Money, Sex and Happiness: An Empirical Study*

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Abstract   This paper studies the links between income, sexual behavior and
reported happiness. It uses recent data on a sample of 16,000 adult Americans.
The paper finds that sexual activity enters strongly positively in happiness
equations. Greater income does not buy more sex, nor more sexual partners.
Married people have more sex than those who are single, divorced, widowed or
separated. The happiness-maximizing number of sexual partners in the previous
year is calculated to be 1. Highly educated females tend to have fewer sexual
partners. Homosexuality has no statistically significant effect on happiness.

Key words Happiness, sexual behavior, subjective wellbeing, sex, income
JEL codes H0, J0, D6

Money, Sex and Happiness: An Empirical Study

I. 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 -- still relatively unexplored -- links between income, sexual activity and wellbeing.

Human beings are interested in sex. There are also scientific reasons to study it. For example, recent 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 psychological wellbeing. These two activities come top and bottom, respectively, of a list of 19 activities.

In this paper we estimate what may be the first econometric happiness equations in which sexual activity is an independent variable. Like the rest of the recent wellbeing 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 approximately 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. Our instinct is that solving the endogeneity problem -- working out whether sex causes happiness or causality runs in the reverse direction -- will be particularly difficult here. Future work will have to return to this issue.

There are limitations to wellbeing statistics. An inquiry in this field also faces the disadvantage that controlled experiments cannot be done. To understand the connections

between happiness and intimate behavior such as sexual activity is likely to be particularly difficult. Nevertheless, it seems implausible that happiness can be understood without, in part, listening to what human beings say about their own lives and levels of happiness. This paper examines such data.

Surveys have for many years recorded individuals' responses to questions about well-being. They have been studied by psychologists[1], sociologists and political scientists[2], and more recently economists[3]. As yet, however, there seems to have been little attempt to link happiness surveys to information on sexual behavior.

There are similarities between our work and the earlier research of Edward Laumann[4] and coauthors (Laumann et al 1994, Michael et al 1994). Laumann, Robert Michael and colleagues collected sexual data on 3400 Americans at the start of the 1990s. Laumann's seminal research does not estimate the kinds of equations we do, nor focus in detail on happiness data, but a number of our findings on sexual patterns -- particularly on frequency and numbers of partners -- replicate his research team's conclusions[5].

II. Measuring Happiness

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[1] Previous research includes Andrews (1991), Argyle (1989), Campbell, Converse and Rodgers (1976), Campbell (1981), Chen and Spector (1991), Diener (1984), Diener et al (undated, 1999), Douthitt et al (1992), Fox and Kahneman (1992), Frisch et al (1992), Larsen et al (1984), Morawetz et al (1977), Mullis (1992), Shin (1980), Veenhoven (1991, 1993), Van Praag, Bernard and Kapteyn (1973), and Warr (1980, 1990).

[2] For example, Inglehart (1990) and Gallie et al (1998).

[3] See, for example, contributions by Andrew Clark, Alois Stutzer and Bruno Frey, and Yew Kwang Ng (Clark, 1996; Clark and Oswald, 1994, 1996, 2002a; Frey and Stutzer, 1999, 2000; Stutzer 2004; Ng, 1996, 1997). See also Van Praag et al (2003). Blanchflower and Oswald (2004) is on some decades of British and US data. See also Easterlin and Schaeffer (1999), Frank (1985, 1997), Blanchflower (2001), Blanchflower and Oswald (1998, 2000), MacCulloch (1996), Di Tella and MacCulloch (1999), Oswald (1997, 2003), Di Tella et al (2001, 2003), and Winkelmann and Winkelmann (1998). Other recent work has been done by Graham (2001), Graham and Pettinato (2002), Gardner and Oswald (2001), Hollander (2001), Helliwell (2001), Johansson-Stenman et al (2002), McBride (2001) and Senik (2002). Clark and Oswald (2002b) is a review written for epidemiologists.

[4] We thank referees for drawing our attention to this work.

[5] Other modern research by economists on sex includes Black et al (2003) and Moffat (2000).

How should we conceptualize 'happiness'? One definition 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".

Our approach is to assume that people can decide how happy they feel. There has been debate in the psychology literature on whether a well-being measure can be -- in that literature's 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)). There is known to be a connection between the subjective and the objective. Konow and Earley (1999) describes evidence that recorded happiness levels are correlated with factors such as:

1. Objective characteristics like 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.

5. Duration of authentic or so-called Duchenne smiles (a Duchenne smile occurs when both the zygomatic major and obicularus orus 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.

Following Blanchflower and Oswald (2004), we refer interested readers to 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). See also the discussion in Layard (2004).

