

## **Does Consumption Buy Happiness? Evidence from the United States**

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### **Abstract**

We examine the association between components of consumption and happiness in a nationally representative sample of older Americans. We find that only two components of consumption are positively related to happiness—leisure consumption and vehicle consumption. All other components of consumption appear to be unrelated to happiness. We also find that both leisure and vehicle consumption lead to increased happiness to a large degree through their affect on social connectedness. Thus, we can partially reject the conventional wisdom that “material goods can’t buy you happiness” but only because some goods increase social connectedness and, thereby, happiness.

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**Introduction**

The term “subjective well-being” is often used interchangeably with the more colloquial term “happiness.” This construct refers to people’s cognitive and affective evaluations of their lives (Diener, 2000). In principle, it is the most democratic of evaluations, as it allows each individual to decide for him or herself whether they have had a good and worthwhile life. Among valued life goals, it is the highest-ranked across many countries and among many different demographic groups (Diener, 2000).

Cross-sectional evidence shows that a high-level of subjective well-being is related to positive outcomes in three major life domains: work, relationships, and health. Many studies have found positive correlations between happiness and longevity (and, conversely, negative correlations between happiness and all-cause mortality Lyubomirsky, King, and Diener, 2005). One recent meta-analysis suggested that happiness protects the healthy from becoming sick, thus increasing longevity (Veenhoven et al., 2008). One of the mechanisms seems to be that chronic unhappiness increases stress, which in turn depresses the immune system (Veenhoven et al., 2008). Studies have also shown that individuals who report higher levels of satisfaction with their lives are also rated as happier by their relatives and friends, tend to smile more during social interactions, have higher pre-frontal brain activity (the part of the brain associated with positive states), are more likely to recall positive life events, and have a higher resilience to stress (Layard, 2005). In fact, psychologists and economists are increasingly calling for public policy to establish a “national index” of psychological well-being (Diener, 2000; Krueger, Kahneman, Schkade, Stone, & Schwarz, 2007) as a key indicator of a nation’s wealth and health.

## **Income and Subjective Wellbeing**

Research suggests that although happiness has a strong genetic component, about 50% of the differences between people in their life happiness can be attributed to external factors (Weiss, 2008). While psychologists have long been interested in the external factors that correlate with subjective well-being, only relatively recently has this topic captured the attention of economists. It is perhaps not surprising that a major emphasis in such economics studies is on the links between income and subjective well-being (Clark and Lelkes 2005, Dejehia et al. 2007; Easterlin, 1995; Layard, 2005).

At the aggregate level, there is a correlation between the wealth of nations and the mean level of subjective well-being of the society (Diener & Diener 1995; Stevenson & Wolfers, 2008), although, interestingly, there is less consistent evidence that economic growth in the last decades in developed countries has led to a rise in subjective well-being within these nations (Diener, 2000). The OECD has recently included measures of life satisfaction in its worldwide summary of social indicators, alongside more traditional objective indicators such as net national income, poverty, and health. An interesting feature of these survey results is that most people in most OECD countries rate themselves as being fairly to very happy and satisfied with their lives, almost irrespective of their income levels. Specifically, in around two-thirds of OECD countries, close to 90 per cent of the people sampled claim to be very or fairly happy with their lives (OECD, 2006). Recent work with U.S. data also suggests that whereas Americans are, in general, no more happy now than they were a generation ago, happiness inequality (the gap between the happy and the not-so-happy) has narrowed significantly (Stevenson & Wolfers, 2009). Because these trends differ from trends in income inequality (which has

increased over the same period), this again suggests a lack of a strong correlation between income and happiness at the aggregate level.

Across countries, people living in countries with a higher GDP per capita tend to report being happier at a given point in time, but the size of the gain in subjective well-being tends to decline once GDP per capita exceeds USD \$10,000 (Frey and Stutzer, 2002). As such, there is only a weak (though statistically significant) tendency for the richer OECD countries to report higher levels of life satisfaction (Layard, 2005). These findings correspond to the well-known “Easterlin Paradox,” which refers to the fact that happiness data are typically stationary in spite of considerable increases in income. It should be noted, however, that the cross-time stability of subjective well-being may reflect to some extent that it is measured using a bounded variable (*i.e.* respondents are asked to rank their life satisfaction on a scale – *e.g.* by 1 to 10 – that is unchanged over time) whereas income is measured with an unbounded variable (GDP per capita).

