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Susann Rohwedder
Michael D. Hurd
Péter Hudomiet

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ABSTRACT

We use new data from the 2019 wave of the Consumption and Activities Mail Survey to help interpret the observed decline in spending as individuals age. At one extreme, forward-looking individuals optimally chose the decline; at the other, myopic individuals overspent and were forced to reduce spending because they had run out of wealth. Which interpretation is correct has important implications for the measurement of economic preparation for retirement. According to their own assessments, the fraction of respondents feeling financially constrained is lower at advanced ages, and the fraction satisfied with their economic situation is considerably higher at older ages than at ages near retirement. An important mechanism reconciling the evidence of reduced spending and greater economic satisfaction at older ages may be that individuals' enjoyment of several activities declines with worsening health, widowing, and increasing age, leading to a lessening desire to spend on them. We find strong support for this hypothesis. Nonetheless, close to 20% of those older than 80 report not being satisfied with their financial situation, pointing to heterogeneity in economic security.

Susann Rohwedder
RAND Corporation
1776 Main Street
P.O. Box 2138
Santa Monica, CA 90407
susannr@rand.org

Péter Hudomiet
Rand Corporation
1776 Main Street
Santa Monica, CA 90407
hudomiet@rand.org

Michael D. Hurd
RAND Corporation
1776 Main Street
Santa Monica, CA 90407
and NBER
mhurd@rand.org

A data appendix is available at http://www.nber.org/data-appendix/w30460

Introduction

In its simplest form, the leading economic theory about the trajectory of spending at older ages suggests that spending (or consumption) should decline at advanced age (Yaari 1965). The reason for the decline is that, absent a bequest motive, wealth held at death is wasted: It should have been consumed earlier. But death is stochastic, so that too much early consumption runs the risk that extended survival will require a later, large drop in consumption. The first-order condition for optimization of lifetime utility[1] requires, therefore, that consumption is somewhat elevated in the earlier retirement years, but then reduced on surviving. Because the force of mortality (mortality risk) is approximately exponential, the consumption trajectory will have a downward slope at advanced old age even under more complex situations such as in the presence of a bequest motive or when rates of saving returns are stochastic. As an empirical matter, and as will be shown later, spending paths do decline with age as would be predicted by this simple model.

In the case of a couple, determining the optimal consumption trajectory is considerably more complex because the couple has a “bequest motive,” to the surviving spouse: Wealth at one spouse’s death is not wasted, which lessens the desire to consume early. But absent a bequest motive by the surviving spouse to someone outside the household, a couple’s consumption trajectory should decline at advanced old age because the marginal utility of wealth of the surviving spouse will become small. Thus, the theory would predict a consumption trajectory with a downward slope,

[1] Because our data are on individuals older than 50, when we speak of “lifetime utility,” we mean “rest-of-lifetime utility.”

although the age at which the slope turns downward depends on tastes and the environment.

The life-cycle model has been challenged by behavioral explanations: Individuals lack foresight; they spend too much earlier in life and then are forced to reduce spending at older ages. In this framework, the empirically observed decline in spending is interpreted to indicate that economic preparation was inadequate: Some individuals ran out of wealth causing a discontinuous decline in their spending and a decline in population spending. If people reduce spending because they overspent when young — possibly due to a lack of self-control or foresight — the decline in spending is not optimal, but rather signals undersaving (Caliendo and Findley 2013). It is difficult to distinguish empirically between these explanations. For example, the less educated exhibit a greater rate of spending decline at advanced ages, which is explained by higher mortality risk in the life-cycle model but by a reduced use of forward-looking behavior under the behavioral interpretation.

Some aspects of the data, however, suggest an augmented life-cycle model, a model in the spirit of the standard life-cycle model, but one that permits taste change with age and/or utility production that is health dependent. In the production of utility, some items of spending are complements to health, such as travel, and some are substitutes for health, such as health care spending. As health declines with age, people will shift spending away from complements toward substitutes. The fraction of spending (budget shares) for health care and other substitutes will increase with age and the fraction for complements will decline. If the substitutes are insured, such as through Medicare coverage, forward-looking individuals would choose to shift some

types of spending (spending that is complementary to health) to earlier ages when health is good, amplifying the decline due to mortality risk. Support for this augmented life-cycle model comes from data on budget shares. In earlier work Hurd and Rohwedder (2010) showed that among those 65 to 69, about 20% of total spending is for private transportation (almost all for automobiles) and trips and vacations. These categories are likely complements to health, that is, individuals will want to spend more on them when in good health and reduce spending when health declines. For example, in the case of transportation it is plausible that spending declines with age because of increases in sensory impairments like vision and hearing loss that limit individuals' ability to drive. Similarly, age-associated mobility declines make going on trips and vacations more burdensome. At ages 85 to 89, such spending is about 10% of the total. An indication that this reduction is not solely due to the lifetime budget constraint is that budget shares for transfers and gifts, a luxury good that should be independent of health, increase with age. This implies that the budget constraint is not an explanation for the overall reduction in spending.

To obtain direct evidence on the empirical support of our hypothesis — that health and other factors related to aging are important drivers of spending decline at older ages — we collected survey data on individuals' perceptions about how their enjoyment of a number of activities has changed. We interpret the responses as measures of changes in the marginal utility of the consumption derived from those activities. In this paper, we analyze the resulting data augmented with the rich information available in the Health and Retirement Study (HRS) on the same households. We find that average scores on a scale that assesses enjoyment from

seven activities (such as eating out, travel, and clothes) indicate a decline in enjoyment over a six-year time period, and that the decline accelerates with age. It does not appear that the decline in enjoyment is due to financial constraints because the fraction indicating a worsening of their financial situation (over a six-year, backward-looking horizon) declines with age. We interpret the results to indicate that at least part of the spending decline comes from individuals choosing to spend less on some activities because they get less satisfaction from spending on them. At least on average, it is not necessary to invoke a behavioral explanation for the decline in total spending.

Data: The Health and Retirement Study and Its Supplement on Household Spending

We use data from the Consumption and Activities Mail Survey (CAMS), a substudy of the HRS, and from the core HRS. In the year 2001, 5,000 HRS households were chosen by random assignment to be included in CAMS. In the subsequent odd-numbered years, they were administered a mail-out spending survey, which queried about spending in initially 32, later 39 categories to obtain a complete measure of annual spending.[2] Total spending in CAMS aggregates closely to total spending from the Consumer Expenditure Survey (Hurd and Rohwedder 2015). For example, among those 65 to 74, and 75 or older, CAMS spending in 2007 was $40,700 and $29,400 respectively; in the CEX such spending was $39,700 and $29,400. These cross-section

[2] The number of spending categories varied somewhat across waves: A few categories were added in the early waves (2003 and 2005) and some categories were split to distinguish spending on goods versus spending on services. CAMS waves 2005 to 2019 queried spending in 39 categories.

figures do not show the life-cycle variation in spending. But spending paths constructed from two-year panel changes in CAMS do decline with age, as we have shown in prior work and will show in updated results below.

The 2019 CAMS included some additional questions aimed at finding the reasons for the observed decline in spending. Do the data support what we call a behavioral interpretation: Because people overspent/under saved, the decline is forced on them by the budget constraint ? Or do the data support an interpretation based on standard economic theory, augmented with health-dependent utility or with taste variation that is related to age?

Appendix 5 shows the survey questions that are at the center of our analyses. One group of CAMS questions asked about individuals' perceptions of their total spending change over the last six years, which can be compared with actual change from the longitudinal CAMS total spending data. The questions included follow-up questions about the reasons for a spending reduction (or for an increase): changes in the ability to afford as much spending as before, changes in enjoyment from spending, and changes in "forced" spending such as mortgage or health care. Respondents were asked about their perceptions of a typical spending trajectory.

A second group of questions asked about changes over the past six years in enjoyment from spending in seven categories: going out to eat, travelling, leisure activities, having new clothes, having a new car, having new appliances (such as TV, computer, refrigerator, cell phone), and giving financial support to family/friends. The six response categories ranged from much less enjoyment, to about the same, to much

more enjoyment.[3] The aim of these questions was to obtain a self-assessment of the change in the marginal utility of spending in categories that might be complementary or neutral to health, or in categories that might be dependent on the social context.

Additional questions asked directly about their perceptions of the constraint on their spending, of the change in the constraint compared to six years ago, and about their satisfaction with their financial situation and how it changed compared with six years ago.

Results

We first update prior results about longitudinal spending trajectories using CAMS waves from 2005 to 2019. Table A4 shows the underlying data displayed as the median of household changes in real spending. Thus, the median change between 2005 and 2007 among 65- to 69-year-old singles was -5.43% or 2.72% per year. Over the 14-year time period, the median two-year decline was 3.73% among single persons and 5.56% among couples for annual rates of decline of 1.88 and 2.78 respectively. Notably, with the exception of several entries for single persons 85 or older, every entry is negative, showing that reductions in spending were almost universal over this time period.

We differentiate by socioeconomic status as measured by education using the median regression of the two-year change in real spending on indicators for age band, sex, and education. For couples we add an indicator when the wife is more than five years younger than the husband. We then graph the spending trajectories obtained

[3] It also included the option to indicate “Not applicable/don’t do.” Auxiliary analyses showed that older persons and those in bad health were most likely to check this option. We recoded these to “Much less enjoyment today” in our main analyses.

from the predicted rates of change of spending.

Figure 1 shows the predicted paths to age 90 normalized to 100 at age 65. Reflecting the two-year changes in the raw data, the paths have negative slopes. The rate of decline varies somewhat with educational level. In particular, single persons who lack a high school degree have a path with a greater slope: In a Yaari-type model, this would be predicted by the greater mortality risk of the less educated. The path declines to about 57% of initial spending by age 85. This is a much reduced spending level, but the chances of a single person lacking a high school degree surviving to age 85 are not very great: We have calculated that a 66-year-old man with that educational level would survive to age 85 with probability 0.15 and a similar woman with probability 0.30

A single person at age 85 with a high school degree is predicted to have 72% of the spending of a 65 year old. This level corresponds to a two-year rate of decline of 3.3%, which is very close to the overall median in Table A5 The median regression reproduces quite well the observed raw medians.