Although also based on the General Social Surveys, the Blanchflower and Oswald (2004) study had no information on sexual activity. Generalizing that paper's framework fractionally, the idea used here is that there exists a reported happiness or wellbeing function

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

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(....) is to be thought of as the person's true well-being or utility; h(.) is a 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. The function h(.) rises in steps as u increases. It is assumed, as seems plausible, that u(…) 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').[6] The measurement error in reported well-being data would be harder to handle if well-being were to be used as an independent variable.

Arguably this approach is somewhat utilitarian, in Bentham's sense, and is also reminiscent of the experienced-utility idea advocated by Kahneman et al (1997). The structure of equation 1 makes it suitable for estimation as, for example, an ordered probit or logit. In this way, 'true' utility is the latent variable, and the subjectivity of responses might be thought of as

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[6] We accept the social scientist's traditional distrust of a 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.

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going into the error term. For simplicity, this paper also reports various kinds of ordinary least squares equations.

It is possible to view 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(.…) terms. Nevertheless, this paper will use a happiness question that seems more naturally interpreted as a flow rather than a stock.

Easterlin (1974, and more recently 1995, 2001) was among 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. He suggests that we should think of people as getting utility from a comparison of themselves with others. Duesenberry (1949), Hirsch (1976), Scitovsky (1976), Layard (1980), Frank (1985, 1999) and Schor (1998) have argued a similar thesis; see also Cooper, Garcia-Penalosa and Funk (2001), Ferrer-i-Carbonell (2002) and Keely (1999). A slightly different form of wellbeing data has been used recently by Ravallion and Lokshin (2001).

This paper draws upon the General Social Surveys of the United States. In order to obtain information on sexual behavior, income and reported happiness, we use cross-sections from the years 1988 to 2002 (though, because of missing variables, not every year is available for certain tables and regression equations). 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?
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. The bulk of survey respondents place themselves in the middle category 'pretty happy'. Overall, 11% of Americans describe their lives as not too happy, while just over 55% say they are pretty happy, and slightly

more than 33% say they are very happy. In general our statistical work uses the ordering -- not a literal or exact interpretation of the words.

III. Measuring Sexual Activity

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

This is a sensitive area about which to question people, but there is a body of knowledge on how best it can be done (see, for example, chapter 2 of Michael et al, 1994). Respondents in the GSS are asked how many sexual partners they had in the previous year, how many times they had sexual intercourse, and the gender of their sexual partners. The survey is confidential and face-to-face. As with other variables, 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 modesty or 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 numbers at face value and study the implied patterns in American society.

According to our data, Americans have less dramatic sex lives than might have been imagined from television and other media. Table 1 provides cross-tabulations and describes the main patterns. The data set here is for a slightly longer span of years than in later regressions, because not all survey questions are asked in every year.[7]

First, the median American adult has sex approximately 2 or 3 times a month (all the sex described in this paper refers to sex with a partner; masturbation is not discussed). Among those

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[7] The GSS is a household-based survey, not an individual survey. Thus we weight by the number of adults in the household and divide by the average number of adults in households. We are grateful to James Lindgren of Northwestern University for advice. The impact of weighting is small but does change the results a little because people who live alone have less sex. Thus, for example, in the very first row of data we report that 18% of subjects report no sexual partners in the last year, which is the weighted number of people reporting no sex. The unweighted number is 22% of household representatives.

aged under 40 years old, the median individual has sex once a week. 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 and have no sex. In the whole US population, 7% of adults say they have sex 4 or more times a week, and 18% report having no sex.

In the over-40 category, the frequency of sex is much lower. Among older women the median amount of sex is once a month, while for males it is 2-3 times a month (not shown separately in Table 1). We cannot tell whether this discrepancy is because males, relatively, have exaggerated memories, or have younger sexual partners, or visit female prostitutes. Among Americans aged 40 and over, 15% of women and 22% of men say they have sexual intercourse twice or more times a week. A quarter of those aged 40 and over say they are celibate.

Second, the modal and median American had one sexual partner last year. This is true for approximately 70% of both males and females (see Table 1). Although it might be thought that young people would have many more sexual partners than the old, only 11% of under-40 Americans reported themselves as having 3 or more sexual partners in the previous year. Subdividing this group by gender, among the under-40s 85% of US women and 73% of US men had at most one sexual partner in the previous year (not shown in the table). For this age group, 3% of US women and 11% of US men say they had 4 or more sexual partners in the previous year. Monogamy is dominant among the old. For those over the age of 40, 97% of women and 93% of men say they had at most one sexual partner in the last 12 months. And 32% of American females over the age of 40 did not have sexual intercourse in the previous year. The figure for American males is 15% (the gender breakdown is not shown separately in the table). For American adults as a whole, Table 1 shows this no-sex figure to be 25%.

Third, a small proportion of people in the GSS survey report homosexual activity. Among males, 2.3% say they had a male sexual partner in the previous year. Among females,

just under 1.5% report having had a female partner. About 0.5% of females and 0.5% of males report themselves as bisexual.