The generally weak link between money income and happiness appears to be explained by the combination of two aspects of human behavior. First, individuals adapt to higher income. People get used to higher income so its effect on life-satisfaction evaporates over time (‘hedonic treadmill’). Second, once basic needs are satisfied, aspirations increase with higher income (‘satisfaction treadmill’) but also become harder to achieve as the achievement hurdle is higher, leading to unaccomplished goals and greater frustration (Frank, 1999). Evidence supporting the existence of ‘adaptation’ has been provided by several empirical and experimental studies (Diener & Seligman 2004; Gilbert, 2005; Layard 2005; Van Praag & Frijters, 1999). Third, individuals tend to make social comparisons. Several authors argue that subjective satisfaction is affected by an

assessment of one's own situation relative to one's peers. Research also suggests that social comparisons matter more for individuals with higher income, and for those earning less than their reference group. Layard (2005) reviews evidence supporting the existence of social comparisons (for example, U.S. studies suggesting that perceived relative income matters more for personal wellbeing than one's own income, and Swiss studies showing that personal happiness depends only on one's own income relative to that of people living in the same community).

### **Income and Life Satisfaction at the Individual Level**

While the conclusions concerning the link between income and subjective life satisfaction based on aggregate cross-country data remain controversial, there is firmer evidence about the determinants of happiness and life satisfaction at the level of individuals (Oswald, 1997, Diener et al., 2002). Nevertheless, changes in individual income do not bring comparable changes in subjective well-being, and depend strongly on the direction of changes in income – a loss has a much bigger effect than a comparable gain. Second, differences in the personal income of individuals explain less of the difference in reported wellbeing than a range of other factors, such as employment, family relationships, health and education, and income inequality (Di Tella & MacCulloch, 2005). For example, using the German Socio-Economic Panel Study, Lucas et al. (2004) find that unemployment substantially reduces subjective well-being. Although individuals' life satisfaction shifts back toward their baseline levels, individuals who experience a spell of unemployment do not completely return to their former level of life satisfaction.

These findings raise the question: what is it (if anything) about money that makes us happy? There is substantial evidence that social relationships bring happiness to individuals (Diener & Biswas-Diener, 2002; Putnam, 2000). This suggests that at the individual level, income can “buy” happiness if it enhances social connectedness or vitality. For instance, spending on leisure might enhance life satisfaction because leisure is often enjoyed in the company of friends, relatives, and neighbors. Conversely, the mere accumulation of material goods (i.e., materialism) may fail to increase life satisfaction if it does nothing to strengthen social bonds. Indeed, one recent explanation for the lack of increase in subjective well-being even as GDP has increased is that any potential positive impact on subjective well-being has been offset by the weakening over time in social bonds and a rise over time in materialism as described by Putnam (2000) (Pugno, 2008). There is also evidence that people who are more oriented toward the consumption of market goods for the sake of materialism (and, conversely, less oriented toward relational goods) report lower levels of subjective well-being (Kasser, 2002).

However, one recent study reported evidence from a series of experiments with undergraduates that challenged the conventional wisdom that experiences bring more happiness than material goods and that these associations instead depend on whether the purchases turned out well (versus turned out to be a disappointment) and also how materialistic individuals were to begin with (Nicolao, Irwin, & Goodwin, 2009). When purchases turned out well, the authors found, people were happier for having purchased experiences rather than material goods. But, highly materialistic individuals were equally happy with positive purchases whether these were experiences or material goods. However, a purchased experience that turned out badly was more detrimental to

happiness than was a bad material purchase and the negative emotional intensity of a bad experiential purchase lasted longer than a comparable bad material goods purchase.

Thus, the link between expenditures and happiness on average could depend on the probability that those purchases will turn out well. Moreover, these results suggest the possibility that being materialistic can make you happy after all.

