports happiness equations for the United States using pooled cross-section data from 1988 to 2000. Column 1 includes standard variables, following the general structure of work on GSS data such as Blanchflower and Oswald (2003), such as age and age squared, gender, race, education, marital variables, income, among others.

Sexual activity enters strongly in Table 1's happiness equations. The more sex, the happier the person. In column 1, there is almost complete monotonicity in the way the frequency of sexual intercourse enters the equation. Three of the frequency variables are statistically significant at conventional levels. However, celibacy and small amounts of sex have statistically indistinguishable effects upon happiness. There is some evidence that men enjoy sex more than women (compare the variable 'sex 2-3 times a month in columns 2 and 3 of Table 1), but the broad structure of the equations is the same for both males and females. Dividing the sample into different age groups -- columns 4 and 5 in Table 1 -- does not change the basic pattern of the results. Interestingly, education does appear to make some difference. In column 6 of Table 1, among those people with less than 12 years of education the only statistically significant sex variable is 'greater than or equal to four times a week'. In so far as education is a good proxy for income, this implies that sex may bring more happiness to the rich than the poor.

How many sexual partners in the last year maximizes happiness (though cause and effect is difficult to establish in these cross-section data)? The answer according to the data is

mundane. The answer is one sexual partner. After some experimentation, we report this simply as the variable ‘single partner’ in Table 1.

Table 2 looks in detail at the type of sexual partner. We find that men who paid for sex are considerably less happy than other people. Those who have ever had sex outside their marriage also report markedly lower happiness scores. In Table 2, columns 3 and 4 show that homosexual activity has no statistically significant effect in a happiness equation.

For completeness, Tables 3 and 4 estimate equations in which sexual activity is the dependent variable. Table 3 is a frequency-of-sex regression. From column 1, we find that men report more sex, with a coefficient of 0.343 and a t-statistic that exceeds 10. Unless this is due entirely to the existence of prostitutes, or to the greater prevalence of male homosexuality than female homosexuality, it is not easy to see how this can be a genuine effect (as sex has to be with a woman). There is no statistically significant effect from years of education. Aging, however, reduces sexual activity. Blacks report more sex than do whites. Married people have (much) more sex than people with other kinds of marital status. Students have less sex than average. People who say their parents were divorced at 16 have more sex than average. In column 2 of Table 3, homosexuals and bisexuals have more sex. Columns 3 and 4 of Table 3 split the data by gender. The structure of the equations is similar for men and women, but unemployment enters positively and significantly in the female frequency-of-sex equation.

What is the connection between income and the frequency of sex? Interestingly, columns 5 and 6 of Table 3 find that it is zero for both men and women. Income buys greater happiness, but it does not buy more sex. Education continues to have no statistically significant effect in the later columns of Table 3.

Finally, Table 4 estimates number-of-sexual-partners equations. There is a positive male dummy variable and a strong negative effect from aging. The number of years of education has

no effect. The black dummy variable is again positive. Separated people report higher numbers of sexual partners than others (though this is only for men, as columns 3 and 4 show). Unemployed people tend to have a greater number of sexual partners. The dummy variable for being a student is statistically insignificant. Those whose own parents divorced have more sexual partners. Homosexual and bisexual men and women have far more partners than average. There is a strong difference between divorced men and women. Divorced men have many more sex partners than married and single men, *ceteris paribus*. Divorced women have fewer partners than married and single women, *ceteris paribus*.

What is the connection between income and the number of sexual partners that a person has? Table 4 shows that it is positive. Money buys more sexual partners (although the effect is only statistically significant among males, with a t-statistic of 2.61 in column 5 of Table 4).

## 5. Conclusions

Recent work by Kahneman et al (2003) suggests that sexual activity is the most happiness-inducing part of life. Yet little is known about how sexual behaviour affects the structure of happiness equations, nor about how economic forces interact with sex and wellbeing.