Among married persons, the less educated have somewhat steeper spending trajectories but the main difference is between high school or less, and some college or more. Should the couples survive to advanced old age, predicted spending would be much lower than at age 65, but the chances of that happening are rather low because it requires the survival of both spouses. For example, we have estimated that the probability of spouses who are both lacking a high school degree (and under the assumption of independent mortality) surviving from age 66 to age 85 to be 0.14.[4]

Figure 2 shows the budget shares (fraction of total spending by category of

[4] This is based on greater survival rates for married persons.

spending) of six categories (out of 12) which we chose because of expectations about their different degrees of substitutability with health. We anticipate that health care spending is substitutable for health; gifts and donations are neutral with respect to health; and transportation, clothing, trips and vacations, and possibly housing are complementary to health.

The budget share of health spending does not include spending on insurance, which is included elsewhere, just out of pocket spending. Such spending increases with age reaching 15% among those 85 or older. Spending on housing declines among couples almost throughout. Note that the measure is of spending and includes interest, property taxes, repairs, etc.; it is not a consumption measure, which would include the imputed consumption flow from the value of the house. Whether spending on housing is complementary to health (downsizing) or just reductions in mortgages as people pay them off over time is not discernable.

Among singles, an increase in the budget share for housing begins in the 70s. But the cross-section reflects new widow(er)s being added to existing pool of singles, and the newly widowed have greater wealth than existing single persons Spending on transportation (mostly private automobiles) declines with age. Trips and vacations are particularly interesting. Couples display an increasing budget share for travel through ages 65 to 69. An interpretation would be greater time availability following retirement. The decline beginning at 70 to 74 would reflect worsening health of one or both spouses. The budget share in trips and vacations of single persons is approximately constant until 85 or older at about 2% of total spending. The small allocation likely reflects the reduced utility of travelling alone rather than with a spouse. The budget

shares on gifts and donations increase, which supports the idea that declining economic resources are not the predominant cause for the spending decline on other items.

Self-perceived changes in spending

2019 CAMS respondents were asked:

> **B41.** How has your household's spending changed over the past **six** years? Please think of what you typically spend, leaving out any unusual expenses. **(Check one.)**

With answer categories

1. It decreased a lot
2. It decreased a little
3. It stayed about the same
4. It increased a little
5. It increased a lot

We suspect that most people will think about nominal spending, that is, the actual dollars they spent. Figure 3's Panel A shows the distribution of responses: Some 37% reported no change; 34% reported an increase and 29% reported a decrease. Measured over the same households between 2013 and 2019, the median change in total nominal household spending (based on more than 35 detailed categories) was about -1%, which translates to an 11% real decrease or about -1.9% per year. The period 2013 to 2019 was representative of the entire 2005 to 2019 period: The annual rate of change from 2005 to 2019, which underlies the graphs in Figure 1, was about -1.3%. Note, however, that the 2013 to 2019 CAMS comparison conditions on six-year survival whereas the Figure 1 figures are conditioned on two-year survival, which makes the rates not exactly comparable.

In Figure 3's Panel B we show the median of the change in observed total household spending, as measured in 2013 and 2019 CAMS, classified by the

recollected spending change from Panel A. The calculations are over the same households in both years. Among those who said spending remained about the same, the median change was -3.4%. Although the figure exhibits some asymmetry, the overall impression is that recollections of spending change map well into measured change. Conditional on a reported spending reduction, CAMS asked respondents about the reasons for the reduction.

B42a. Why does your household (or you) spend less now? **(Check all that apply.)**

1. We/I cannot afford to spend as much as we used to
2. There are fewer persons in my household than six years ago
3. To increase our savings
4. We/I have reduced spending on some things because we get less enjoyment from them than we used to
5. Some things we spend money on are cheaper now
6. We no longer have to spend money on some things that we did six years ago (or we have less to spend than before)
7. Other reasons: _____

Figure 4 shows the proportion of respondents who reported each of the reasons for the reduction among those who said they had reduced spending (29% of all respondents). Some 40% to 50% reported they could not afford to spend as much as they used to. The “actual” bars show the frequencies in the actual data and the “regr adj” show the frequencies after a regression adjustment: We estimated a linear probability model for “cannot afford” on age indicators, marital status and change in marital status, education, self-rated health, and wealth quartiles. The chart shows the age variation from that regression. There is little variation in “cannot afford” with age. Although it is fairly frequent to reduce spending because of not being able to afford as much as before, the results do not support the idea that spending declines with age

because of a greater tendency to spend less due to affordability. The difference between the actual frequencies and the adjusted frequencies is minimal.

The frequencies of reducing spending due to the household having fewer people show a clear U-shaped pattern associated with people leaving the household: adult children at younger ages and a deceased spouse at older ages. The regression-adjusted frequencies have a shallower increase because the marital status indicators are included in the regression and correlate with advanced age.

In order to increase saving, households need either to earn more or to spend less. Among households in their late 50s who did reduce spending, about 20% attributed the reduction to the desire to increase saving. That attribution declines with age. There are only small differences between the raw frequencies and the regression-adjusted frequencies.

At younger ages, few attribute a reduction in spending to a reduction in the enjoyment they get (or would get) from spending on “some things.” But the frequency sharply increases with age, reaching about 40% among those 80 to 84. If we interpret these responses to signal a reduction in the marginal utility from the underlying activities, the increasing frequency would help explain the decline in spending in some categories that *a priori* would seem to depend on health or on having a spouse or partner.

Less than 10% reported spending less because things have become less expensive; there is no clear age pattern.

A large fraction of persons attributed a reduction in spending to a reduction in “required spending.” We had in mind spending on mortgages or education of children.

Among households that reported an increase in spending, we asked similar types of questions.

B42b. Why does your household (or you) spend more now? **(Check all that apply.**

1. We/I can afford to spend more now.
2. There are more persons in my household than six years ago.
3. We/I are not saving as much.
4. We/I have increased spending on some things because we get more enjoyment from them than we used to.
5. Some things we spend money on are more expensive now
6. We have to spend money on some things that we didn't six years ago (or we have to spend more than before).
7. Other reasons.

Rather than reporting the conditional frequencies (the frequencies among those who increased spending) as we did for reductions in spending (Figure 4), we report in Figure 5 the unconditional frequencies, that is the frequencies in the entire population. We do this both for the reasons for reducing spending (Figure 4 renormalized in each age band to be the entire population) and for increasing spending. For example, in the age band 55 to 59, 18% of the population attributed reduced spending to not being able to afford prior levels, whereas 8% attributed increased spending to being able to afford higher levels. Although there is some variation, broadly being able to afford less declines with age; being able to afford more reaches a peak at ages 70 to 74 and then modestly declines.

The effect of a reduction in the number of persons in the household is mostly flat across age at about 8% of households, but with some elevation at both the youngest and oldest ages. The effect of an increase in number of persons is approximately flat across age, and the level about half of the effect of a decrease, resulting in a net

reduction of spending due to changes in household composition.

At advanced old age, almost no one reduced spending to save more. About 7% reduced their saving rate to spend more. Qualitatively this difference accords with observed dissaving at older ages.

We observe a steady increase with age in the attribution of reduced spending to having less enjoyment, reaching 8% of the population at 85 and older. Some 8% of those 75 to 79 attribute increased spending to getting more enjoyment from such spending, but that percentage declines sharply at greater ages The overall impression is of substantial heterogeneity, but with a tendency toward fewer getting enjoyment from the queried types of spending at older ages.

Some 20% to 25% of the population asserted an increase in spending because things are “more expensive.” There is perhaps a small increase with age. Almost no one reduced spending because things became cheaper.

At the youngest age band, 18% reduced spending because “required” spending declined, possibly connected to a reduced need to spend for older children’s education or work-related expenses connected with early retirement. The trend with age exhibits a gradual shift from reducing spending because of less need to increasing spending because of greater need. From the budget shares in Figure 2, these trends would appear connected with health care spending not offset by a decline in required spending on a house connected with mortgage payoff.

Next we examine self-assessed satisfaction with the financial situation as reported on a five-point scale:

> **B45.** Overall, how satisfied are you with your present financial situation? **(Check one.)**

a. Completely satisfied
b. Very satisfied
c. Somewhat satisfied
d. Not very satisfied
e. Not at all satisfied

To show the overall pattern by age in Figure 6, we have combined the first two categories (a and b) and the last two categories (d and e). Although the middle category shows little variation with age, the overall pattern is toward a larger fraction being satisfied at older ages: Just 18% were completely or very satisfied in the lowest age band but about 43% were similarly satisfied in the two upper age bands. In a mirror image, the percentages not very satisfied or not at all satisfied decline sharply.

The second part of the figure shows the self-assessment of being financially constrained. It is elicited on a four-point scale:

B47. To what extent would you say is your household constrained in its spending? **(Check one.)**

a. Very constrained (often we cannot afford to buy things we need)
b. Somewhat constrained (we have to watch our spending, but can cover all basic needs)
c. Hardly at all constrained (we can largely buy what we want)
d. Not constrained (we do not have to worry about finances)

We combined the last two categories (c and d) for clarity. The percent reporting "somewhat constrained" is approximately constant by age; the percentage reporting "hardly at all" or "not constrained" increases by about 20 percentage points, and the percentage reporting "very" declines by 10 percentage points. Overall Figure 6 gives the impression that the population at advanced old age self-assesses its financial situation to be better than the assessment by those near retirement age.

We cannot separate cohort effects from age effects in this cross-sectional

comparison. To study the dynamics of self-assessed economic situations, we asked respondents to compare their economic situation today with their situation six years ago, both with respect to satisfaction and with respect to financial constraints:

B46. And compared to six years ago how satisfied are you with your present financial situation? **(Check one.)**

a. Much more satisfied today than six years ago
b. A little more satisfied
c. About the same
d. A little less satisfied
e. e. Much less satisfied

B47. To what extent would you say is your household constrained in its spending? **(Check one.)**

a. A lot more constrained today
b. Somewhat more constrained today
c. Constrained about the same
d. Somewhat less constrained today
e. A lot less constrained today

For both the change in satisfaction with economic situation and change in constraints, we combined the first two categories and the last two categories. We show the age patterns in Figure 7. Among those in the youngest age band, just 26% report no change in their financial situation while 37% report a worsening and 37% report an improvement. This is in sharp contrast with those in the highest age band where the majority report no change in financial situation over six years. Approximately equal percentages report an improvement or a worsening.