Fourth, Table 1 gives the happiness distributions for different groups in US society. One third of people say they are 'very happy'. Although it is not shown explicitly in the table, people who have no sexual activity are less happy than average. Happiness scores of people who had no sex last year (and are therefore classified as neither heterosexual nor homosexual) are: very happy, 29%; pretty happy, 59%; not at all happy, 16% (results not reported in the table). This contrasts with the numbers for the whole sample: very happy, 33%; pretty happy, 55%; not at all happy, 11%. We return to this issue, using regression equations, in the next section.

Fifth, a few men report large numbers of sexual partners (four 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 four women out of nearly 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 explanation is that men tend to overestimate.

Sixth, Table 1 does not show particularly strong correlations between sexual activity and education, nor between sexual activity and (perceived) high or low income. However, marriage and sexual frequency are highly correlated; unmarried people say they have much less sex than those who are married. Nine out of ten married Americans report a single sexual partner in the previous year.

IV. Happiness Equations with Sexual-Activity Variables

Table 2 reports happiness equations for the United States using pooled cross-section data from 1988 to 2000. For simplicity, these assume cardinality and are Ordinary Least Squares estimates where 'very happy' is coded as 3, 'pretty happy' is coded as 2, and 'not at all happy' is coded as 1. Column 1 includes now-standard variables, following the general research on happiness data, such as age and age squared, gender, race, education, marital variables, income, among others.

Perhaps the main finding in Table 2 is that sexual activity enters strongly positively in an equation in which reported happiness is the dependent variable. The more sex, the happier the person.

In column 1 of Table 2, for example, there is almost complete monotonicity in the dummies for frequency of sexual intercourse. The omitted category here is no sex in the previous year. Three of the frequency variables are statistically significant at conventional levels. Having sex at least four times a week is associated with approximately 0.12 happiness points, which is a large effect (it is, very roughly, about one half of the size of the effect of marriage upon happiness). Celibacy and small amounts of sex have statistically indistinguishable effects upon happiness. As known from earlier research, income enters positively in happiness equations. At a referee's suggestion, we investigated interaction effects between income and sexual behavior, but they were not statistically significant (see column 2 of Table 2).

According to our equations, both men and women get happiness from sex. The broad structure of the equations is the same for each gender: see columns 3 and 4 of Table 2. Can any more than that be said? There is a little evidence from the equation coefficients that men enjoy sex slightly more than women (compare, for instance, the variable 'sex 2-3 times a month' in columns 3 and 4 of Table 1). Dividing the sample into different age-groups does not change the basic pattern of the results.

Table 3 re-does the happiness equations in the more natural format of ordered logits. It also provides sub-sample estimates by age and education. Interestingly, education does appear to make some difference. In column 6 of Table 3, for example, 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'. More broadly, these equations suggest that sex may bring more happiness to the highly educated than to the less-educated. It is hard to know how to interpret this result; it will have to be checked on other data sets and with other statistical methods.

How many sexual partners in the last year will maximize a person's happiness? Although persuasive cause-and-effect is clearly difficult to establish in cross-section data, the simple answer according to these GSS data is one sexual partner. In this sense, our work has conservative implications. After some experimentation, we report this monogamy result, in Table 3, simply as the variable 'single partner'.

Table 4 looks in more detail at the type of sexual partner. We find, for instance, that people who say they have ever paid for sex are considerably less happy than others. Those who have ever had sex outside their marriage also report notably low happiness scores. Does the nature of someone's sexuality affect their chances of being happy? In Table 4, columns 3 and 4 reveal that homosexual activity has no statistically significant effect in a happiness equation.

Tables 5 and 6 switch to equations in which sexual activity is the dependent variable. The first is an attempt to explain statistically how often someone has sex; the second tries to explain statistically the number of sexual partners a person has in a year.

Table 5 gives frequency-of-sex equations. The method in this case is interval regressions. Interval regression models can fit data where each observation represents either interval data, left-censored or right-censored data, or point data. We find in Table 5 that males report more sex than females. Unless this is due to the existence of prostitutes, or to the greater prevalence of

male homosexuality than female homosexuality, it is not easy to see how this gender difference can be genuine (as sex has to be with a woman). There are no strong effects from years of education, although there is some indication that highly educated males have less sex than average.

As might be expected, Table 5 finds that aging reduces sexual activity. Black males report more sex than other groups. Married people have (much) more sex than people with other kinds of marital status. Despite the stereotypes, students have, if anything, less sex than the average person their age. People who say their parents were divorced at 16 have more sex than average; this, however, is due to the male sub-sample. Homosexuals and bisexuals have no more sex than heterosexuals. The structure of the frequency equations of Table 5 is similar for men and women, but working part-time is, among females, associated with lower levels of sexual activity.