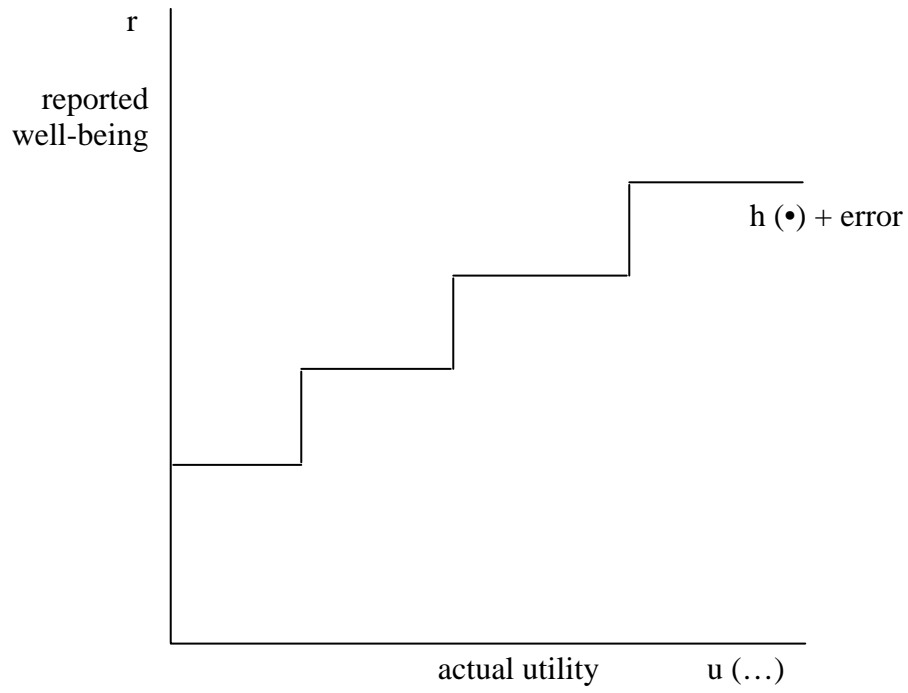
In this paper we estimate what may be the first happiness equations in which sexual activity is entered as an independent variable. Sex is strongly and positively associated with happiness. This is true for men and women, and for those under and over the age of 40. The paper's more detailed conclusions include the following:

- The median American has sexual intercourse 2-3 times a month (among people under 40 years of age, the median amount of sex is once a week). Approximately 6% of the population report having sex more than 3 times a week.

- Close to half of American women over the age of 40 report they did not have sexual intercourse in the previous year. The figure for men is 20%.
- Homosexual and bisexual people make up about 3% of the United States population
- Among Americans under 40 years of age, 83% of women and 72% of men had no more than one sexual partner in the previous year.
- Sex appears to have disproportionately strong effects on the happiness of highly educated people.
- The happiness-maximizing number of sexual partners in the previous year is 1.
- Homosexuality has no statistically significant effect on happiness, but a strong positive effect on the amount of sexual activity.
- Married people have more sex than those who are single, divorced, widowed, or separated.
- Money buys more sexual partners but not more sex.

Figure 1

The function relating actual and reported well-being





**Table 1. Happiness Equations and Sexual Activity for the United States, 1988-2000 (Ordered Logits)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All	Males	Females	Age<40	Age>=40	Education <=12yrs	Education >12 yrs
Age	-0.042 (-5.59)	-0.037 (-3.1)	-0.050 (-5.02)	-0.032 (-0.59)	0.058 (3.01)	-0.032 (-3.23)	-0.053 (-4.44)
Age <sup>2</sup>	0.001 (6.95)	0.000 (3.90)	0.001 (6.10)	0.000 (0.25)	0.000 (-1.48)	0.000 (4.56)	0.001 (4.97)
Male	-0.138 (-3.44)			-0.164 (-2.76)	-0.134 (-2.45)	-0.128 (-2.11)	-0.155 (-2.88)
Black	-0.382 (-6.37)	-0.339 (-3.43)	-0.407 (-5.32)	-0.594 (-6.77)	-0.189 (-2.26)	-0.288 (-3.52)	-0.460 (-5.11)
Other non-white	-0.093 (-1.06)	0.135 (1.04)	-0.280 (-2.35)	-0.294 (-2.58)	0.129 (0.90)	0.051 (0.38)	-0.212 (-1.79)
Years of education	0.046 (6.44)	0.039 (3.86)	0.052 (5.12)	0.066 (5.41)	0.037 (4.08)	0.030 (1.83)	0.050 (3.62)
Sex once or twice	-0.097 (-1.05)	0.031 (0.23)	-0.202 (-1.57)	0.003 (0.02)	-0.225 (-1.84)	-0.081 (-0.62)	-0.091 (-0.69)
Sex once a month	-0.014 (-0.17)	0.171 (1.36)	-0.185 (-1.57)	0.012 (0.08)	-0.090 (-0.79)	-0.123 (-1.01)	0.101 (0.84)
Sex 2-3 times a month	0.152 (1.89)	0.358 (3.03)	-0.039 (-0.34)	0.106 (0.82)	0.129 (1.15)	0.067 (0.58)	0.255 (2.24)
Sex weekly	0.271 (3.37)	0.390 (3.28)	0.160 (1.42)	0.088 (0.69)	0.373 (3.31)	0.147 (1.27)	0.399 (3.54)
Sex 2-3 times a week	0.305 (3.80)	0.348 (2.98)	0.252 (2.21)	0.249 (2.03)	0.305 (2.63)	0.167 (1.44)	0.437 (3.90)
Sex >=4 times a week	0.415 (4.11)	0.468 (3.27)	0.355 (2.43)	0.291 (2.06)	0.520 (3.05)	0.353 (2.45)	0.503 (3.53)
Single partner	0.266 (4.71)	0.169 (2.14)	0.358 (4.31)	0.244 (3.23)	0.299 (3.39)	0.287 (3.53)	0.240 (3.05)
Working part-time	-0.032 (-0.52)	-0.313 (-2.76)	0.117 (1.53)	-0.089 (-1.02)	-0.029 (-0.32)	-0.029 (-0.31)	-0.048 (-0.57)