As for the perceived constraints on finances, the pattern with respect to age is about the same as the pattern on economic situation. Some 20% of those ages 55 to 59 report the constraint is unchanged from six years age, and that percentage increases to

more than 40% at 85 or older. But at all ages about 20 percentage points more report an increase in the constraint than a decrease.

The overall impression from Figure 7 is that the older population compared with the younger population became a little more satisfied with their economic situation over the previous six years and felt a little less financially constrained. But there is considerable heterogeneity: About half reported a change in their level of economic satisfaction over six years (25% better, 25% worse). That heterogeneity continues into advanced age, although at a lesser rate. A second impression is that being somewhat constrained is "normal," as would be expected in a world of scarce resources.

We saw declining budget shares in some activities that would seem to be complementary to health or to the social situation, in particular to marital status. We asked respondents about the enjoyment they would get from some of those categories of spending in the following manner:

> **B43.** Compared to six years ago, how much enjoyment do you (or would you) get today from... (**For the items below, check one box for each activity.)**
>
> a. Going out to eat
> b. Traveling
> c. Leisure activities
> d. Having new clothes
> e. Having a new car
> f. Having new appliances (such as TV, computer, refrigerator, cell phone)
> g. Giving financial support to family/friends

The response categories were the following:

a. Much less enjoyment today
b. A little less enjoyment today
c. About the same enjoyment
d. A little more enjoyment today

e. Much more enjoyment today
f. Not applicable/don't do

The aim was to find whether the marginal utility of spending on these categories had changed as an explanation for changes in spending rather than an explanation based on the Engel curve. For display in Figures 8a to 8g, we combined the first two responses and the last two responses. The solid black lines always show the percentage saying "about the same enjoyment," the red dotted lines less enjoyment and the blue dashed lines more enjoyment. Spending on categories a to f show a remarkably consistent pattern: The percentage responding "same" is approximately constant across age groups (although with a small decline in the oldest groups), but the percentage responding "less" increases and increases particularly strongly at the oldest ages. The percentage responding "more" shows a corresponding decrease. These patterns would seem to suggest that the declining budget shares shown in Figure 2 are induced by declining marginal utility from these types of spending. The only possible anomalous result is "Giving financial support," which seems to produce smaller marginal utility with age even though it would seem to be neutral with respect to health. An explanation would require a detailed investigation into the types and uses of financial support. For example, among those in their 50s the support may be for education of their children, whereas the support at advanced old age may be for their grandchildren already well supported by their parents.

Figure 8h shows the numerical average of the responses in each category with the scaling from 1 (much less enjoyment) to 5 (much more enjoyment) with 3 being about the same enjoyment. All the scores average to less than three, indicating that overall respondents say they get less enjoyment in each of the categories than six years

ago. The categories with the smallest decline are eating out, travel, and leisure, and the categories with the greatest decline are new cars, appliances, and financial support. Figure 8i shows the age pattern when averaging the numerical scores across all the seven activities. The maximum value of 2.78 is at 60 to 64 and then the average score declines to 2.15 at 85 and older. Thus, the change across age bands is about two-thirds of the way between response categories: For example, about two-thirds of the way from “about the same enjoyment” to “a little less enjoyment today.”

From the perspective of understanding economic preparation for retirement, the raw variation with age in enjoyment from various activities is preferable to the variation that remains after accounting for explanatory variables because the raw variation incorporates normal changes with age that should be anticipated by someone approaching retirement. For example, it is not of much relevance to note that enjoyment from travel will remain at a high level into advanced old age if the person remains married, continues in excellent health, has no episodes of out-of-pocket spending for health care, and so forth because these conditions are not relevant for (almost) anyone. Nonetheless, it is of interest to identify characteristics and changes in situations that are associated and perhaps causal for changes in enjoyment. We show in Table 1, the regression of the change in enjoyment of each of the seven activities on a number of indicator variables. For simplicity of interpretation, we have linearized the left-hand variable to take the values 1 to 5 with “Much less enjoyment today” and “Not applicable/don’t do” taking the value 1 and “Much more enjoyment today” taking the value 5.

A general summary is that health is an important explanatory variable (and likely

causal) for change in enjoyment, especially of “travel” and “leisure”: The difference between those in poor health and those in excellent is about a full point. With respect to the other types the main difference is between those in bad health (fair or poor) and everyone else. There is little variation by present financial constraints except for those who are very constrained. If people became a lot more constrained, they expressed less enjoyment. The demographic variables (education, marital status, and change in marital status) have some explanatory power. In particular, the transition from married to single results in a reduction in enjoyment. We note that the R-squared of the regressions for travel and for leisure are about 0.20, about twice the R-squared of eating out, new cars, and giving financial support, three times the R-squared of new clothes and appliances. The higher R-squared are the result of the strong effects of health and age on travel and leisure.

To summarize the effect of age on enjoyment, we take the average of the coefficients on age across the seven categories of activities. As shown in Figure 9, the average declines monotonically with age. The difference between the youngest and oldest age bands is 0.61, which is almost exactly the same as the unadjusted difference (0.60) from Figure 8i.

We have interpreted a change in enjoyment from spending on eating out or travel or on several other categories to be a statement about the utility from the consumption of a unit of eating out or a unit of travel. Said differently, holding constant amounts, the utility from consuming those goods has declined. Support for this view comes from the regression results of Table 1 where, after controlling for the level and change in financial constraints, health and age are still strongly predictive of a change in enjoyment.

However, a different interpretation would be that enjoyment has declined because total consumption has declined. Some support for that view comes from Table 1 where we noted that being “very financially constrained” and transitioning into being “a lot more financially constrained” are associated with a change in enjoyment from all seven activities. Possibly economic resources were depleted because of a shock, leading to a reduction in overall spending on those goods in particular. However, just 16% of those over age 65 have become “a lot more financially constrained,” so this cannot be the explanation for most of the population.

To find whether spending reacts to reductions in enjoyment, holding constant total spending, we examine the regression of the change in budget shares (e.g., of eating out) on the change in enjoyment (of eating out), controlling for the change in total spending and demographics. The results are shown in Table 2, a separate column for each of the seven spending categories. The left-hand variables are scaled from -1 to +1 (although the extremes are not populated). The coefficients of main interest, on change in enjoyment (scaled 1 to 5), are in the top panel. Qualitatively, the estimates indicate statistically significant relationships for all spending categories: An increase in enjoyment is associated with an increase in the respective budget share. For example, an increase of one unit in enjoyment of eating out increases the budget share of eating out by 0.00398 on a base of 0.04 or about 10%.

Summary and conclusions

Spending at older ages declines, both for married and for single households and across all socioeconomic status groups as classified by education. An important question — both for economic theory and for economic policy — is whether the

observed decline is in accordance with individuals' choices or whether the spending decline signals financial distress, of being forced to reduce spending due to lack of resources, indicating suboptimal outcomes. We presented new evidence on this issue from a recent module in the HRS Consumption and Activities Mail Survey, where we asked respondents how their spending changed over the past six years and about reasons for the changes. We also queried them how their enjoyment of spending-related activities has evolved over the same period, and about economic satisfaction and financial constraints — both present and changes over the past six years.

The satisfaction level with the present financial situation increases with age in cross-section, reaching almost 45 percent among those over age 80. The fraction who are dissatisfied declines from almost 45 percent among 55-59 year-olds to under 20 percent for ages 80+. These patterns could be due to differential mortality or cohort effects. While differential mortality likely plays an important role, we note the strong increase by age in the stability of individuals' financial situation over six years, and the about equal frequencies at older ages of being less or more satisfied than compared with six years previously. Similarly, the fraction reporting being more financially constrained compared to six years ago is lower at advanced ages, while the fraction recording "same" increases substantially with age.

A potentially important mechanism could be that households reduce spending with age, at least in part, because they get less enjoyment from various spending-related activities. As health and energy levels decline, traveling and certain leisure activities may no longer give as much pleasure. For some, this may be further exacerbated by widowing, for lack of a companion to share the activities with. We found

a large gradient in the reported *change* of enjoyment with age for most activities we queried, consistent with this hypothesis. If productivity of spending on those items declines, spending could be reduced with minimal impact on constraints to financial situation and with satisfaction in financial situation. The data represent within-person changes, rather than just cross-sectional age patterns. These changes were *recollected* changes, however, which may be affected by recall error.

Returning to the question of whether the decline in spending was chosen or forced, possibly because of lack of forward-looking behavior, there is some evidence that many chose the spending decline, otherwise we would expect greater dissatisfaction with the economic situation and greater transitions into being financially constrained.

Still, the results also point to heterogeneity: Even as many persons in their 80s reported no change in satisfaction, about 30% reported a reduction. It would be important in future research to find whether the reduction in this subgroup was the result of adverse events or due to lack of forward-looking behavior earlier in life.

Our findings have important implications for financial planning for retirement. Common advice is phrased in terms of replacement rates recommending that households aim for post-retirement income that is a certain percentage of pre-retirement income (such as 70-90%, depending on household type) to finance post retirement spending. Implicit in this advice is the assumption of a flat spending path. However, according to our results, when anticipating spending needs in retirement, a reasonable guide is to expect modestly declining total spending (in real terms) over the course of retirement. This is because age-related factors reduce the desire to spend on a range of

types of spending and those reductions outweigh the increase in spending on health care for most households.