### **Present Study**

Our study makes several important contributions to a literature that still has many unanswered questions. First, we use individual data from a large national data set (the U.S. Health and Retirement Survey or HRS) that, in addition to tracking the health and employment of a cohort of older Americans, provides detailed measures of expenditure on a wide variety of goods for this cohort. Economists have long argued that consumption data are a superior measure of permanent income and overall material wellbeing than are income data (see, for example, Meyer and Sullivan, 2006). Moreover, expenditure data are arguably superior to measures of income for questions such as the ones posed here because they capture whether (and in what ways) individuals choose to spend the income they have. The conventional wisdom that says “money can’t buy you happiness” usually reflects the notion that “material goods can’t buy you happiness” but, in the broader literature, studies more often pose the empirical question of whether “income is associated with happiness.” Our approach addresses the key underlying question in this research area by investigating what it is that money allows us to acquire (as opposed to other uses of income such as savings or paying down debt).

Second, our data contain a high-quality, multi-item index of subjective well-being that has superior measurement properties compared to single-item measures of happiness

that are often used in this literature. Studies of subjective wellbeing rarely take a comprehensive set of measures and often use generic terms such as ‘all things considered, how happy are you’ rather than constructing indicators that target positive and negative emotions (Diener and Seligman 2004). Subjective happiness appears to vary according to the time of day and seasons (Layard, 2005), phases of an economic cycle, population age-profile and differences between expectations and outcomes. Thus the timing of information gathering on happiness status and its interpretation (permanent or transient effects) is an important complicating factor in happiness measurement. Our measure of life-satisfaction, which is gathered from a sample of older adults, poses questions in a way that prompts respondents to take the long view of their life and assess how things have turned out for them, rather than linking point-in-time (and likely ephemeral) states of happiness to specific events, dates, or purchases.

Third, our data on subjective well-being and our data on expenditure were collected prospectively on different survey occasions (during the same year), and thus avoid the recall and other biases associated with methods that ask respondents to describe purchases they made in the past and then indicate how happy they thought those purchases made them feel.

Fourth, our data contain measures of social connectedness and correlated characteristics (e.g., depressive symptoms, optimism) that allow us to test the key hypothesis that spending can increase happiness via the mechanism of strengthened social bonds. We know of no such study that uses as high-quality data that answers the question we pose here.

In sum, the specific research questions addressed by the study are as follows:

1. Which, if any, components of consumption expenditure are associated with higher levels of subjective well-being?
2. To the extent that consumption expenditure is associated with happiness, is it the consumption of material goods itself or the social connections that come with certain forms of consumption that lead to happiness?

Why might consumption increase happiness? We posit three possible reasons. First, increased consumption of goods may increase well-being by reducing material hardship and poverty and by providing the pleasure of having material things. Second, consumption of certain “conspicuous” goods may increase happiness by increasing status (Veblen, 1899, Charles et al., 2009 and the references therein). Third, consumption of certain goods might be bundled with the consumption of social activities, which increase happiness when combined (Diener & Biswas-Diener, 2002; Putnam, 2000).

For example, the consumption of goods such as food and housing may be related to happiness because of the first channel (reducing material hardship). Clothing, jewelry, and automobiles have been characterized as “status” goods or “visible” goods and may be related to happiness through the second channel (Charles et al., 2009). Leisure activities and some forms of charitable activities may be associated with social activities and could increase happiness through the third channel. Of course, we do not know which goods have a social component and which do not. Because of this, we implement a method to indirectly determine whether any association between the consumption of a good and happiness is due to increased social connectedness.

As we discuss below, our findings suggest that spending on leisure goods (vacations, entertainment, sports, leisure equipment) and spending on vehicles is

associated with higher levels of happiness. The size of the association between spending on vehicles and happiness is about twice as large as the correlation between leisure spending and happiness. By contrast, spending on other types of consumption (food, utilities, and health care) is not associated with happiness. Our findings also suggest that leisure spending increases happiness primarily as a result of the social connections that are linked to leisure spending, rather than the consumption of the material goods themselves. Somewhat surprisingly, the association between spending on vehicles and happiness is also largely explained by measures of social connections.

We, therefore, conclude by rejecting the conventional wisdom that “material goods can’t buy you happiness,” and instead suggest a potential role for social connections and status in the production of subjective well-being. Moreover, we conclude that the consumption of “status” goods, much like the consumption of leisure goods, might have a “social” component.