Temporarily not working	-0.084 (-0.67)	-0.375 (-1.98)	0.156 (0.91)	-0.053 (-0.28)	-0.138 (-0.81)	-0.238 (-1.24)	0.033 (0.20)
Unemployed	-0.737 (-6.01)	-1.033 (-6.70)	-0.310 (-1.48)	-0.758 (-4.66)	-0.696 (-3.65)	-0.579 (-3.72)	-0.939 (-4.64)
Retired	0.015 (0.18)	0.027 (0.21)	-0.032 (-0.28)	-0.304 (-0.27)	-0.033 (-0.37)	0.045 (0.41)	-0.046 (-0.34)
Student	0.240 (2.08)	0.092 (0.50)	0.343 (2.28)	0.244 (1.89)	-0.306 (-0.86)	0.146 (0.76)	0.255 (1.73)
Keeping house	-0.083 (-1.29)	-0.096 (-0.39)	-0.013 (-0.18)	-0.055 (-0.58)	-0.149 (-1.66)	-0.086 (-1.01)	-0.053 (-0.51)
Other LM status	-0.585 (-3.85)	-0.854 (-3.74)	-0.399 (-1.95)	-0.400 (-1.22)	-0.612 (-3.56)	-0.441 (-2.39)	-0.896 (-3.32)
Widowed	-0.848 (-9.71)	-0.943 (-5.69)	-0.767 (-7.10)	-0.723 (-2.31)	-0.772 (-8.09)	-0.893 (-7.92)	-0.758 (-5.32)
Divorced	-0.662 (-10.84)	-0.787 (-8.36)	-0.544 (-6.67)	-0.684 (-6.69)	-0.604 (-7.80)	-0.693 (-7.86)	-0.627 (-7.34)
Separated	-1.007 (-9.51)	-1.199 (-6.57)	-0.877 (-6.66)	-1.059 (-6.86)	-0.960 (-6.50)	-0.929 (-6.64)	-1.108 (-6.76)
Never married	-0.506 (-8.3)	-0.599 (-6.68)	-0.395 (-4.65)	-0.604 (-7.66)	-0.509 (-4.80)	-0.563 (-5.85)	-0.480 (-5.98)
Parents divorced at age 16	-0.163 (-3.07)	-0.072 (-0.88)	-0.232 (-3.3)	-0.198 (-2.86)	-0.139 (-1.63)	-0.164 (-2.23)	-0.121 (-1.57)
Family income	0.000 (9.36)	0.000 (3.89)	0.000 (8.64)	0.000 (5.21)	0.000 (8.04)	0.000 (8.17)	0.000 (4.96)
cut1	-1.917	-1.989	-1.845	-2.053	1.253	-1.783	-2.196
cut2	1.24	1.23	1.291	1.287	4.299	1.281	1.097
N	12291	5448	6843	5662	6629	5785	6506
Chi <sup>2</sup>	1323.96	579.76	805.16	572.23	835.24	676.73	604.83
Pseudo R <sup>2</sup>	0.05	0.05	0.062	0.056	0.067	0.062	0.052
LR	10680.69	4683.16	5965.07	4782.68	5840.79	5128.45	5517.74



Source: General Social Survey

t-statistics are in parentheses.

All equations include 7 year dummies and 8 regional dummies. Excluded categories – sex in last 12 months not at all.