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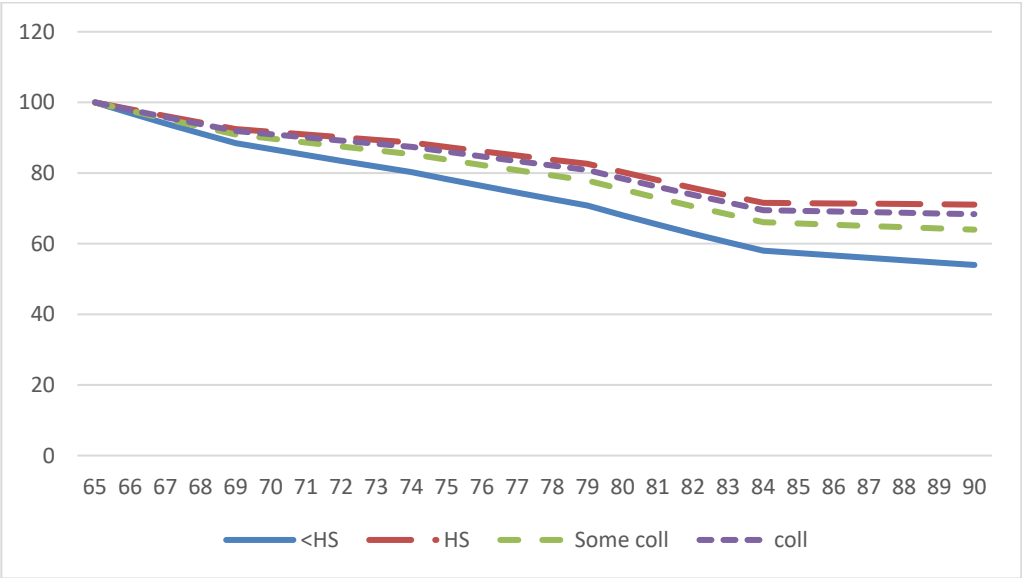
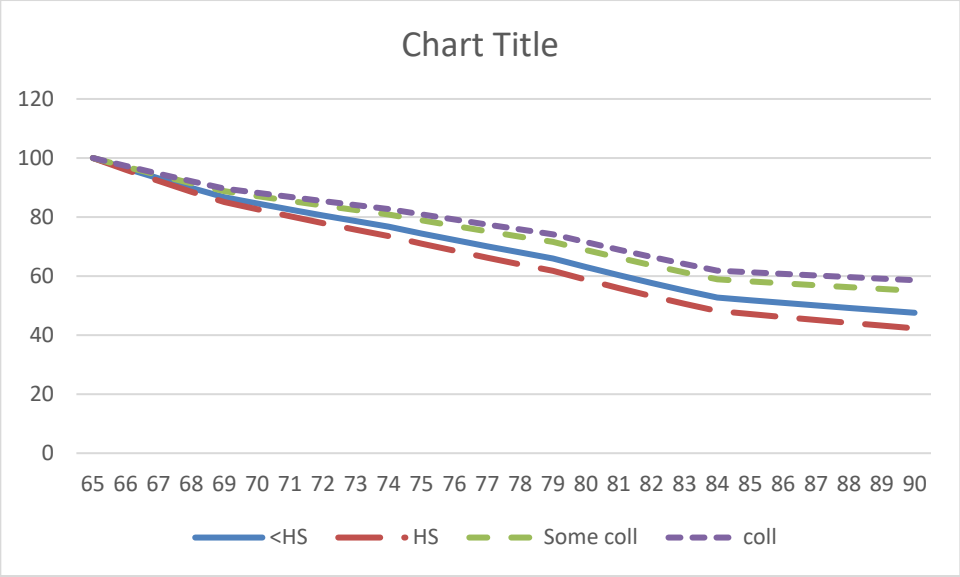
Figures and tables

Figure 1: Spending paths, single and married persons



Panel A: Single persons

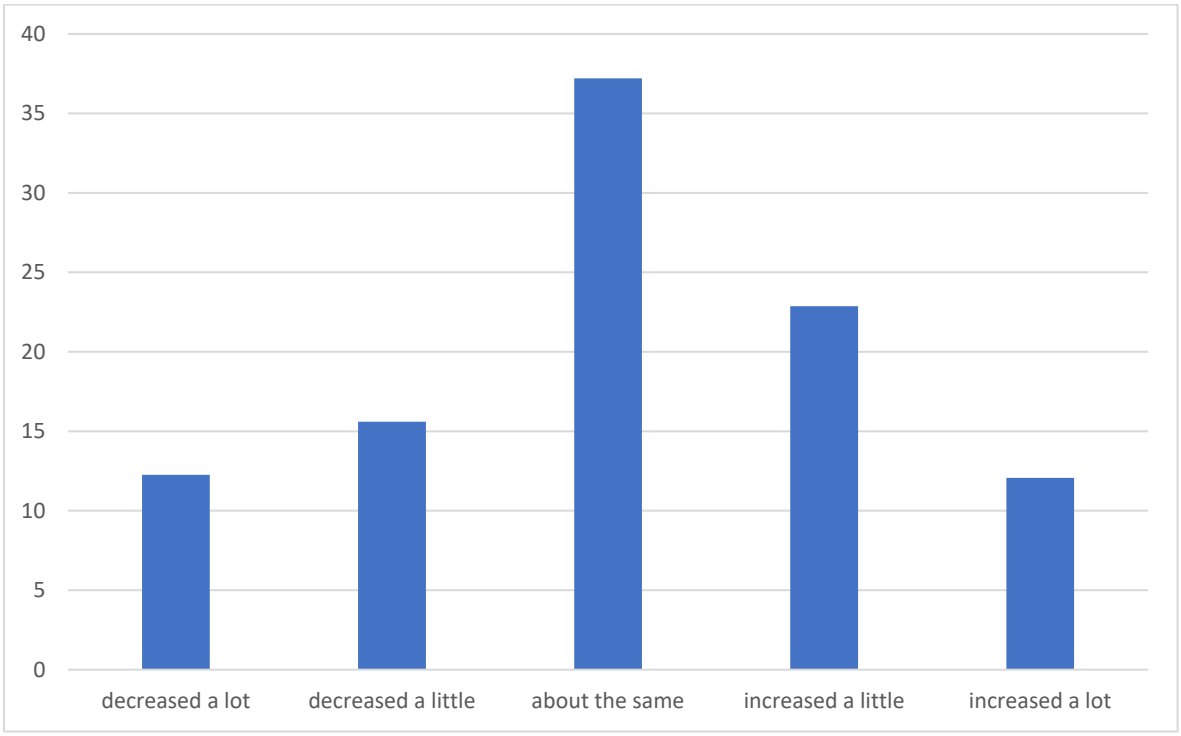


Panel B: Married persons

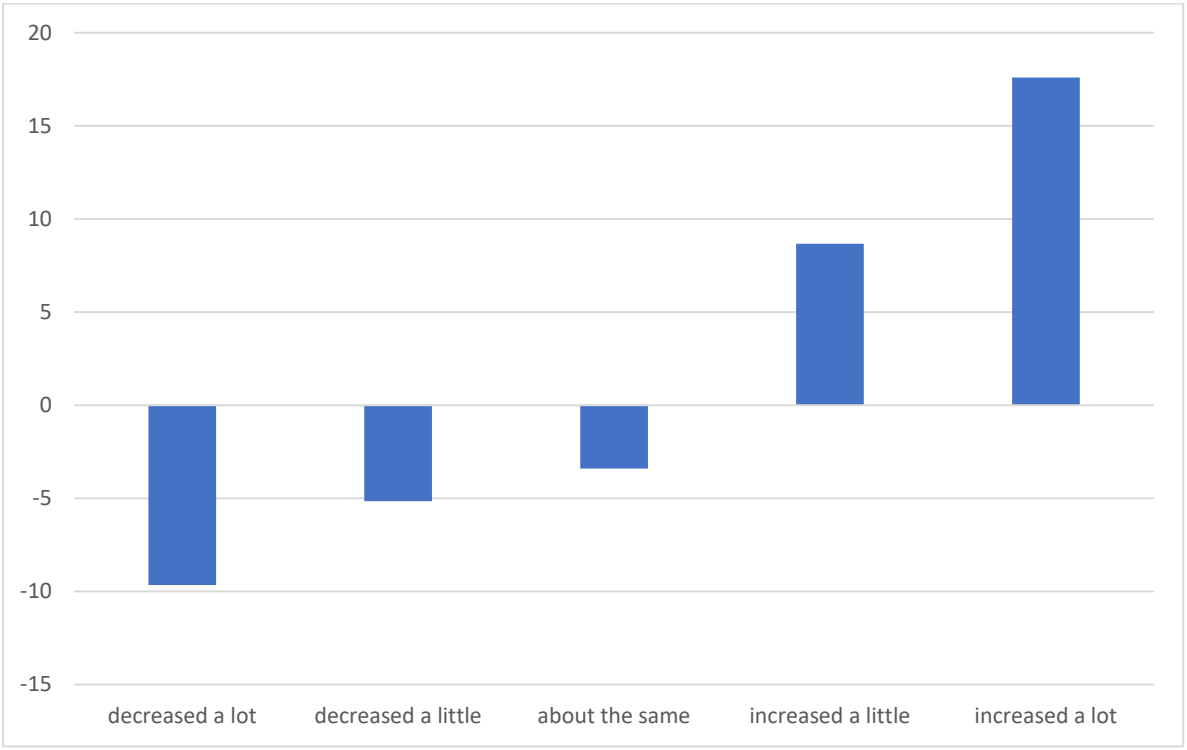
Figure 2: Budget shares

Notes: CAMS 2011 to 2019, pooled. Observations with highly incomplete data dropped (i.e., those who reported fewer than 10 out of 39 spending categories, about 1.5% of the sample).