## **Data and Methods**

This section provides a detailed description of the data set we use for the empirical analysis, the particular measures we use from that data set, and the empirical methods we employ to address our key research questions.

### ***Data***

We use the Health and Retirement Study (HRS), a data effort funded primarily by the National Institute on Aging and collected by the University of Michigan, as our primary data source for this project. The HRS is designed by an interdisciplinary group of investigators from economics, demography, medicine, psychology, sociology, and

survey methods from the University of Michigan and from universities and research institutions around the country (Willis, 2007).

We use data on the cohort of individuals born between the years 1931-1941; these individuals are referred to as the initial HRS cohort. Comprised of approximately 20,000 individuals, the HRS provides a nationally representative portrait of the United States population over the age of 50. It is an ongoing longitudinal study that began in 1992 and has tracked respondents approximately every two years subsequently. Eight waves of data are currently available; 2006 is the most recent year for which data are available.

The HRS contains a core survey that is asked of all participants in every round. The core survey includes detailed questions on employment, income, health, family structure and wealth. However, the HRS project creates a data system that extends beyond the core survey waves. In particular, the HRS supplements the core survey with data from separate “modules” that collect data on a wide variety of other measures. Generally these modules are asked in one wave for a subsample of respondents.

The 2006 wave of the HRS included one of these new “modules” that focused on respondents’ life satisfaction and a wide range of related measures of psychological well-being. This module (the “Leave-Behind Participant Life Style Questionnaire”) was administered at random to the half sample of participants who completed a face-to-face 2006 core survey. Specifically, there were 8,566 eligible respondents for the 2006 Leave Behind Questionnaire. The completion rate was about 86%. Consequently, 7,365 respondents completed the questionnaire (we exclude 97 cases that were completed by someone other than the assigned respondent).

The other main source of data we rely on is the Consumption and Activities Mail Survey (CAMS). The CAMS is a self-administrated questionnaire mailed to HRS respondents that asks about their *household* consumption and expenditure patterns during last year. As of 2008, a total of four waves of CAMS (i.e. 2001, 2003, 2005, and 2007) are available. Our analysis uses the 2007 Consumption and Activities Mail Survey (CAMS), which assesses respondents' consumption and expenditures in 2006 (we use this wave of CAMS to match the year in which the psychosocial data were collected). In the fall of 2007, a total of 5,209 CAMS questionnaires were mailed to randomly selected HRS respondents. Of these, 3,738 were returned.

The analytic sample for the present paper reflects the intersection of respondents in 2006 who completed both the 2007 CAMS and the 2006 Leave Behind Questionnaire. This represents 1,698 HRS respondents. Accounting for the missing values in independent and dependent variables, we have a final sample of 937. At this time, longitudinal analysis of the relationship between consumption, happiness, and the psycho-social measures is not possible using the HRS, though it should be possible as more waves of the LBQ become available and as its coverage increases.

### ***Measures***

The key measures from the 2006 HRS psychosocial survey and core survey are described below.

#### *Outcome: Subjective Well-Being*

Subjective well-being (or happiness)—the key outcome measure of interest—is constructed using the satisfaction with life scale, a five component measure administered

in the psychosocial questionnaire. Specifically, respondents are asked to rate how much they agree or disagree with the following five statements: “In most ways my life is close to ideal”; “The conditions of my life are excellent”; “I am satisfied with my life”; “So far, I have gotten the important things I want in life”; and “If I could live my life again, I would change almost nothing.” The scores from these five items are averaged to create the “satisfaction with life scale”, one of the most frequently-used measures of subjective well-being. Measuring life satisfaction in this manner follows Diener et al. (1985); the measure exhibits good psychometric properties (alpha of 0.89 in the HRS data).<sup>2</sup>

*Independent Variables: Consumption Expenditure*

We examine consumption expenditure for 9 categories of consumption. The unit of consumption is the annual expenditure (in thousands of dollars) in 2006. The consumption categories we examine are as follows:

Leisure: Leisure expenditures include: trips and vacations, tickets to movies, sports events, and performing arts, sports (including gym membership and exercise equipment), hobbies and leisure equipment.

Durables: Includes: automobiles, refrigerators, washing machine/dryer, dishwasher, televisions and computers.