What is the connection between income and the frequency of sex? Interestingly, Table 5 finds that it is zero for both men and women. We know from these equations that money does seem to buy greater happiness. But it does not buy more sex. In both columns 5 and 6 of Table 5, family income enters with rather weak t-statistics. Education continues to have only marginally statistically significant (negative) effects in the later columns of Table 5.

In our data, although the most common answer is either 'zero' or 'one', people vary greatly in the number of partners they say they slept with in the previous 12 months. What determines that number? Table 6 estimates number-of-sexual-partners equations; it combines interval regressions and OLS specifications. There is a positive male dummy variable, and a strong negative effect from aging. Highly educated women have fewer sexual partners than other sub-sample groups. A black dummy variable is again positive. So too is a dummy variable for never-married males. Separated males report relatively high numbers of sexual partners

compared to others. Unemployed people also tend to have greater numbers of sexual partners. The dummy variable for being a student is insignificantly different from zero. Those whose own parents divorced have more partners. Homosexual males and bisexuals have more partners than heterosexual men; for lesbians there is no statistically significant effect. There is a strong difference between divorced men and women.

Are there links between income and the number of sexual partners that a person has? Table 6 finds no statistically significant correlation (see columns 3 to 6). Money, it seems, does not buy more sexual partners.

Finally, it should be stressed that the paper is designed to be a simple look at the patterns in money, sex and happiness. These regression equations are unable to address important identification issues.

V. Conclusions

This paper is an empirical study of the links between money, sex and happiness. It examines recent U.S. General Social Survey data on approximately 16,000 randomly sampled men and women.

There has been little research by economists into how sexual behavior affects the structure of happiness equations, nor on how economic forces interact with sex and wellbeing. Some may object to, or be embarrassed by, research into intimate aspects of people's actions. Yet this area covers an important part of life. The paper's implicit message is that it can be studied with normal statistical methods.

The paper estimates happiness equations in which sexual behavior is included as an independent variable. Frequency of sexual activity is shown to be positively associated with happiness. The effect of sex on happiness is statistically well-determined, monotonic and large.

This is true for males and females, and for those under and over the age of 40. The paper's more detailed conclusions include the following:

(i) 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 7% of the population report having sex at least four times a week.

(ii) A third of American women over the age of 40 report they did not have sexual intercourse in the previous year. The figure for men is 15%.

(iii) Homosexual and bisexual people make up 2%-3% of the United States population.

(iv) There is some evidence that sex has disproportionately strong effects on the happiness of highly educated people.

(v) The happiness-maximizing number of sexual partners in the previous year is 1.

(vi) Homosexuality has no statistically significant effects on happiness.

(vii) Married people have more sex than those who are single, divorced, widowed, or separated.

(viii) Highly educated females have fewer sexual partners.

(ix) Income has no clear effect. Money buys neither more sexual partners nor more sex.

Our findings should be treated cautiously. They are based on pooled cross-section equations in which it is not possible to control for person fixed-effects; nor are we able to correct for the endogeneity of sexual behavior. Much remains to be done in this complicated and under-researched area.

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Table 1. Happiness Levels and Sexual Behavior in the United States: 1989-2002. (Percentages %)

	All	Males	Females	Age <40	Age >=40	Low income	High income	Married	Never married	Not married	Hetero-sexual	Homo-sexual	<=12yrs Educn.	>12 yrs. Educn.
Frequency of sex in the last year														
0	18	13	22	9	25	23	14	6	24	43	0	0	22	14
1 or 2 a year	8	8	7	7	8	8	7	6	11	8	9	13	8	7
1 per month	10	11	10	7	13	10	11	12	9	8	12	17	10	10
2-3 times per month	17	18	16	16	18	14	19	20	14	10	20	20	16	18
weekly	19	20	19	20	19	16	21	25	14	11	24	18	17	22
2-3 times per week	22	23	21	30	15	20	22	25	20	14	27	24	20	23
>=4 times per week	7	8	6	10	3	8	6	6	9	6	8	8	7	6
Number of sexual partners in the last year														
0	18	13	21	10	25	24	14	7	24	43	0	0	21	14
1	70	69	70	70	70	61	75	90	44	38	85	69	66	73
2	6	7	5	9	3	8	5	2	13	10	7	10	6	6
>=3	7	11	3	11	3	8	6	2	18	8	7	21	7	6
Happiness														
Very happy	33	32	34	31	36	20	42	40	23	21	35	32	32	36
Pretty happy	55	56	55	59	53	56	52	52	63	59	57	58	55	56
Not at all happy	11	11	11	11	11	24	6	8	14	20	9	10	13	8