<b>Table 2 Happiness Equations and Sexual Partners</b>				
	All	Married only	Males	Females
	1991-2000	1991-2000	1988-2000	1988-2000
Age	-0.037	-0.026	-0.060	-0.084
	(-4.42)	(-2.57)	(-3.97)	(-5.73)
Age <sup>2</sup>	0.000	0.000	0.001	0.001
	(5.61)	(3.95)	(4.69)	(6.35)
Male	-0.060	-0.030		
	(-1.34)	(-0.59)		
Black	-0.356	-0.281	-0.320	-0.484
	(-5.48)	(-3.60)	(-2.96)	(-5.35)
Other non-white	-0.134	-0.034	0.081	-0.287
	(-1.41)	(-0.29)	(0.57)	(-2.12)
Years of education	0.054	0.044	0.039	0.061
	(6.88)	(5.03)	(3.45)	(4.95)
Sex once or twice	-0.049	-0.038	-0.160	-0.013
	(-0.48)	(-0.30)	(-0.55)	(-0.04)
Sex once a month	0.006	0.036	0.028	0.002
	(0.07)	(0.31)	(-0.10)	(0.01)
Sex 2-3 times a month	0.198	0.333	0.236	0.182
	(2.25)	(2.95)	(0.84)	(0.66)
Sex weekly	0.269	0.352	0.268	0.347
	(3.06)	(3.14)	(0.95)	(1.27)
Sex 2-3 times a week	0.322	0.440	0.229	0.484
	(3.68)	(3.90)	(0.81)	(1.77)
Sex $\geq$ 4 times a week	0.500	0.643	0.334	0.587
	(4.57)	(4.64)	(1.13)	(2.03)
Single partner	0.240	0.240	0.171	0.341
	(3.89)	(2.94)	(1.93)	(3.58)
Working part-time	-0.049	-0.005	-0.368	0.022
	(-0.73)	(-0.06)	(-2.81)	(0.26)
Temporarily not working	-0.045	0.006	-0.477	0.163
	(-0.32)	(0.04)	(-2.32)	(0.86)
Unemployed	-0.781	-0.709	-0.997	-0.337
	(-6.01)	(-4.18)	(-5.85)	(-1.43)
Retired	0.041	0.057	-0.035	-0.070
	(0.44)	(0.58)	(-0.23)	(-0.36)
Student	0.143	-0.039	0.032	0.340
	(1.13)	(-0.18)	(0.15)	(1.98)
Keeping house	-0.035	0.036	-0.062	0.000
	(-0.49)	(0.47)	(-0.21)	(0.00)
Other LM status	-0.557	-0.436	-0.906	-0.202
	(-3.39)	(-2.40)	(-3.49)	(-0.75)
Widowed	-0.908	-0.819	-0.571	-0.713

	(-9.37)	(-8.09)	(-2.50)	(-3.71)
Divorced	-0.699	-0.608	-0.854	-0.639
	(-10.58)	(-8.68)	(-8.16)	(-6.69)
Separated	-1.017	-0.944	-1.192	-0.971
	(-8.76)	(-7.91)	(-5.87)	(-6.44)
Never married	-0.557		-0.698	-0.491
	(-8.43)		(-6.82)	(-5.08)
Parents divorced at age 16	-0.140	-0.100	-0.041	-0.233
	(-2.46)	(-1.45)	(-0.46)	(-2.95)
Family income	0.000	0.000	0.000	0.000
	(8.46)	(8.03)	(2.57)	(7.21)
Ever paid for sex	-.3296	-.2283		
	(4.47)	(2.70)		
Ever sex outside marriage		-.2099		
		(3.32)		
Male and female partners			-.5843	.4772
			(1.21)	(1.37)
Exclusively female partners			-.2266	.0487
			(1.23)	(0.24)
cut1	-1.621	-1.112	-2.909	-2.260
cut2	1.557	2.012	0.402	0.956
N	10373	7977	4533	5064
Chi <sup>2</sup>	1202.72	933.55	479.47	645.17
Pseudo R <sup>2</sup>	0.063	0.063	0.059	0.069
LR	8986.99	6943.24	3832.97	4334.23

**Table 3. Frequency-of-Sex Equations for the United States, 1988-2000 (Ordered Logits)**

	(1)	(2)	(3) Male	(4) Female	(5) Male	(6) Female
Male	.343 (10.16)	.326 (9.48)				
Age	-.014 (1.95)	-.016 (2.18)	.003 (0.29)	-.027 (2.74)	.006 (0.51)	-.032 (2.91)
Age <sup>2</sup>	-.0005 (7.12)	-.0005 (6.73)	-.0006 (5.04)	-.0005 (4.64)	-.0006 (4.96)	-.0005 (3.93)
Years of education	-.004 (0.75)	-.004 (0.72)	-.003 (0.37)	-.005 (0.59)	-.008 (0.88)	-.011 (1.13)
Black	.296 (6.05)	.288 (5.74)	.537 (6.68)	.124 (1.90)	.534 (6.09)	.148 (2.07)
Other non-white	-.101 (1.40)	-.108 (1.48)	.034 (0.31)	-.225 (2.27)	.068 (0.57)	-.227 (2.09)
Widowed	-2.129 (25.63)	-2.122 (24.98)	-1.387 (9.33)	-2.266 (20.93)	-1.295 (8.15)	-2.188 (18.90)
Divorced	-1.067 (22.21)	-1.050 (21.51)	-.689 (9.22)	-1.294 (19.83)	-.664 (8.40)	-1.244 (17.23)
Separated	-.844 (9.72)	-.851 (9.64)	-.529 (3.55)	-1.048 (9.49)	-.540 (3.39)	-1.004 (8.41)
Never married	-1.548 (32.46)	-1.569 (31.85)	-1.417 (19.75)	-1.628 (23.58)	-1.414 (18.53)	-1.583 (20.83)
Working part-time	-.147 (2.84)	-.144 (2.74)	-.217 (2.28)	-.186 (2.89)	-.223 (2.18)	-.173 (2.53)
Temporarily not working	.075 (0.70)	.054 (0.49)	-.023 (0.14)	.141 (0.95)	-.024 (0.14)	.124 (0.81)
Unemployed	.189 (1.89)	.169 (1.65)	.008 (0.06)	.393 (2.28)	.069 (0.51)	.300 (1.61)
Retired	-.068 (0.92)	-.069 (0.91)	-.172 (1.57)	-.291 (2.54)	-.130 (1.12)	-.314 (2.48)
Student	-.348 (3.58)	-.311 (3.15)	-.164 (1.02)	-.445 (3.53)	-.074 (0.43)	-.369 (2.68)