Figure 3: Six-year spending change, recollected and observed

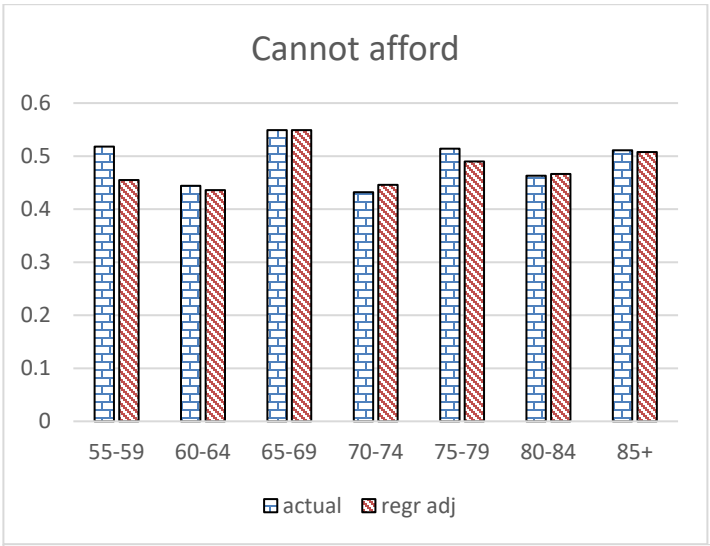


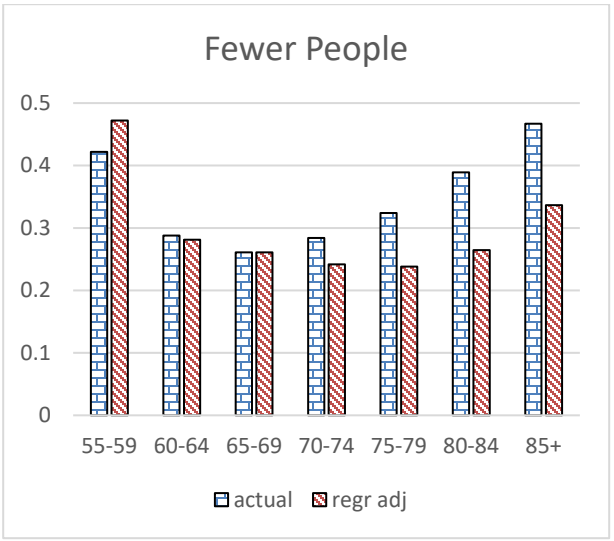
Panel A: Distribution of recollected change in spending, today's spending compared to six years ago

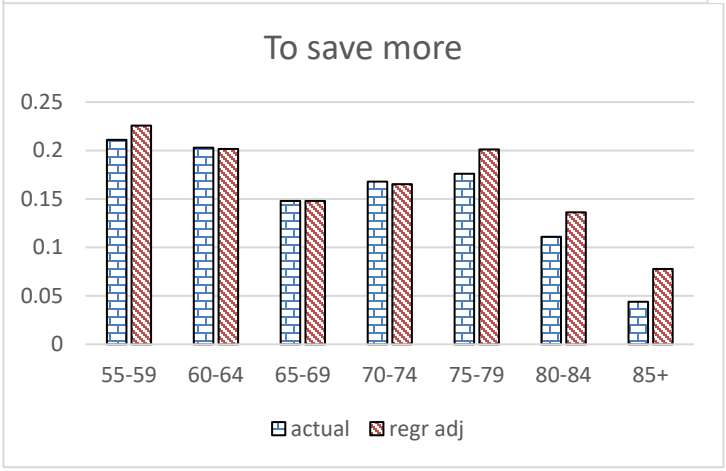


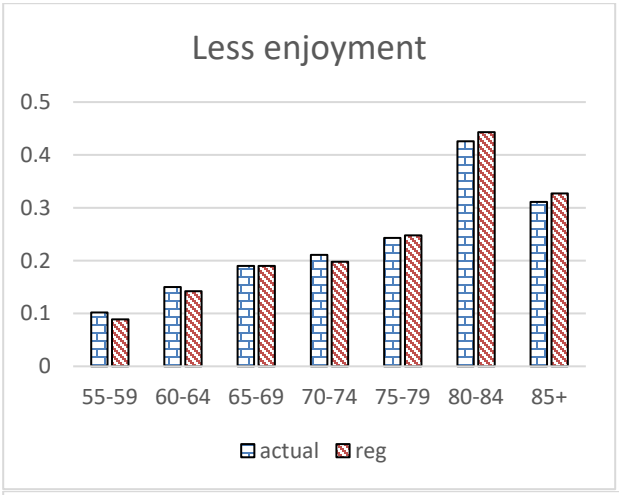
Panel B: Median actual change in spending from CAMS 2013 to CAMS 2019 (% nominal) by categories of recollected change in spending.

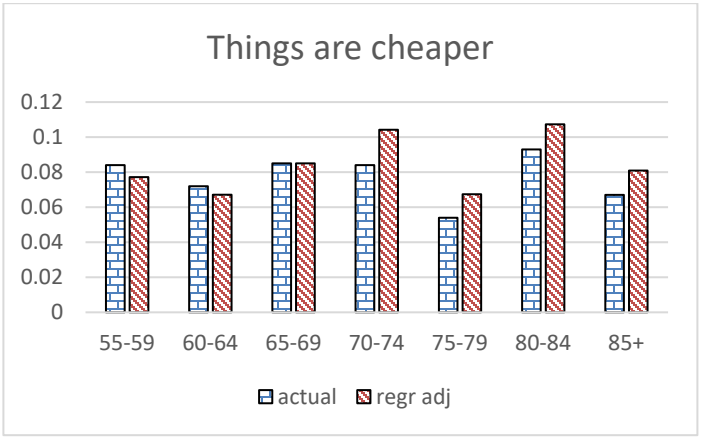
Figure 4: Reasons for reduced spending among those who reduced spending from six years ago as self-assessed, actual and regression adjusted distributions











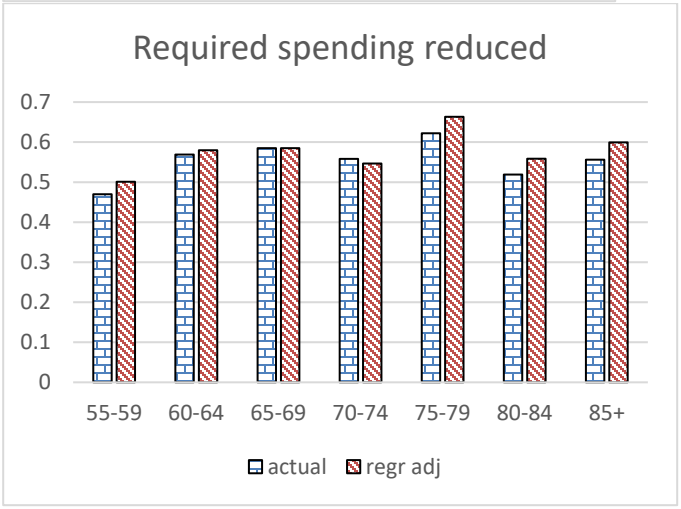
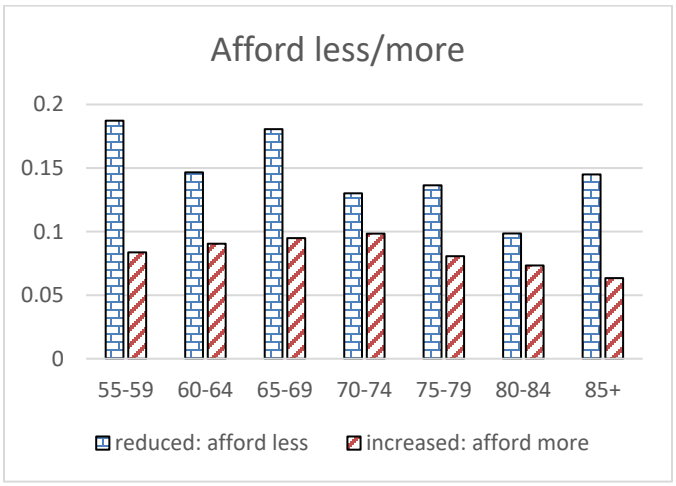
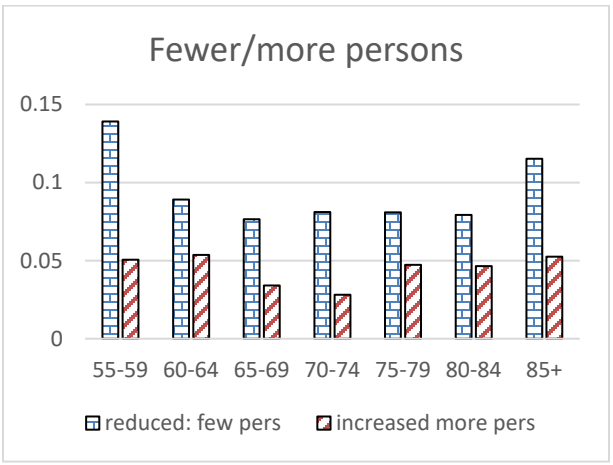
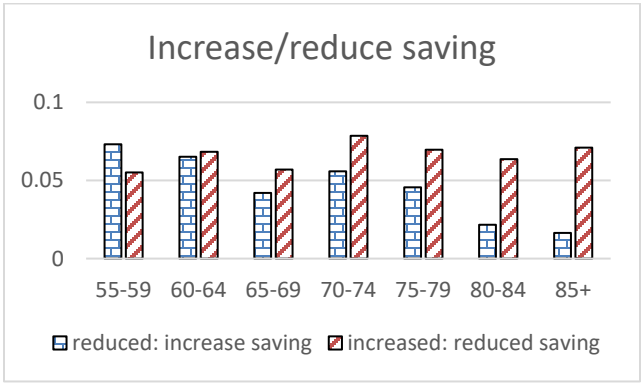
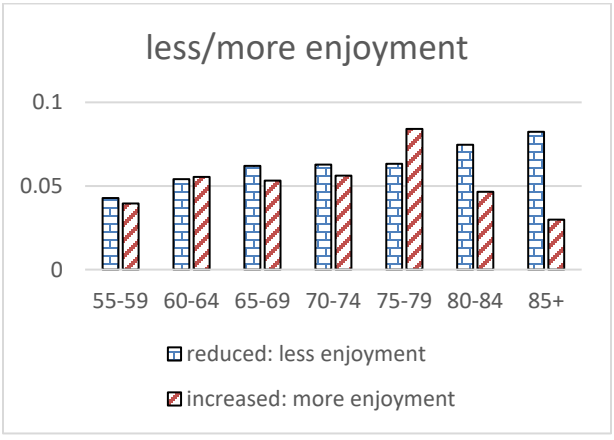