Notes: a. These are proportions, so the top left-hand number, for example, means that 18% of the whole sample reported having no sex with a partner in the previous 12 months. Approximately 7% of the sample reported having sex 4 or more times a week. b. Not married = divorced, widowed or separated; low- and high-income is based upon the GSS variable *finrela* where the individual reports whether their family income is "far below average" or "below average" which is our low income grouping or "above average" or "far below average" which is our high income group. We do not report results for people who report 'average' income. c. The definition of heterosexuals and homosexuals is based upon individuals who were sexually active in the preceding year i.e GSS variable *sexfreq*>0. Homosexual here includes bisexual. d. The GSS is a household-based survey, not an individual survey; hence we weight by the number of adults in the household and divide by the average number of adults in households.   Due to rounding, some columns do not add exactly to 100%. e. Because of missing information, year 1988 has to be excluded from this table.

Source: General Social Surveys

Table 2. OLS Happiness Equations for the United States, 1988-2000

	(1) All	(2) All	(3) Males	(4) Females
Age	-.012	-.012	-.011	-.014
	(5.43)	(5.45)	(3.16)	(4.71)
Age^2	.0001	.0002	.0001	.0002
	(6.71)	(6.75)	(3.89)	(5.75)
Male	-.036	-.037		
	(3.10)	(3.14)		
Black	-.121	-.121	-.100	-.133
	(7.07)	(7.10)	(3.61)	(6.03)
Other non-white	-.036	-.037	.034	-.092
	(1.41)	(1.45)	(0.92)	(2.67)
Years of education	.014	.014	.011	.018
	(6.93)	(6.90)	(3.66)	(6.01)
Sex once or twice a year	-.028	.310	.009	-.062
	(1.04)	(1.37)	(0.23)	(1.66)
Sex once a month	-.003	.013	.049	-.053
	(0.11)	(0.37)	(1.35)	(1.54)
Sex 2-3 times a month	.042	.068	.100	-.016
	(1.79)	(2.14)	(2.98)	(0.49)
Sex weekly	.078	.100	.108	.047
	(3.33)	(3.13)	(3.16)	(1.41)
Sex 2-3 times a week	.087	.086	.097	.070
	(3.73)	(2.74)	(2.90)	(2.11)
Sex >=4 times a week	.115	.138	.127	.097
	(3.94)	(3.29)	(3.12)	(2.28)
Single partner	.077	.077	.047	.106
	(4.69)	(4.69)	(2.10)	(4.36)
Working part-time	-.024	-.024	-.102	.018
	(1.31)	(1.32)	(3.19)	(0.79)
Temporarily not working	-.034	-.035	-.109	.025
	(0.92)	(0.94)	(1.97)	(0.51)
Unemployed	-.229	-.230	-.302	-.113
	(6.65)	(6.67)	(7.10)	(1.91)
Retired	-.001	-.011	.002	-.029
	(0.41)	(0.45)	(0.04)	(0.88)
Student	.037	.035	.004	.065
	(1.13)	(1.06)	(0.07)	(1.48)
Keeping house	-.045	-.046	-.032	-.029
	(2.42)	(2.48)	(0.46)	(1.39)
Other labor market status	-.197	-.198	-.254	-.151
	(4.60)	(4.61)	(4.03)	(2.58)
Widowed	-.259	-.257	-.269	-.244
	(10.44)	(10.31)	(5.85)	(7.89)
Divorced	-.200	-.201	-.224	-.174

	(11.44)	(11.47)	(8.46)	(7.36)
Separated	-.309	-.310	-.343	-.283
	(10.27)	(10.29)	(6.73)	(7.52)
Never married	-.157	-.158	-.172	-.135
	(8.92)	(8.97)	(6.73)	(5.48)
Parents were divorced at age 16	-.050	-.050	-.022	-.073
	(3.27)	(3.24)	(0.92)	(3.53)
Family income$*10^5$	.184	.239	.148	.220
	(8.26)	(4.46)	(4.59)	(7.04)
Sex once or twice*family income		-.034		
		(1.50)		
Sex once a month*family income$*10^6$		-.587		
		(0.76)		
Sex 2-3/ month*family income$*10^6$		-.856		
		(1.26)		
Sex weekly*family income$*10^6$		-.736		
		(1.12)		
Sex 2-3 /week*family income$*10^6$		-.145		
		(0.22)		
Sex >=4 / week*family income$*10^6$		-.821		
		(0.82)		
N	12291	12291	5448	6843
Adjusted R^2	.0988	.0987	0.1027	.1037
F	33.87	29.64	15.46	20.79

Note: t-statistics are in parentheses. All equations include 7 year-dummies and 8 regional dummies. Excluded dummy categories – married; sex in last 12 months 'not at all'.
Source: General Social Surveys