Keeping house	.007 (0.13)	.010 (0.19)	-.327 (1.48)	.009 (0.16)	-.358 (1.56)	.026 (0.40)
Other LM status	-.296 (2.36)	-.311 (2.43)	-.362 (1.92)	-.356 (2.01)	-.424 (2.10)	-.198 (1.03)
Parents divorced at age 16	.183 (4.07)	.188 (4.11)	.288 (4.14)	.114 (1.85)	.281 (3.87)	.117 (1.81)
Homosexual		.541 (4.87)	.409 (2.77)	.649 (3.83)	.430 (2.74)	.647 (3.70)
Bisexual		.456 (2.01)	.099 (0.27)	.624 (2.18)	-.059 (0.16)	.533 (1.74)
Family income *10 <sup>5</sup>					.340 (0.90)	.285 (0.89)
Religion dummies	No	No	No	No	Yes	Yes
Region dummies	No	No	No	No	Yes	Yes
Year dummies	No	No	No	No	Yes	Yes
cut1	-4.069	-4.141	-3.686	-4.721	-3.386	-4.7737
cut2	-3.448	-3.506	-3.002	-4.101	-2.703	-4.1439
cut3	-2.798	-2.852	-2.343	-3.437	-2.033	-3.4631
cut4	-1.954	-2.007	-1.475	-2.601	-1.154	-2.6279
cut5	-.969	-1.021	-.492	-1.606	-.166	-1.6191
cut6	.918	.877	1.304	.395	1.643	.4089
N	14207	13681	5970	7711	5516	6925
Chi <sup>2</sup>	6307.1	6016.7	1567.6	4400.2	1435.0	3845.1
Pseudo R <sup>2</sup>	.1196	.1184	.0703	.1560	.0697	.1512
LR	-23208.9	-22397.4	-10372.9	-11905.4	-9577.1	-10795.6

Source: General Social Survey, t-statistics are in parentheses.

**Table 4. Number-of-Sex-Partners Equations for the United States, 1988-2000 (Ordered Logits)**

	(1)	(2)	(3) Male	(4) Female	(5) Male	(6) Female
Male	.736 (18.62)	.738 (18.43)				
Age	-.023 (3.08)	-.023 (3.09)	-.014 (1.29)	-.041 (3.79)	-.006 (0.52)	-.0366 (3.12)
Age <sup>2</sup>	-.0003 (3.98)	-.0003 (3.96)	-.0003 (2.19)	-.0002 (2.21)	-.0003 (2.63)	-.0003 (2.44)
Years of education	.006 (0.96)	.004 (0.68)	.008 (0.90)	.002 (0.25)	-.0003 (0.03)	-.015 (1.31)
Black	.420 (7.57)	.421 (7.45)	.684 (7.95)	.327 (4.26)	.679 (7.20)	.448 (5.29)
Other non-white	-.191 (2.26)	-.219 (2.55)	-.225 (1.79)	-.180 (1.50)	-.206 (1.53)	-.187 (1.42)
Widowed	-1.741 (22.06)	-1.755 (21.86)	-.970 (6.70)	-2.139 (21.11)	-.861 (5.53)	-2.048 (18.38)
Divorced	-1.63 (3.00)	-.186 (3.39)	.572 (6.89)	-.800 (10.78)	.592 (6.73)	-.717 (8.67)
Separated	.333 (3.40)	.255 (2.57)	.947 (6.15)	-.276 (2.10)	.995 (5.98)	-.190 (1.33)
Never married	-.255 (4.74)	-.381 (6.96)	.115 (1.47)	-.864 (10.77)	.204 (2.43)	-.782 (8.80)
Working part-time	.072 (1.20)	.072 (1.19)	-.157 (1.49)	.040 (0.52)	-.111 (0.98)	.089 (1.08)
Temporarily not working	.210 (1.72)	.221 (1.78)	.275 (1.53)	.134 (0.77)	.382 (2.06)	.147 (0.81)
Unemployed	.420 (3.67)	.408 (3.48)	.268 (1.90)	.493 (2.37)	.370 (2.49)	.432 (1.87)
Retired	-.157 (2.00)	-.158 (1.98)	-.296 (2.53)	-.244 (2.14)	-.282 (2.24)	-.228 (1.81)