Charity and Gifts: Includes: contributions to religious, political, educational, and charitable organizations, cash or gifts to family and friends outside the household

Personal Care and Clothing: Includes: housekeeping supplies, housekeeping, dry cleaning, and laundry services, gardening and yard supplies, gardening and yard services, clothing and apparel, and personal care products and services.

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<sup>2</sup> The information presented in this section comes from the HRS documentation report (Clarke et al., 2007).

Health Care: Includes: health care services, prescription and nonprescription medications, medical supplies, and health insurance.

Food In: Includes: food and drinks, including alcohol, purchased in grocery or other stores.

Food Out: Includes: dining and/or drinking in restaurants, cafes, and diners, including takeout food.

Utilities and Housing: Includes: mortgage, rent, electricity, water, heating fuel for the home, telephone, cable, internet, homeowner's or renter's insurance, home repairs and maintenance, household furnishing and equipment.

Vehicles: Includes: vehicle insurance, vehicle maintenance, and car payments (interest and principal).

*Mediating Variables: Psychological Well-being*

The 2006 psychosocial questionnaire also includes key measures of psychological factors that we believe capture the social aspect of consumption. These include depressive symptoms, loneliness, and optimism:

Depression: Center for Epidemiologic Studies Depression (CES-D) Scale is a 20-item scale that was developed for use in studies of the epidemiology of depressive symptomatology in the general population (Radloff, 1977).

Loneliness: Respondents are asked to answer the following three questions: "How often do you feel you lack companionship?"; "How often do you feel left out?"; and "How often do you feel isolated from others?" Following Hughes et al. (2004), a

reverse-coded index is constructed from the average of these three measures (alpha=0.82).

Optimism: Respondents are asked the extent of their agreement with the following five statements: “I’m always optimistic about my future”; “In uncertain times, I usually expect the best”; and “Overall, I expect more good things to happen to me than bad.” These items are averaged to construct an optimism index (alpha=0.80) and are based on the work of Scheier, Carver, and Bridges (1994).

Table 1 reports summary statistics on all study variables.

**Table 1: Descriptive Statistics (N=937)**

	<b>Mean (Standard Deviation)</b>	<b>Minimum/Maximum</b>
Age	66.3 (10.2)	
Female	60.7%	
Hispanic	5.7%	
Non-White	14.1%	
Not Married	46.5%	
Household Income	72.73 (200.03)	[0, 5176]
Household Wealth	696.08 (3939.52)	[-350, 81828]
Education (%)		
Less than High School	14.4%	
GED	4.9%	
High-School Graduate	30.4%	
Some College	27.1%	
College and Above	23.2%	
Labor Force Status (%)		
Work Full-Time	25.0%	
Work Part-Time	6.2%	
Unemployed	1.2%	
Partly Retired	10.3%	
Retired	47.7%	
Disabled	7.8%	
Not in the Labor Force		

**Table 1, continued**

	<b>Mean (Standard Deviation)</b>	<b>Minimum/Maximum</b>
Life Satisfaction	4.27 (1.27)	[1, 6]
Leisure	2.54 (4.72)	[0, 55]
Durables	0.81 (6.13)	[0, 110]
Charity and Gifts	3.47 (9.37)	[0, 114]
Personal Care and Clothing	2.66 (3.69)	[0, 38]
Health Care	4.58 (7.30)	[0, 104]
Food In	4.42 (6.06)	[0, 97]
Food Out	1.86 (3.19)	[0, 38]
Utilities and Housing	17.52 (22.48)	[0, 345]
Vehicles	1.60 (1.41)	[0, 14]
Depressive symptoms	1.50 (1.98)	[0, 8]
Loneliness	1.51 (0.56)	[1, 3]
Optimism	4.54 (1.12)	[1, 6]

Note: All consumption measures, household income, household wealth are reported in thousands of 2006 dollars.

### ***Methods***

This paper seeks to answer two research questions. The first is as follows:

Which components of consumption expenditure are associated with increased subjective well-being?

To answer this research question, we estimate multivariate models, controlling for a wide array of household characteristics, relating happiness to consumption expenditure among older Americans using the HRS. In particular, we control for all categories of

expenditure (in thousands of dollars) as well as age, labor force status, income, wealth, marital status, race and ethnicity, gender and education.