Table 3. Ordered-Logit Happiness Equations for the United States, 1988-2000

	(1)	(2)	(3)	(4)	(5)	(6) Education <=12yrs	(7) Education >12 yrs
	All	Males	Females	Age<40	Age>=40		
Age	-.041	-.037	-.047	-.013	.061	-.030	-.053
	(5.40)	(3.12)	(4.75)	(0.23)	(3.17)	(3.05)	(4.46)
Age^2	.0005	.0005	.0006	-.0001	-.0003	.0004	.0006
	(6.72)	(3.89)	(5.79)	(0.10)	(1.67)	(4.39)	(4.95)
Male	-.126			-.154	-.126	-.101	-.152
	(3.16)			(2.60)	(2.30)	(1.67)	(2.81)
Black	-.419	-.351	-.456	-.612	-.250	-.327	-.484
	(7.02)	(3.56)	(5.99)	(6.99)	(3.02)	(4.02)	(5.39)
Other non-white	-.108	.139	-.310	-.298	.100	.045	-.219
	(1.23)	(1.06)	(2.60)	(2.62)	(0.70)	(0.34)	(1.84)
Years of education	.049	.037	.061	.066	.045	.044	.047
	(6.95)	(3.66)	(6.07)	(5.37)	(5.03)	(2.74)	(3.44)
Sex once or twice	-.088	.041	-.210	-.006	-.190	-.087	-.083
	(0.96)	(0.30)	(1.63)	(0.04)	(1.56)	(0.67)	(0.63)
Sex once a month	-.002	.175	-.177	.006	-.050	-.095	.098
	(0.02)	(1.38)	(1.50)	(0.04)	(0.44)	(0.78)	(0.81)
Sex 2-3 times a month	.154	.363	-.053	.095	.155	.069	.249
	(1.91)	(3.08)	(0.47)	(0.74)	(1.39)	(0.60)	(2.19)
Sex weekly	.278	.394	.156	.081	.407	.158	.396
	(3.45)	(3.31)	(1.38)	(0.64)	(3.62)	(1.36)	(3.50)
Sex 2-3 times a week	.309	.349	.250	.247	.327	.183	.428
	(3.85)	(2.98)	(2.15)	(2.01)	(2.83)	(1.58)	(3.81)
Sex >=4 times a week	.408	.467	.332	.283	.534	.344	.494
	(4.04)	(3.26)	(2.27)	(2.01)	(3.13)	(2.39)	(3.47)
Single partner	.263	.165	.362	.240	.289	.285	.234
	(4.65)	(2.09)	(4.36)	(3.18)	(3.28)	(3.50)	(2.97)
Working part-time	-.079	-.347	.058	-.127	-.079	-.080	-.084
	(1.27)	(3.08)	(0.76)	(1.47)	(0.87)	(0.85)	(1.01)
Temporarily not working	-.105	-.388	.131	-.070	-.166	-.270	.021

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	(0.83)	(2.05)	(0.77)	(0.37)	(0.98)	(1.41)	(0.12)
Unemployed	-.804	-1.081	-.386	-.806	-.790	-.631	-1.005
	(6.60)	(7.08)	(1.85)	(4.99)	(4.16)	(4.07)	(5.00)
Retired	-.022	.016	-.095	-.326	-.091	-.015	-.054
	(0.27)	(0.12)	(0.83)	(0.29)	(1.02)	(0.14)	(0.40)
Student	.140	.030	.222	.179	-.412	.085	.150
	(1.22)	(0.17)	(1.50)	(1.40)	(1.17)	(0.44)	(1.05)
Keeping house	-.148	-.131	-.093	-.102	-.231	-.168	-.075
	(2.32)	(0.53)	(1.33)	(1.12)	(2.61)	(2.00)	(0.73)
Other labour market status	-.679	-.916	-.501	-.470	-.743	-.538	-.981
	(4.48)	(4.05)	(2.44)	(1.44)	(4.36)	(2.94)	(3.63)
Widowed	-.896	-.945	-.839	-.712	-.847	-.961	-.764
	(1.31)	(5.69)	(7.83)	(2.28)	(8.96)	(8.58)	(5.38)
Divorced	-.686	-.778	-.597	-.695	-.645	-.738	-.627
	(11.27)	(8.27)	(7.35)	(6.82)	(8.37)	(8.40)	(7.36)
Separated	-1.065	-1.204	-.972	-1.092	-1.044	-1.016	-1.121
	(1.11)	(6.61)	(7.45)	(7.11)	(7.12)	(7.31)	(6.86)
Never married	-.543	-.599	-.470	-.623	-.555	-.630	-.493
	(8.98)	(6.69)	(5.62)	(7.96)	(5.24)	(6.60)	(6.21)
Parents were divorced at age 16	-.169	-.672	-.245	-.202	-.145	-.176	-.122
	(3.18)	(0.83)	(3.49)	(2.92)	(1.70)	(2.39)	(1.58)
Family income * 10^5	.612	.500	.724	.605	.619	.862	.512
	(8.04)	(4.49)	(6.83)	(5.07)	(6.10)	(6.39)	(5.42)
cut1	-2.147	-2.381	-2.228	-1.991	1.013	-1.895	-2.766
cut2	1.005	.845	.891	1.344	4.043	1.156	0.542
N	12291	5448	6843	5662	6629	5785	6506
Chi^2	130.8	584.9	777.0	570.8	807.8	650.7	609.6
Pseudo R^2	.057	.059	.061	.056	.065	.060	.052