Student	-.099 (0.88)	-.043 (0.37)	.065 (0.39)	-.253 (1.61)	.185 (1.03)	-.110 (0.64)
Keeping house	.084 (1.39)	.087 (1.42)	-.554 (2.32)	-.001 (0.01)	-.487 (1.94)	.011 (0.15)
Other LM status	-.269 (1.82)	-.262 (1.78)	-.318 (1.50)	-.303 (1.50)	-.424 (1.83)	-.146 (0.67)
Parents divorced at age 16	.298 (5.78)	.314 (6.00)	.351 (4.59)	.298 (4.08)	.340 (4.23)	.257 (3.35)
Homosexual		1.568 (12.68)	1.663 (10.62)	1.149 (5.50)	1.715 (10.45)	1.149 (5.31)
Bisexual		3.288 (15.74)	3.297 (10.25)	3.711 (12.99)	3.435 (10.18)	3.564 (11.42)
Family income *10 <sup>4</sup>					.106 (2.61)	.056 (1.52)
Religion dummies	No	No	No	No	Yes	Yes
Region dummies	No	No	No	No	Yes	Yes
Year dummies	No	No	No	No	Yes	Yes
cut1	-3.108	-3.132	-2.881	-4.218	-2.338	-4.043
cut2	.876	.855	.845	.104	1.451	.325
cut3	1.700	1.703	1.542	1.2771	2.152	1.498
cut4	2.360	2.390	2.184	2.1567	2.805	2.364
cut5	3.012	3.063	2.838	2.9681	3.477	3.164
cut6	4.493	4.579	4.398	4.4206	5.031	4.546
cut7	5.429	5.531	5.293	5.6776	6.027	5.804
cut8	7.378	7.450	7.060	n/a	7.892	n/a
N	15938	15507	6682	8825	6166	7905
Chi <sup>2</sup>	5108.1	5430.3	1371.6	3933.7	1292.5	3437.3
Pseudo R <sup>2</sup>	.1533	.1658	.0899	.2332	.0927	.2281
LR	-14104.5	-13657.0	-6946.1	-6467.4	-6323.3	-5815.5

Source: General Social Survey, t-statistics are in parentheses.



## References

- Andrews, F.M. (1991). "Stability and Change in Levels and Structure of Subjective Well-Being: USA 1972 and 1988", Social Indicators Research, 25, 1-30.
- Argyle, M. (1989). The Psychology of Happiness, Routledge, London.
- Blanchflower, D.G. (2001) "Unemployment, Well-being and Wage Curves in Eastern and Central Europe' Journal of Japanese and International Economies, 15, 4, 364-402.
- Blanchflower, D.G. and Oswald, A.J. (1998). "What Makes an Entrepreneur?", Journal of Labor Economics, 16, 26-60.
- Blanchflower, D.G. and Oswald, A.J. (2000). "The Rising Well-Being of the Young", in Youth Employment and Joblessness in Advanced Countries, edited by D.G. Blanchflower and R.B. Freeman, University of Chicago Press and NBER.
- Blanchflower, D.G. and Oswald, A.J.(2003). "Well-Being Over Time in Britain and the USA", Journal of Public Economics, forthcoming.
- Campbell, A., Converse, P.E. and Rodgers, W.L. (1976). The Quality of American Life, Russell Sage, New York.
- Campbell, A. (1981). The Sense of Well-Being in America, McGraw Hill, New York.
- Chen, P.Y. and Spector, P.E. (1991). "Negative Affectivity as the Underlying Cause of Correlations Between Stressors and Strains", Journal of Applied Psychology, 7, 398-407.
- Clark, A.E. (1996). "Job Satisfaction in Britain", British Journal of Industrial Relations, 34, 189-217.
- Clark, A.E. and Oswald, A.J. (1994). "Unhappiness and Unemployment", Economic Journal, 104, 648-659.
- Clark, A.E. and Oswald, A.J. (1996). "Satisfaction and Comparison Income", Journal of Public Economics, 61, 359-381.
- Clark, A.E. and Oswald, A.J. (1998). "Comparison-Concave Utility and Following Behaviour in Social and Economic Settings", Journal of Public Economics, 70, 133-155.
- Clark, A.E. and Oswald, A.J. (2002a). "Well-Being in Panels", mimeo, University of Warwick.
- Clark, A.E. and Oswald, A.J. (2002b). "A Simple Statistical Method for Measuring How Life Events Affect Happiness", International Journal of Epidemiology, forthcoming.
- Cooper, B., Garcia-Penalosa, C. and Funk, P. (2001). "Status Effects and Negative Utility Growth", Economic Journal, 111, 642-665.