In particular, we estimate the following linear regressions:

$$(1) \quad Happiness_i = X_i\beta + \sum \gamma_j Consumption_{ij} + \varepsilon_j$$

where:

$Happiness_i$  is measured subjective well-being for individual  $i$ ;

$Consumption_{ij}$  is consumption expenditure on consumption category  $j$  by individual  $i$ ; and

$X_i$  is a set of demographic and human capital variables for individual  $i$ .

Once again, the categories of consumption we examine include: leisure, durables, charity and gifts, personal care and clothing, health care, food in, food out, utilities and housing, and vehicles. These goods, in our view span the three possible channels through which consumption might affect happiness. Vehicle and personal care/clothing consumption are plausible “status” goods. Leisure consumption is a plausible “social” good. The remaining goods are likely related to happiness, if at all, through their effect on material well-being.

Identifying those categories of consumption that are related to happiness does not tell us why they are related to happiness or whether the consumption good in question is a “social” good, a “status” good, or neither. To partially address this issue, the second research question we ask is: To the extent that consumption expenditure is associated with happiness, is it the consumption of material goods itself or the social connections that come with certain forms of consumption lead to happiness.

To address this question, we add a set of psycho-social variables for depression, loneliness, and optimism, to the models relating consumption expenditure and subjective well-being. To the extent that the effect of consumption expenditure on happiness is due to the social connections that are linked to consumption, we should observe these variables affecting happiness and the effect of consumption on happiness, in these models, to be diminished. The measures of social connections that we will consider include: depression, loneliness, and optimism.

In particular, we estimate the following linear regression:

$$(2) \quad Happiness_i = X_i\beta + \sum \gamma_j Consumption_{ij} + \sum \lambda_k SOCIAL_{ik} + v_i$$

where:

$SOCIAL_{ji}$  is a vector of the social psychological variables (depression, loneliness, and optimism).

## Results

Our findings suggest, first, that not all forms of consumption lead to happiness. In particular, only 2 goods—leisure spending and vehicle spending—have a statistically meaningful association with happiness (see Table 2, Model 1). In particular, a \$1,000 increase in spending on leisure goods is associated with a 0.036 point increase in life satisfaction while a \$1,000 increase in spending on vehicles is associated with a 0.08 point increase in life satisfaction. None of the other components of consumption are associated with life satisfaction.

Second, our findings suggest that that leisure spending has a strong social or relational component. Leisure spending increases happiness to a large degree through its

social effect – reducing loneliness and depression. This can be seen in Models 2 through 5. In Models 2 through 4, we add controls—one at a time—for depression, loneliness, and optimism. In Model 5, we add all three controls.

Adding the control for depression reduces the effect of leisure consumption on happiness by one-sixth (from 0.036 to 0.030), adding the control for loneliness reduces the effect by one-third (from 0.036 to 0.024), and adding the control for optimism reduces the effect by almost one-third (from 0.036 to 0.026). Adding all three reduces the effect of leisure consumption on happiness by almost one-half (from 0.036 to 0.019) and to a level at which it is no longer statistically significant. These results suggest that much of the way in which leisure consumption affects happiness is by reducing depression, reducing loneliness, and increasing optimism (all evidence of the “social” value of leisure consumption).

Third, our results surprisingly suggest a “social” channel for consumption of the good that we had believed to be a “status” good—vehicles. Adding a control for depression or a control for loneliness reduces the effect of vehicle consumption on happiness by about one-third while adding a control for optimism reduces the effect by 15%. Adding all three controls reduces the effect of vehicle consumption on happiness by more than half, although in the final model the point estimate (.037) is still sizeable compared to the other coefficients in the table. Nevertheless, it appears that, as with leisure consumption, much of the way in which vehicle consumption affects happiness is by reducing depression, reducing loneliness, and increasing optimism. Thus, the consumption of “status” goods also has a perceived “social” value.