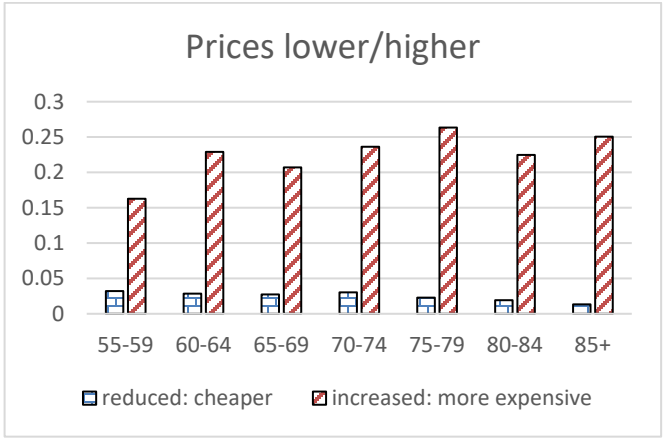
Figure 5: Combining reasons for increase and decrease in spending: Percent of population that attributed a reduction or increase in spending to an increase or decrease in affordability, number of persons, enjoyment, savings, prices, or required spending











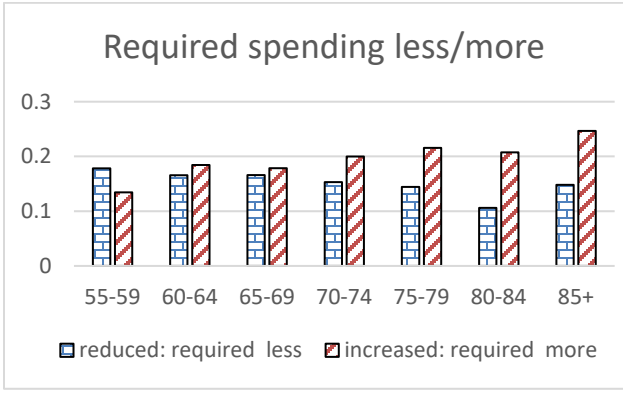


Figure 6: Present financial situation by age

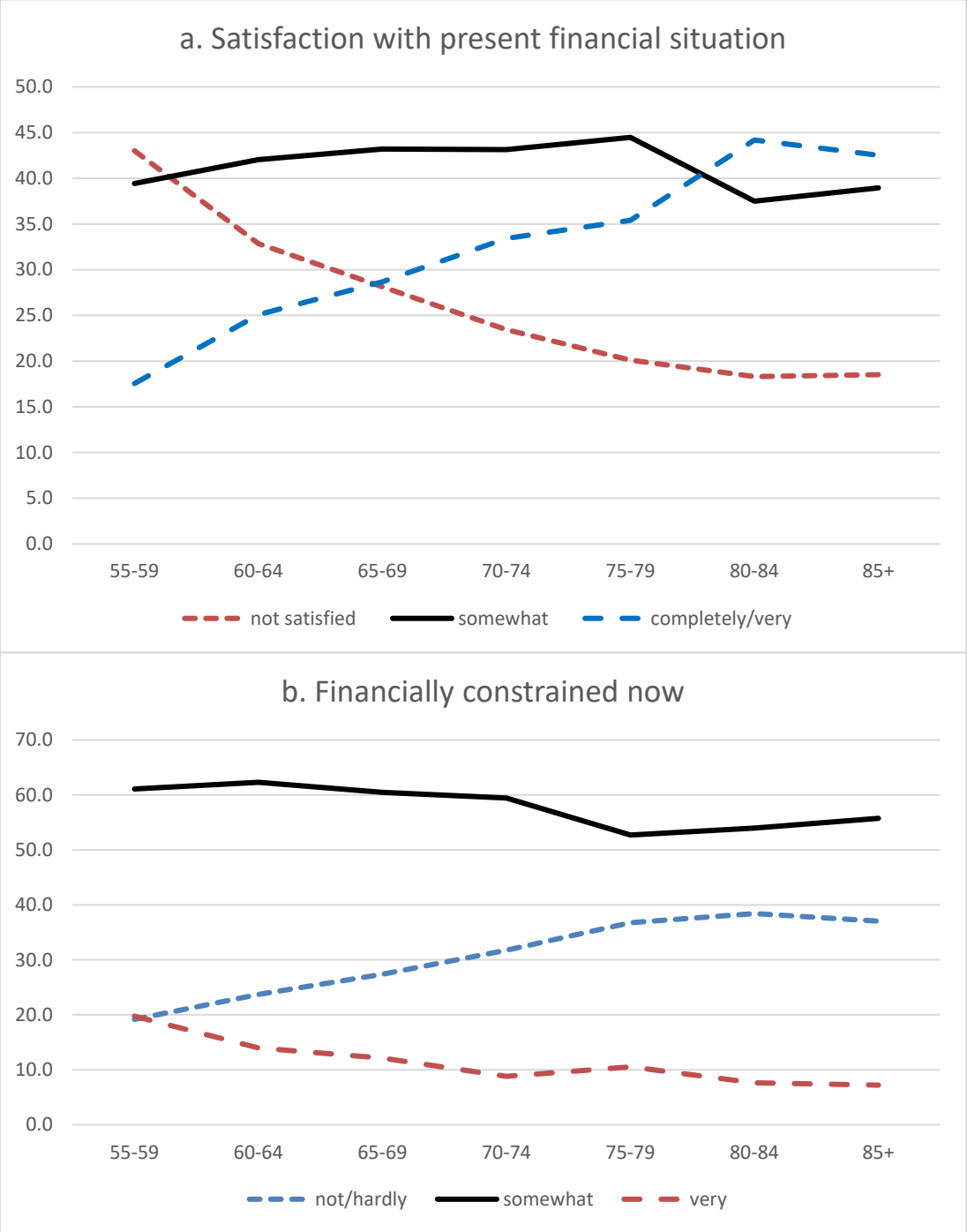


Figure 7: Present financial situation compared to six years ago, by age

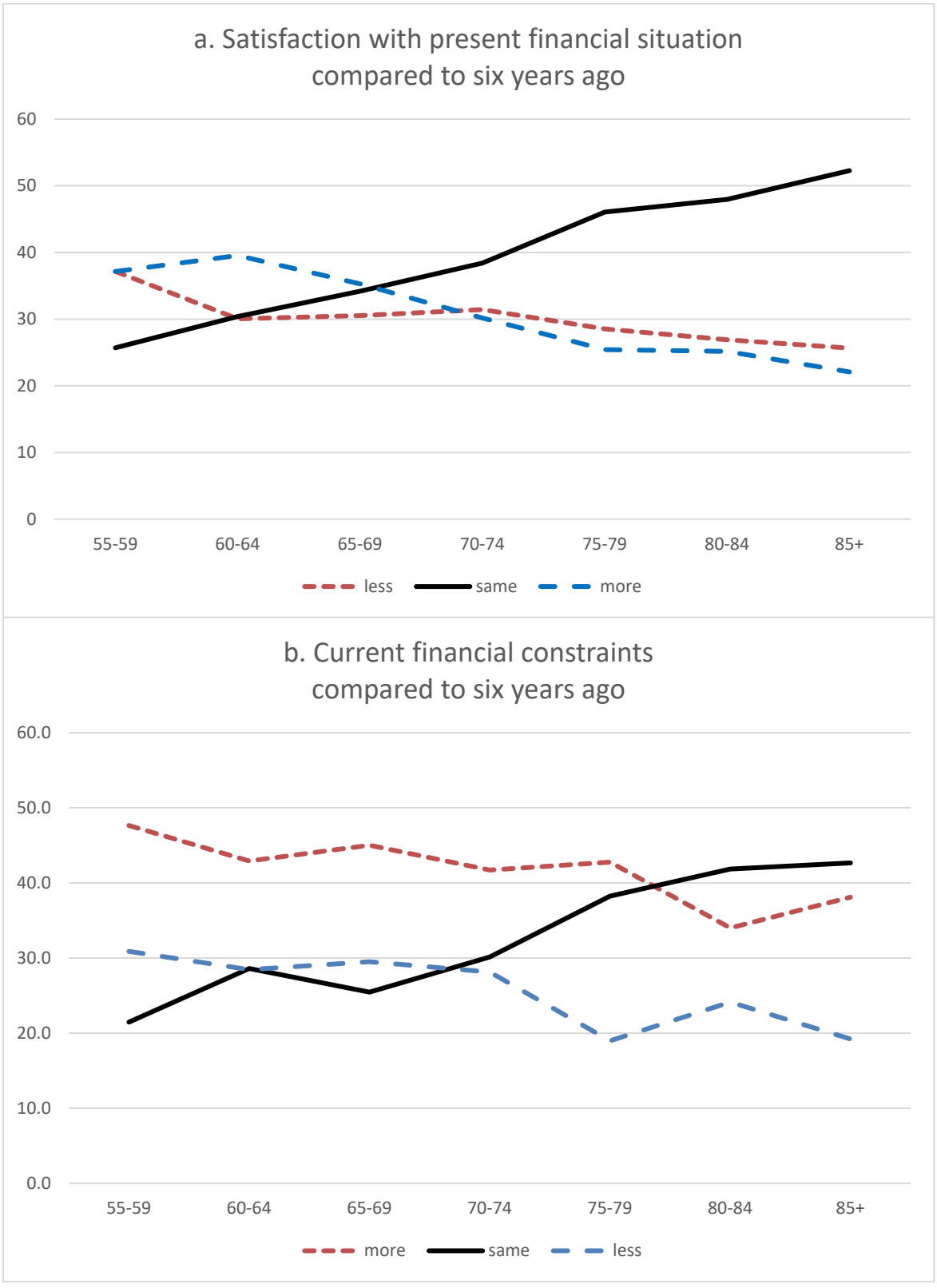


Figure 8: Enjoyment from various activities associated with spending, compared to six years ago, percent of persons