Note: t-statistics are in parentheses. All equations include 7 year-dummies and 8 regional dummies. Excluded dummy categories – married; sex in last 12 months 'not at all'.
Source: General Social Surveys

Table 4. Further Ordered-Logit Happiness Equations for the United States, 1988-2000

	All 1991-2000	Married ever 1991-2000	Males 1988-2000	Females 1988-2000
Age	-0.037	-0.026	-0.060	-0.084
	(4.42)	(2.57)	(3.97)	(5.73)
Age^2	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 >=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 labour market 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 were 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	-.330	-.228		
	(4.47)	(2.70)		
Ever sex outside marriage		-.210		
		(3.32)		
Male and female partners			-.584	.477
			(1.21)	(1.37)
Exclusively female partners			-.227	.049
			(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^2	1202.72	933.55	479.47	645.17
Pseudo R^2	0.063	0.063	0.059	0.069

Note: t-statistics are in parentheses. All equations include 7 year-dummies and 8 regional dummies. Excluded dummy categories – married; sex in last 12 months 'not at all'.
Source: General Social Surveys

Table 5. Frequency-of-Sex Equations for the United States, 1989-2000 (Interval Regressions)

	(1) All	(2) All	(3) Male	(4) Female	(5) Male	(6) Female
Male	.4988	.3539	n/a	n/a	n/a	n/a
	(7.14)	(4.11)				
Age	-.1686	-.1463	-.1301	-.1517	-.1339	-.1489
	(13.30)	(7.51)	(4.52)	(5.69)	(4.43)	(5.18)
Age^2	.0006	.0005	.0004	.0004	.0005	.0004
	(4.49)	(2.18)	(1.42)	(1.35)	(1.46)	(1.16)
Years of education	-.0182	-.0404	-.0438	-.0356	-.0449	-.0303
	(1.54)	(2.67)	(2.09)	(1.62)	(1.97)	(1.26)
Black	.4341	.2476	.7874	-.1072	.8150	-.2007
	(4.33)	(1.98)	(4.00)	(0.66)	(3.83)	(1.15)
Other non-white	-.1721	-.0024	.4085	-.3425	.5041	-.3786
	(1.15)	(0.01)	(1.51)	(1.41)	(1.73)	(1.44)
Widowed	-1.5278	-.4891	-.2877	-.5634	-.3013	-.7716
	(11.40)	(1.80)	(0.66)	(1.63)	(0.66)	(2.15)
Divorced	-1.2861	-.2868	-.0930	-.4548	-.0626	-.4752
	(13.38)	(2.34)	(0.50)	(2.77)	(0.32)	(2.70)
Separated	-1.0314	-.5115	-.1848	-.7343	-.2799	-.8178
	(5.84)	(2.39)	(0.52)	(2.76)	(0.74)	(2.92)
Never married	-2.5740	-1.4969	-1.200	-1.6926	-1.2851	-1.7320
	(27.18)	(12.34)	(6.72)	(10.10)	(6.83)	(9.61)
Working part-time	-.4530	-.3314	-.2850	-.4245	-.3275	-.4465
	(4.19)	(2.53)	(1.19)	(2.70)	(1.29)	(2.72)
Temporarily not working	.1572	.1186	-.0835	.2970	-.0643	.2104
	(0.69)	(0.44)	(0.21)	(0.82)	(0.16)	(0.57)
Unemployed	.2639	.1594	-.2407	.7742	-.1639	.4123
	(1.27)	(0.65)	(0.77)	(1.90)	(0.50)	(0.92)
Retired	-.2777	-.1796	-.4160	-.1182	-.3834	-.3248
	(1.98)	(0.82)	(1.42)	(0.34)	(1.26)	(0.85)
Student	-.9232	-.4291	-.0583	-.6978	.0829	-.5378