**Table 2: Effects of Consumption on Happiness (N=937)**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
Leisure	0.036** (0.012)	0.030** (0.011)	0.024* (0.011)	0.026* (0.011)	0.019† (0.010)
Durables	0.004 (0.006)	0.007 (0.006)	0.005 (0.006)	0.005 (0.006)	0.007 (0.006)
Charity and Gifts	0.002 (0.005)	0.002 (0.005)	0.003 (0.005)	0.002 (0.005)	0.002 (0.005)
Personal Care and Clothing	0.018 (0.012)	0.023* (0.011)	0.021† (0.011)	0.009 (0.011)	0.017 (0.011)
Health Care	-0.002 (0.006)	0.000 (0.005)	-0.002 (0.005)	-0.001 (0.005)	0.000 (0.005)
Food In	-0.007 (0.008)	-0.003 (0.007)	-0.005 (0.007)	-0.006 (0.007)	-0.003 (0.007)
Food Out	0.006 (0.015)	-0.002 (0.014)	0.000 (0.014)	0.008 (0.014)	-0.001 (0.013)
Utilities and Housing	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.001)
Vehicles	0.080* (0.032)	0.054† (0.030)	0.051† (0.030)	0.066* (0.030)	0.037 (0.028)
Depression (CESD)		-0.222*** (0.020)			0.148*** (0.021)
Loneliness			-0.763*** (0.070)		-0.416*** (0.072)
Optimism				0.378*** (0.034)	0.271*** (0.033)
Controls for Demographics	Yes	Yes	Yes	Yes	Yes

†  $P < 0.1$ ; \*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$

Note 1: All expenditures are measured in thousand dollars

Note 2: Control variables include age, labor force status, income, wealth, marital status, race and ethnicity, gender and education.

## Conclusions

We find that only two components of consumption expenditure are positively related to happiness—leisure consumption and vehicle consumption. All other components of consumption (which are primarily about meeting one's material needs) appear to be unrelated to happiness. To the extent that increased material well-being is

unrelated to happiness lends support to the hypothesis (posed by Gilbert and Wilson, 2007) that individuals quickly adapt in terms of their happiness to increases or to decreases in the level of their material well-being. Since our estimates are based on a cross-section, not panel data, we are likely observing people at their steady-state level of happiness.

We also find that both leisure consumption and vehicle consumption lead to increased happiness to a large degree through their affect on social connectedness, which we measure with three variables, depression, social disconnectedness, and optimism. While we were not surprised to see a large social component to leisure expenditure, we were surprised to see a large social component to vehicle expenditure (a possible status good). One possibility is that status is linked closely to perceived or actual social connectedness; individuals with low status may have fewer opportunities for social activity. However, it is possible that status affects happiness by reducing depression and loneliness and increasing optimism without increasing social activity but rather by affecting an individual's perceptions of how socially connected they are. Disentangling these different channels will require a greater amount of research.

However, an important contribution of our findings is that we can reject the conventional wisdom that "material goods can't buy you happiness." In fact, two forms of expenditure are associated with increased happiness—leisure and vehicles—and vehicle spending had the largest association with happiness in our data. Following Nicolao et al. (2009), it could be that the group of individuals who spends a lot on vehicles are the most materialistic to begin with, and that consequently this represents a good match for their aspirations and increases happiness accordingly. It could also be

that the probability of a bad outcome is lower in the case of a fancy car than it is in say, a vacation, and so there is relatively less risk associated with vehicle consumption.

The age structure of our sample may also be relevant to our findings. Recall that the average age of the respondents in these HRS data is 66 (with most of the sample ranging in age from 56 to 76). It could be that different kinds of expenditures bring happiness at different stages of life. For a relatively older adult, a fancy car may be happily viewed as the just rewards of a long and productive life, something that was postponed until a stage of relative financial security and seniority in one's position at work or in the community. Conversely, the quality of leisure experience could be more variable at older ages, thus dampening the correlation between leisure and happiness at this stage of life.

This research is subject to a number of limitations. First, the sample sizes on which these results are based are relatively small. Second, at this time data limitations prevent the use of panel data methods that would control for individual fixed effects. As more waves of the psychosocial questionnaire are made available, both our sample size will increase and we will have multiple measures of the psychosocial variables across waves. Third, the fundamental issue of identifying causality is not addressed. We cannot determine whether leisure consumption affects happiness through its effect on loneliness, for example, or whether loneliness affects happiness through its effect on leisure expenditure.

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