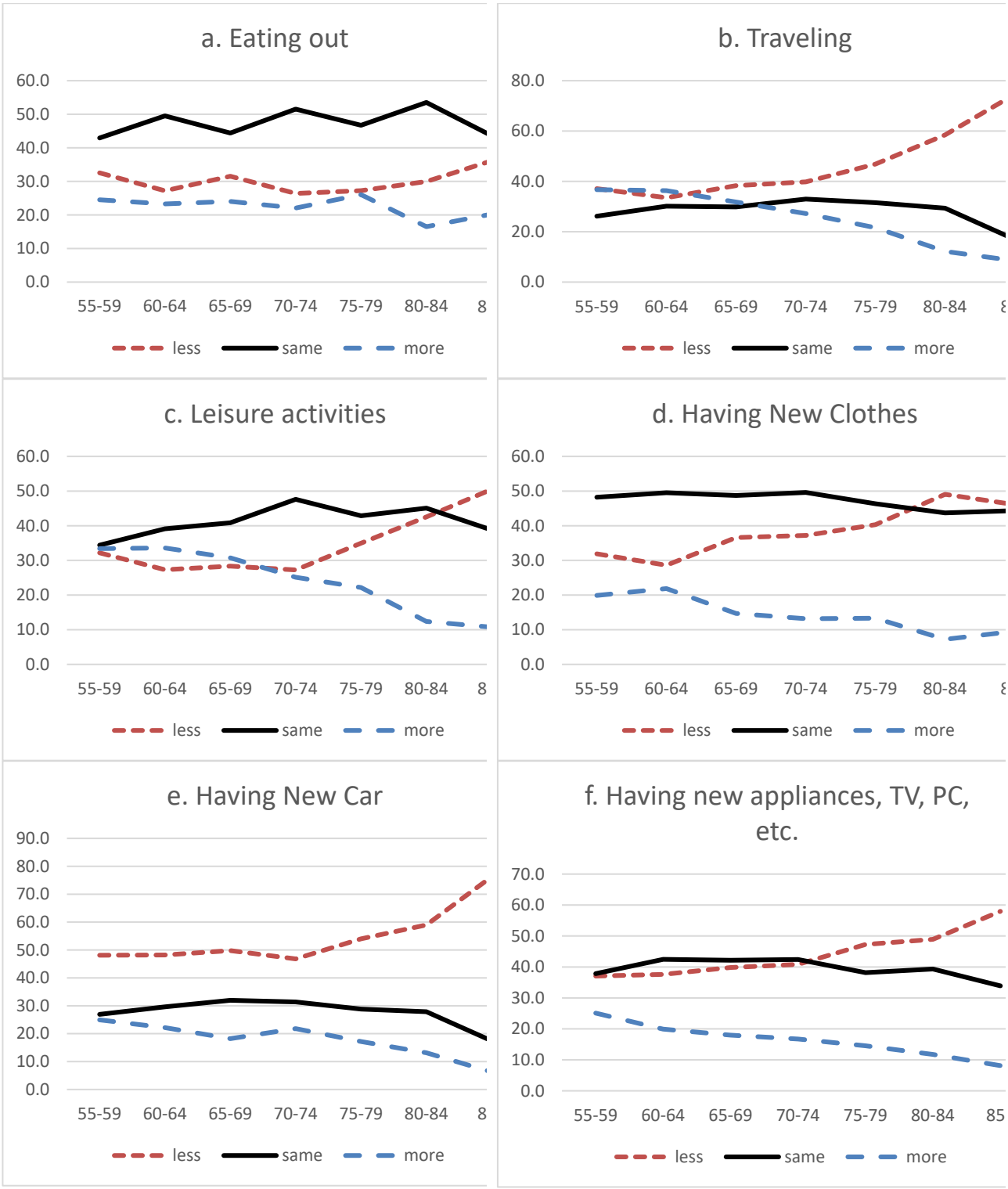
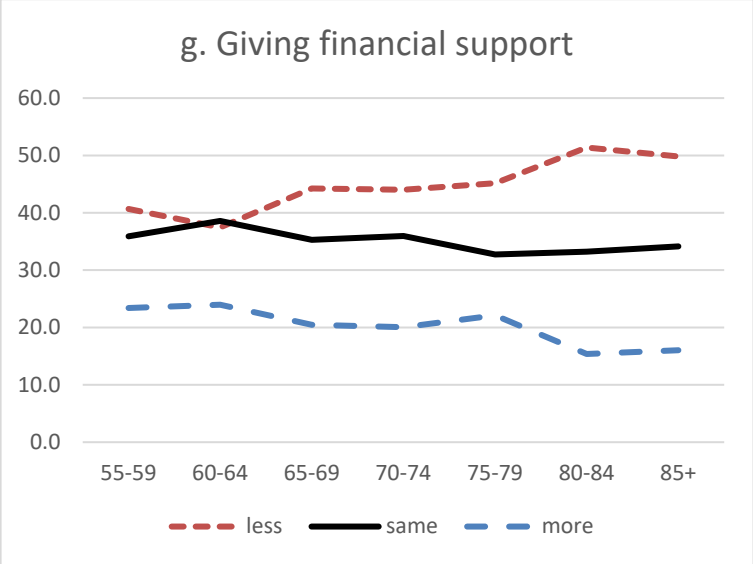


Figure 8 (continued): Enjoyment from various activities associated with spending, compared to six years ago, percent of persons



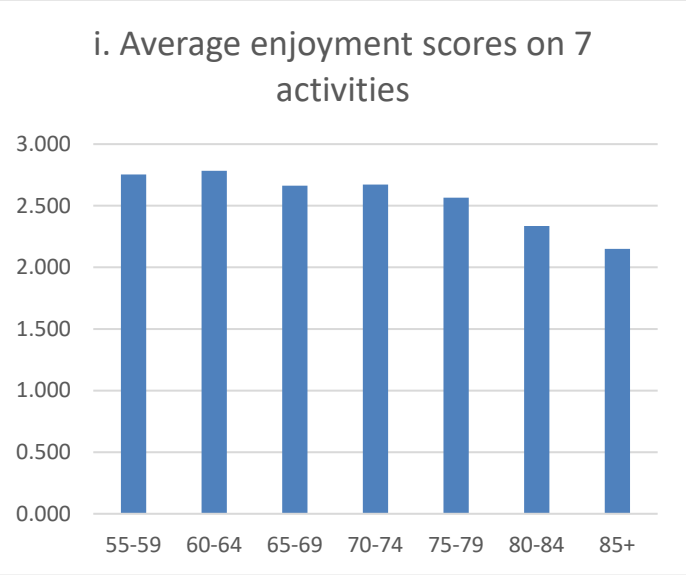


Figure 9: Average regression-adjusted enjoyment scores

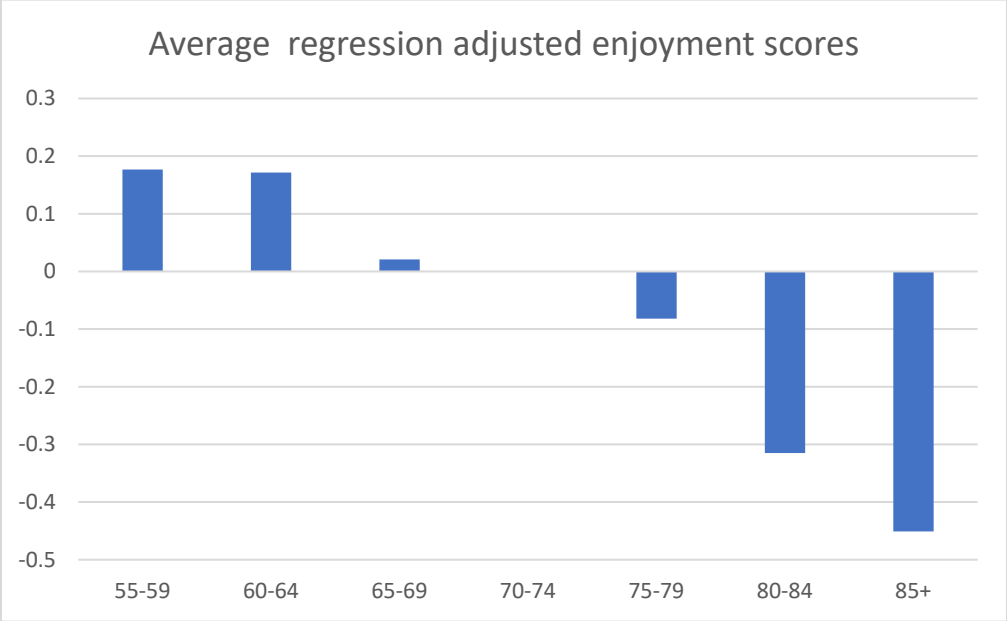


Table 1: Regression of change in enjoyment of various activities on characteristics

	Change in Enjoyment of Various Spending-related Activities Compared to Six Years Ago						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Eating out	Traveling	Leisure	New clothes	New car	New appliances	Giving financial support
self-assessed health: poor	-0.4619***	-0.6389***	-0.5199***	-0.4649***	-0.3426***	-0.3928***	-0.4835***
	[0.093]	[0.107]	[0.096]	[0.090]	[0.111]	[0.103]	[0.108]
fair	-0.1870***	-0.2917***	-0.2594***	-0.1694***	-0.2229***	-0.1662**	-0.2663***
	[0.061]	[0.070]	[0.062]	[0.059]	[0.073]	[0.067]	[0.069]
good (reference)	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
very good	0.08782*	0.2392***	0.1661***	0.05371	0.06369	0.01981	-0.01237
	[0.053]	[0.061]	[0.054]	[0.051]	[0.063]	[0.059]	[0.061]
excellent	0.1141	0.3291***	0.3326***	-0.0008162	-0.07010	-0.08905	0.2368**
	[0.087]	[0.099]	[0.088]	[0.084]	[0.103]	[0.096]	[0.099]
Missing	-0.06805	-0.1418	-0.07290	-0.1178	0.01214	0.03236	-0.03817
	[0.089]	[0.101]	[0.090]	[0.084]	[0.104]	[0.097]	[0.100]
Fin. constraint now: not	0.04751	-0.06949	0.1493	-0.009882	-0.09003	-0.05790	0.2291**
	[0.091]	[0.104]	[0.094]	[0.088]	[0.109]	[0.100]	[0.104]
hardly	0.07100	0.08935	0.1414**	0.07199	0.2575***	0.06373	0.2741***
	[0.056]	[0.063]	[0.057]	[0.054]	[0.066]	[0.061]	[0.063]
somewhat (reference)	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
very constrained	-0.2683***	-0.2938***	-0.2250***	-0.03616	-0.2131**	-0.1324	-0.2085**
	[0.075]	[0.086]	[0.077]	[0.072]	[0.090]	[0.082]	[0.085]
Missing	-0.3828	-0.3015	-0.3451	-0.4823*	-0.1655	-0.4092	0.1934
	[0.241]	[0.299]	[0.262]	[0.247]	[0.313]	[0.295]	[0.295]
Fin. constr. change: a lot less	0.1437*	0.1313	0.1284	0.09263	0.1469	0.06332	0.01202
	[0.079]	[0.091]	[0.081]	[0.076]	[0.094]	[0.087]	[0.090]
somewhat less	0.1572**	0.1194*	0.1029	0.05116	0.06305	0.04056	0.2399***
	[0.064]	[0.072]	[0.064]	[0.061]	[0.075]	[0.070]	[0.072]
same	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
somewhat more	-0.01013	0.008810	-0.06137	-0.05172	-0.01485	-0.02701	-0.1220*
	[0.058]	[0.066]	[0.059]	[0.055]	[0.068]	[0.064]	[0.066]
a lot more	-0.3134***	-0.1923**	-0.2681***	-0.2495***	-0.05007	-0.1684**	-0.2858***
	[0.069]	[0.079]	[0.070]	[0.066]	[0.082]	[0.076]	[0.078]
missing	0.1806	-0.1644	-0.4282	0.1871	-0.3408	-0.1238	-0.4022
	[0.268]	[0.322]	[0.302]	[0.278]	[0.351]	[0.310]	[0.308]
Education: less than HS	-0.2767***	-0.2308***	-0.3774***	-0.09905	-0.06039	-0.05173	-0.1584**
	[0.069]	[0.080]	[0.072]	[0.068]	[0.084]	[0.077]	[0.080]
HS or GED	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]