- Diener, E. (1984). "Subjective Well-Being", Psychological Bulletin, 95, 542-575.
- Diener, E., Gohm, C.L., Suh, E. and Oishi, S. (undated), "Similarity of the Relations Between Marital Status and Subjective Well-Being Across Cultures", mimeo, Psychology Department, University of Illinois, Urbana.
- Diener, E., Suh, E.M., Lucas, R.E., and Smith, H.L. (1999). "Subjective Well-Being: Three Decades of Progress", Psychological Bulletin, 125, 276-303.
- Di Tella, R. and MacCulloch, R. (1999), "Partisan Social Happiness", mimeo, Harvard Business School.
- Di Tella, R., MacCulloch, R. and Oswald, A.J. (2001), "Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness", American Economic Review, May, 91, 335-341.
- Di Tella, R., MacCulloch, R. and Oswald, A.J. (2003), "The Macroeconomics of Happiness", Review of Economics and Statistics, forthcoming.
- Douthitt, R.A., MacDonald, M. and Mullis, R. (1992). "The Relationship Between Measures of Subjective and Economic Well-Being: A New Look", Social Indicators Research, 26, 407-422.
- Duesenberry, J.S. (1949). Income, Saving and the Theory of Consumer Behavior, Harvard University Press, Cambridge, Mass.
- Easterlin, R.A. (1974). "Does Economic Growth Improve the Human Lot? Some Empirical Evidence", in Nations and Households in Economic Growth: Essays in Honour of Moses Abramowitz, edited by P.A. David and M.W. Reder, Academic Press, New York and London.
- Easterlin, R.A. (1995). "Will Raising the Incomes of All Increase the Happiness of All?", Journal of Economic Behavior and Organization, 27, 35-47.
- Easterlin, R.A. (2001). "Income and Happiness: Towards a Unified Theory", Economic Journal, 111, 465-484.
- Easterlin, R.A. and Schaeffer, C.M. (1999). "Income and Subjective Wellbeing over the Life Cycle", in The Self and Society in Aging Processes, edited by Carol Ryff and Victor Marshall, Springer, New York.
- Ferrer-i-Carbonell, A. (2002). "Income and Wellbeing: An Empirical Analysis of the Comparison Income Effect", mimeo, University of Amsterdam.
- Fordyce, M.W. (1985). "The Psychap Inventory: A Multi-Scale Test to Measure Happiness and its Concomitants", Social Indicators Research, 18, 1-33.

- Fox, C.R. and Kahneman, D. (1992). "Correlations, Causes and Heuristics in Surveys of Life Satisfaction", Social Indicators Research, 27, 221-234.
- Frank, R. H. (1985). Choosing the Right Pond, Oxford University Press, New York.
- Frank, R.H. (1997). "The Frame of Reference as a Public Good", Economic Journal, 107, 1832-1847.
- Frank, R.H. (1999). Luxury Fever, Oxford University Press, Oxford.
- Frey, B.S. and Stutzer, A. (1999). "Measuring Preferences by Subjective Well-Being", Journal of Institutional and Theoretical Economics, 155, 4, 755-788.
- Frey, B.S. and Stutzer, A. (2000). "Happiness, Economy and Institutions", Economic Journal, 110, 918-938.
- Frey, B.S. and Stutzer, A. (2002). Happiness and Economics, Princeton University Press.
- Frisch, M.B, Cornell, J., Villanueva, M., and Retzlaff, P.J. (1992). "Clinical Validation of the Quality of Life Inventory: A Measure of Life Satisfaction for Use in Treatment Planning and Outcome Assessment", Psychological Assessment, 4, 92-101.
- Gallie, D., White, M., Cheng, Y. and Tomlinson, M. (1998). Restructuring the Employment Relationship, Oxford University Press, Oxford.
- Gardner, J. and Oswald, A.J. (2001). "Does Money Buy Happiness? A Longitudinal Study Using Data on Windfalls", mimeo, University of Warwick.
- Graham, C. (2001). "Happiness, Markets and Democracy: Latin America in Comparative Perspective", Brookings Institution, Washington DC, unpublished working paper.
- Graham, C. and Pettinato, S. (2002). "Frustrated Achievers: Winners, Losers and Subjective Wellbeing in New Market Economies", Journal of Development Studies, forthcoming.
- Helliwell, J. (2001). "How is Life?", Department of Economics, University of British Columbia, unpublished seminar paper.
- Hirsch, F. (1976). The Social Limits to Growth, Harvard University Press, Cambridge, Mass.
- Hollander, H. (2001). "On the Validity of Utility Statements: Standard Theory versus Duesenberry's", Journal of Economic Behavior and Organization, 45, 227-249.
- Inglehart, R. (1990). Culture Shift in Advanced Industrial Society, Princeton University Press, Princeton.
- Johansson-Stenman, O., Carlsson, F. and Daruvala, D. (2002). "Measuring Future Grandparents' Preferences for Equality and Relative Standing", Economic Journal, 112, 362-383.