	(4.74)	(1.78)	(0.15)	(2.26)	(0.20)	(1.62)
Keeping house	-.0309	.0430	-.1495	.0479	-.3350	.0306
	(0.28)	(0.32)	(0.25)	(0.33)	(0.56)	(0.20)
Other labour market status	-.3570	.2493	.3588	-.0245	.1808	.0452
	(1.43)	(0.74)	(0.77)	(0.05)	(0.36)	(0.09)
Parents divorced at age 16	.3511	.2434	.3974	.1312	.3988	.19466
	(3.74)	(2.17)	(2.35)	(0.88)	(2.27)	(1.25)
Homosexual		-.1454	-.4724	.1131	-.4566	.0900
		(0.56)	(1.33)	(0.29)	(1.23)	(0.23)
Bisexual		-.2251	-.3629	-.0935	-.6227	-.2236
		(0.44)	(0.43)	(0.15)	(0.72)	(0.33)
Family income *10^5					-.1530	-.3170
					(0.63)	(1.37)
Religion dummies	No	No	No	No	Yes	Yes
Region dummies	No	No	No	No	Yes	Yes
Year dummies	No	No	No	No	Yes	Yes
N	14,283	10,746	5,045	5701	4690	5237
Chi^2	3472.0	1036.6	440.5	640.4	440.5	633.2

Note: t-statistics are in parentheses. Excluded categories: no sex last year; married. Columns 2-6 exclude individuals who had no sex last year. Because of missing information, year 1988 has to be excluded from this table.
Source: General Social Surveys

Table 6. Number-of-Sex-Partners Equations for the United States, 1988-2000 (Interval and OLS Regressions)

	(1)	(2)	(3) Males	(4) Females	(5) Males	(6) Females
	Interval Reg.	OLS	OLS	OLS	OLS	OLS
Male	.461	.578	n/a	n/a	n/a	n/a
	(13.30)	(12.31)				
Age	-.015	-.017	-.019	-.016	-.017	-.0153
	(2.41)	(2.00)	(4.12)	(11.24)	(3.77)	(10.56)
Age^2	-.000	.000				
	(0.20)	(0.11)				
Years of education	-.005	-.008	-.001	-.020	-.001	-.0222
	(0.87)	(0.95)	(0.05)	(3.02)	(0.07)	(3.30)
Black	.310	.346	.923	.081	.974	.1069
	(6.27)	(5.16)	(5.75)	(1.64)	(5.93)	(2.09)
Other non-white	.059	.043	.008	.134	.034	.1548
	(0.79)	(0.42)	(0.04)	(1.68)	(0.15)	(1.90)
Widowed	-.229	-.171	-.310	-.330	-.250	-.3122
	(3.49)	(1.91)	(1.17)	(5.07)	(0.94)	(4.80)
Divorced	.191	.250	.572	-.017	.607	-.0041
	(4.01)	(3.87)	(3.96)	(0.33)	(4.14)	(0.08)
Separated	.306	.444	.935	.013	.975	.0262
	(3.47)	(3.72)	(3.15)	(0.16)	(3.26)	(0.31)
Never married	.288	.505	.717	.074	.750	.0872
	(6.12)	(7.90)	(5.45)	(1.46)	(5.59)	(1.69)
Working part-time	.071	.040	-.042	-.003	-.038	-.0012
	(1.32)	(0.55)	(0.23)	(0.06)	(0.21)	(0.02)
Unemployed	.705	.776	.778	.232	.793	.2398
	(6.84)	(5.56)	(3.09)	(1.69)	(3.13)	(1.73)
Retired	-.049	-.042	.082	-.122	.103	-.1072
	(0.71)	(0.45)	(0.42)	(1.66)	(0.53)	(1.46)
Student	-.027	-.044	.081	-.054	.040	-.0537
	(0.28)	(0.34)	(0.28)	(0.54)	(0.14)	(0.54)

Keeping house	.121	.152	1.221	-.033	1.252	-.0265
	(2.22)	(2.06)	(2.86)	(0.71)	(2.52)	(0.56)
Other labour market status	.023	.098	-.103	.145	-.070	.1698
	(0.19)	(0.57)	(0.27)	(1.06)	(0.18)	(1.24)
Parents divorced at age 16	.146	.246	.396	.135	.379	.1269
	(3.13)	(3.90)	(2.89)	(2.87)	(2.74)	(2.68)
Homosexual			2.782	.215	2.767	.2168
			(9.25)	(1.55)	(9.12)	(1.56)
Bisexual			6.907	1.872	6.818	1.9002
			(9.95)	(7.27)	(9.80)	(7.35)
Family income $*10^5$			-.254	-.051	-.067	.0305
			(1.38)	(0.72)	(0.33)	(0.41)
Religion dummies	No	No	No	No	Yes	Yes
Region dummies	No	No	No	No	Yes	Yes
Year dummies	No	No	No	No	Yes	Yes
N	16026	16026	5980	7552	5963	7534
Chi^2	1021.6					
Adjusted R^2		.0486	.0735	.0741	.0733	.0788

Note: t-statistics are in parentheses. Excluded category: married.
Source: General Social Surveys