some college	0.04632	0.1705***	0.1842***	-0.02460	0.2225***	0.1216**	0.2394***
	[0.053]	[0.061]	[0.054]	[0.051]	[0.063]	[0.058]	[0.060]
college or more	0.05411	0.3801***	0.3789***	-0.08272	0.1271*	0.1188*	0.3527***
	[0.056]	[0.064]	[0.057]	[0.054]	[0.066]	[0.062]	[0.064]
nonwhite	-0.1773***	-0.09168*	-0.2408***	0.01318	-0.2043***	-0.08844*	-0.07555
	[0.048]	[0.055]	[0.049]	[0.046]	[0.057]	[0.053]	[0.055]
Missing race	-0.2769	-0.1271	-0.3557	-0.3511	-0.4568	0.04089	0.2060
	[0.286]	[0.335]	[0.319]	[0.282]	[0.335]	[0.313]	[0.334]
55-59	0.05352	0.2398***	0.1424*	0.1770**	0.1546*	0.2622***	0.2089**
	[0.076]	[0.087]	[0.077]	[0.073]	[0.090]	[0.084]	[0.087]
60-64	0.06024	0.2489***	0.2143***	0.2349***	0.04430	0.1525*	0.2462***
	[0.074]	[0.085]	[0.076]	[0.072]	[0.088]	[0.082]	[0.085]
65-69	-0.04188	0.05537	0.09782	0.01118	-0.07397	0.05260	0.04464
	[0.075]	[0.086]	[0.076]	[0.072]	[0.089]	[0.083]	[0.085]
70-74	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
75-79	0.05188	-0.1589*	-0.1308	-0.05329	-0.1706*	-0.1243	0.01396
	[0.083]	[0.095]	[0.084]	[0.080]	[0.099]	[0.092]	[0.095]
80-84	-0.1552*	-0.5269***	-0.4492***	-0.2816***	-0.3521***	-0.2129**	-0.2268**
	[0.084]	[0.096]	[0.086]	[0.081]	[0.100]	[0.092]	[0.095]
85+	-0.1864**	-0.8279***	-0.5217***	-0.2756***	-0.7703***	-0.4372***	-0.1382
	[0.087]	[0.100]	[0.089]	[0.084]	[0.104]	[0.096]	[0.099]
Married	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
Single	-0.1671***	-0.2395***	-0.1028**	-0.0001771	-0.1214**	-0.1451***	-0.1462***
	[0.048]	[0.055]	[0.049]	[0.046]	[0.057]	[0.053]	[0.055]
Single to married	0.1105	0.1413	0.2291*	0.1640	0.05012	0.1041	-0.3020**
	[0.120]	[0.137]	[0.122]	[0.116]	[0.143]	[0.132]	[0.138]
Married to single	-0.1711**	-0.2525***	-0.2081***	-0.07982	-0.2625***	-0.3638***	-0.1616**
	[0.072]	[0.082]	[0.073]	[0.069]	[0.085]	[0.079]	[0.082]
Missing	0.3750	-0.1814	0.2114	0.5417*	-0.03445	-0.2717	-0.6926*
	[0.326]	[0.371]	[0.333]	[0.313]	[0.383]	[0.357]	[0.371]
female	0.08539*	-0.03516	-0.02306	0.09523**	-0.2315***	-0.03463	0.04759
	[0.044]	[0.050]	[0.045]	[0.042]	[0.052]	[0.049]	[0.050]
constant	3.0147***	2.8090***	2.9360***	2.6814***	2.6342***	2.6693***	2.4519***
	[0.085]	[0.097]	[0.087]	[0.082]	[0.102]	[0.094]	[0.097]
r2	0.1148	0.1985	0.2132	0.06415	0.1052	0.07175	0.1255
N	2914	2874	2839	2874	2853	2889	2883

Note: Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Table 2: Regression of change in budget share on change in enjoyment plus controls

	Eat out	Travel	Leisure	Clothes	New car	New appl etc.	Fin. Support
Change in Enjoyment							
Eating out	0.00398***						
	[0.001]						
missing	-0.000492						
	[0.007]						
Traveling		0.00516***					
		[0.001]					
missing		0.00681					
		[0.005]					
Leisure			0.00565***				
			[0.001]				
missing			0.00271				
			[0.007]				
New clothes				0.00186**			
				[0.001]			
missing				0.00856**			
				[0.004]			
New car					0.0106***		
					[0.003]		
missing					0.0240*		
					[0.014]		
New appliances						0.00234***	
						[0.001]	
missing						0.00918**	
						[0.004]	
Giving fin. Support							0.00573***
							[0.001]
missing							0.0142*
							[0.008]
Spending Change	-0.0000002***	-0.0000002***	-0.0000003***	-5.41e-08*	0.0000031***	-1.58E-08	0.00000042***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Age							
55-59	-0.00353	0.00656	-0.0107	0.00297	0.0286	-0.005	-0.0028
	[0.008]	[0.007]	[0.010]	[0.005]	[0.021]	[0.005]	[0.010]
60-64	-0.00192	-0.00098	-0.00873*	-0.00293	0.0123	-0.00467*	-0.0077
	[0.004]	[0.004]	[0.005]	[0.003]	[0.010]	[0.003]	[0.005]
65-69 (Ref.)	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
70-74	0.00173	-0.0048	-0.0142***	-0.00309	-0.00352	-0.00653**	0.00252
	[0.004]	[0.004]	[0.005]	[0.003]	[0.011]	[0.003]	[0.006]
75-79	-0.00133	-0.00698*	-0.0167***	-0.00121	0.00978	-0.00351	-0.00633

	[0.005]	[0.004]	[0.005]	[0.003]	[0.011]	[0.003]	[0.006]
80-84	-0.00928**	-0.00773*	-0.0148***	-0.00419	0.0119	-0.00634**	-0.00325
	[0.005]	[0.004]	[0.005]	[0.003]	[0.011]	[0.003]	[0.006]
85-89	-0.00455	-0.0135***	-0.0199***	0.00031	0.00267	-0.00496	-0.0158**
	[0.005]	[0.004]	[0.006]	[0.003]	[0.012]	[0.003]	[0.006]
Education							
Less than HS	0.00688	0.00484	0.0113**	-0.00356	0.0062	0.00089	0.00198
	[0.004]	[0.004]	[0.005]	[0.003]	[0.011]	[0.003]	[0.005]
HS grad & GED	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
Some college	-0.00253	0.00121	-0.000235	0.00226	0.00742	-0.000584	-0.00406
	[0.003]	[0.003]	[0.004]	[0.002]	[0.008]	[0.002]	[0.004]
College or more	-0.00062	0.00167	-0.000689	0.000613	0.00754	0.00233	-0.00272
	[0.004]	[0.003]	[0.004]	[0.002]	[0.009]	[0.002]	[0.004]
Female	0.000334	-0.000833	0.00127	0.000867	-0.0124*	-0.00116	0.000289
	[0.003]	[0.003]	[0.003]	[0.002]	[0.007]	[0.002]	[0.004]
Marital status							
Marr/partnered	0	0	0	0	0	0	0
	[.]	[.]	[.]	[.]	[.]	[.]	[.]
Single	-0.00435	0.00402	0.0018	-0.00288	0.0190**	-0.000342	-0.00228
	[0.003]	[0.003]	[0.004]	[0.002]	[0.007]	[0.002]	[0.004]
Single to couple	-0.0045	0.0119*	0.00854	-0.00601	0.0392*	0.0113**	-0.0046
	[0.008]	[0.007]	[0.010]	[0.005]	[0.020]	[0.005]	[0.010]
Couple to single	0.00478	0.00354	0.00453	-0.00146	0.0261**	-0.00172	0.0091
	[0.005]	[0.005]	[0.006]	[0.003]	[0.013]	[0.003]	[0.007]
Missing	0.0758**	-0.0043	0.0499	-0.0294	0.00837	-0.00304	0.0027
	[0.035]	[0.031]	[0.041]	[0.023]	[0.087]	[0.022]	[0.044]
Non-white	0.00707**	-0.000764	0.00125	-0.00007	0.00209	0.000932	0.00153
	[0.003]	[0.003]	[0.004]	[0.002]	[0.008]	[0.002]	[0.004]
Race - missing	-0.0562***	0.00601	-0.0375	-0.00843	0.0158	-0.000559	0.0102
	[0.019]	[0.017]	[0.023]	[0.013]	[0.048]	[0.012]	[0.024]
constant	-0.00754	-0.0113*	-0.0105	-0.00578	-0.0304*	-0.00197	-0.00889
	[0.007]	[0.006]	[0.008]	[0.004]	[0.016]	[0.004]	[0.008]
R-squared	0.0256	0.039	0.0345	0.0108	0.247	0.0156	0.0387
N	2,117	2,117	2,117	2,117	2,117	2,117	2,117

Note: Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.0