- Kahneman, D., Wakker, Peter P. and Sarin, R. (1997). "Back to Bentham? Explorations of Experienced Utility", Quarterly Journal of Economics, 112, 375-406.
- Kahneman, D., Krueger, A., Schkade, D., Schwarz, N. and Stone, A. (2003). "Measuring the Quality of Experience", working paper, Princeton University.
- Keely, L.C. (1999). "Why Isn't Growth Making Us Happier?", mimeo, New College, Oxford University.
- Konow, J. and Earley, J. (1999) "The Hedonistic Paradox: Is Homo-Economicus Happier?", mimeo, Loyola Marymount University, Dept of Psychology.
- Larsen, R.J., Diener, E., and Emmons, R.A. (1984). "An Evaluation of Subjective Well-Being Measures", Social Indicators Research, 17,1-18.
- Layard, R. (1980). "Human Satisfaction and Public Policy", Economic Journal, 90, 737-750.
- MacCulloch, R. (1996). "The Structure of the Welfare State", doctoral thesis, Oxford University.
- McBride, M. (2001). "Relative-Income Effects on Subjective Wellbeing in the Cross-Section", Journal of Economic Behavior and Organization, 45, 251-278.
- Morawetz, D. et al (1977). "Income Distribution and Self-Rated Happiness: Some Empirical Evidence", Economic Journal, 87, 511-522.
- Mullis, R.J. (1992). "Measures of Economic Well-Being as Predictors of Psychological Well-Being", Social Indicators Research, 26, 119-135.
- Myers, D.G. (1993). The Pursuit of Happiness, Aquarian, London.
- Ng, Y.K. (1996). "Happiness Surveys: Some Comparability Issues and an Exploratory Survey Based on Just Perceivable Increments", Social Indicators Research, 38, 1-27.
- Ng, Y.K. (1997). "A Case for Happiness, Cardinalism, and Interpersonal Comparability", Economic Journal, 107, 1848-1858.
- Oswald, A.J. (1997). "Happiness and Economic Performance", Economic Journal, 107, 1815-1831.
- Pavot, W. and Diener, E. (1993). "Review of the Satisfaction with Life Scales", Psychological Assessment, 5, 164-172.
- Ravallion, M. and Lokshin, M. (2001). "Identifying Welfare Effects from Subjective Questions", Economica, 68, 335-357.
- Schor, J. (1998). The Overspent American, Basic Books, New York.

Scitovsky, T. (1976). The Joyless Economy, Oxford University Press, Oxford.

Senik, C. (2002). "When Information Dominates Comparison: A Panel Data Analysis Using Russian Subjective Data", mimeo, DELTA, University Paris IV, Sorbonne.

Shin, D.C. (1980). "Does Rapid Economic Growth Improve the Human Lot? Some Empirical Evidence", Social Indicators Research, 8, 199-221.

Van Praag, B., Bernard, M.S. and Kapteyn, A. (1973). "Further Evidence on the Individual Welfare Function of Income: An Empirical Investigation in the Netherlands", European Economic Review, 4, 33-62.

Veenhoven, R. (1991). "Is Happiness Relative?", Social Indicators Research, 24, 1-34.

Veenhoven, R. (1993). Happiness in Nations: Subjective Appreciation of Life in 56 Nations, 1946-1992, Erasmus University Press, Rotterdam.

Warr, P.B. (1980). "The Springs of Action" in A.J. Chapman and D.M. Jones (Eds.), Models of Man (pp.161-181). Leicester: British Psychological Society.

Warr, P.B. (1990). "The Measurement of Well-Being and Other Aspects of Mental Health", Journal of Occupational Psychology, 63, 193-210.

Watson, D. and Clark, L.A. (1991). "Self Versus Peer Ratings of Specific Emotional Traits: Evidence of Convergent and Discriminant Validity", Journal of Personality and Social Psychology, 60, 927-940.

Winkelmann, L. and Winkelmann, R. (1998). "Why are the Unemployed so Unhappy?", Economica, 65, 1-15.