Changes in Consumption and Activities at Retirement

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1. Introduction

The simple one-good model of life-cycle consumption requires "consumption smoothing:" the trajectory of consumption by an individual should be continuous in time.   If the trajectory is not continuous, a reallocation of consumption so as to reduce the size of the discontinuity will increase utility without an increase in the use of resources. However, British households apparently reduce consumption at the ages associated with retirement, and the reduction cannot be explained by the life-cycle model (Banks, Blundell and Tanner, 1998). Households in the Panel Study of Income Dynamics sharply reduced several components of consumption at retirement (Bernheim, Skinner and Weinberg, 2001). The observed drop in consumption at retirement is the retirement-consumption puzzle.

The explanation for the drop in consumption has important implications for economic theory. Banks, Blundell and Tanner interpret the drop to be the result of "unanticipated shocks occurring around the time of retirement (p. 784)." Bernheim, Skinner and Weinberg take the decline (as well as patterns of wealth holdings) to be evidence against models of behavior in which agents are rational and forward looking. "If households follow heuristic rules of thumb to determine saving prior to retirement, and if they take stock of their financial situation and make adjustments at retirement (so that the adequacy of saving is "news"), then one would expect to observe the patterns documented in this paper (p. 855)."   If these interpretations of the retirement-consumption puzzle are correct, they cast doubt on models of rational forward-looking economic behavior, such as the life-cycle model. Because the life-cycle model is the standard model for the analysis of intertemporal decision-making at the household level, its rejection would require a substantial change in research strategies.

There are, however, other interpretations of the retirement-consumption puzzle. The most obvious interpretation has to do with work-related expenses, but it appears that such expenses are not large enough to explain the observed drops in consumption at retirement (Banks, Blundell and Tanner). A second obvious explanation is that households have considerably more leisure. The increased leisure can be used to purchase goods more efficiently or to substitute home-produced goods for purchased goods, but it could also lead to increases in purchased goods because of complementarities.   If some uses of time are substitutes for market-purchased goods and some are complements, the overall effect is an empirical matter, but we would *expect* consumption to change at retirement, not that it be smooth. A third explanation is that the timing

of retirement is uncertain. Some workers retire earlier than anticipated because of a health event or unemployment, resulting in an unexpected reduction in lifetime resources, and the reduction leads to a concurrent reduction in consumption. Such a reduction in consumption is well within the spirit of the life-cycle model.

This paper has two main goals. The first is to present evidence that prior to retirement households anticipate reducing consumption at retirement, and that the anticipations are fully consistent with the reductions that households report having made when they did retire. That is, the *ex ante* and the *ex post* reductions in consumption are on average consistent with rational anticipatory behavior. The second goal is to document that the pattern of spending and time-use before and after retirement is qualitatively consistent with models of home production in which time is combined with purchased goods to produce utility. In such a model we would expect that the volume of purchased goods would change in a discontinuous manner when the volume of leisure changes in a discontinuous manner as it does at retirement.

Our main result is that on average workers anticipate that their spending will decline at retirement, and that average anticipated declines in spending are about the same as average actual declines as recollected after retirement.[32] These results are direct evidence against the interpretation of Banks, Blundell and Tanner, and of Bernheim, Skinner and Weinberg for the decline in consumption at retirement. In that interpretation people did not correctly forecast their low levels of economic resources, and had to reduce consumption in accommodation. They would not have anticipated such a decline in consumption. In contrast, our results suggest that on average people are not surprised at retirement by the decline in spending and we should look for mechanisms associated with retirement that would allow for a reduction in consumption, rather than abandoning the life-cycle model. These mechanisms would include the cessation of work-related expenses and home production which can substitute for market purchased goods. They would also include stochastic events that precipitate earlier-than-expected retirement, and which result in a reduction in life-time resources.

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[32] Spending differs from consumption because of durable purchases, in-kind transfers and home production. Our measure is spending, which we will use interchangeably with consumption.

2**. Theoretical background**

In its simplest form the life-cycle model (LCM) with one consumption good specifies that individuals choose a consumption path to maximize expected lifetime utility, and that the instantaneous utility function is unchanging over time. The shape of the optimal consumption path is partially or wholly determined by utility function parameters, the interest rate and mortality risk. The level of the path is determined by the lifetime budget constraint, and the difference between the level of consumption and income determines the saving rate and the equation of motion of wealth. Auxiliary assumptions, which are not controversial, are that marginal utility is continuous in consumption and that marginal utility declines in consumption. A condition for lifetime utility maximization is that marginal utility be continuous in time: were it not continuous a reallocation of consumption across the discontinuity from the low marginal utility state to the high marginal utility state would increase total utility without a greater use of resources. Such a reallocation should continue until there no longer is a discontinuity in marginal utility.   Because consumption is monotonic and continuous in marginal utility, an implication is that consumption must be continuous in time. That is, consumption must be smooth over time.

In a more general model, which recognizes uncertainty, individuals or households experience unanticipated windfall gains or losses to wealth, earnings or annuities, and then re-optimize to a new consumption path, causing a discontinuity in the consumption path. However, wealth, earnings or annuity changes which are foreseeable should cause no change in the consumption path because the lifetime budget constraint has not changed. In particular consumption should not change at retirement if retirement occurs as planned.[33] But if retirement is sooner than expected lifetime resources will be less than expected so that consumption will have to be adjusted downward. The obvious example is a stochastic health event that causes early retirement. Negative health shocks leading to early retirement are undoubtedly empirically important, so that we should expect to observe some unanticipated decline in consumption at retirement from these shocks alone.

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[33] If some of measured consumption is, in fact, work-related expenses, consumption as measured by spending would drop at retirement, but utility-producing spending would not. This is a measurement issue.

A second generalization of the LCM specifies that utility depends on more than one good, in particular leisure as well as consumption. Suppose that the within-period utility function is $u(c,l)$. The implications for retirement on consumption depend on whether the utility function is separable; that is, whether the marginal utility of consumption depends on l. If the utility function is separable, u_c should be continuous in time and consumption will also be continuous.

If the utility function is not separable, but retirement is gradual so that l increases slowly, consumption will also change in a continuous manner. But for most workers l increases abruptly by about 2,000 hours per year. A condition of utility maximization is that u_c be the same immediately before and immediately after retirement: the argument is the same as we gave earlier in the context of a single good model of the LCM. Now, however, because of nonseparability and because of the sudden change in l, the LCM *requires* a discontinuous change in consumption.

Some types of leisure are substitutes for the consumption of market purchased goods such as home repairs, some are complements with consumption such as travel, and some are neutral such as watching television. Everyday observation and introspection say that we have all types, and it is an empirical question as to which dominates. But the main point is that we would not expect consumption to be smoothed over retirement.

Because of differences in tastes and differences in economic resources we expect heterogeneity across households in whether substitution or complementarity dominates. For example, someone with high wealth may continue to purchase home repairs as before retirement, but spend more on travel with a net effect of an increase in spending. Someone with a high wage rate may have purchased home repairs before retirement but will do them himself after retirement for a net reduction in spending.

To the extent that retirement is planned and anticipated, and that before retirement workers can imagine their activities and spending after retirement, they should be able to state how spending will change at retirement, and on average the actual changes should match the anticipated changes. However, it is more realistic to think that workers who are far from retirement will have some difficulty imagining what their activities and spending will be after retirement. Therefore we should expect some discrepancy between anticipations and realizations when the time to retirement is substantial.

In this discussion we have simplified the problem by assuming that retirement is given exogenously. Whether retirement is chosen does not affect the discontinuity in consumption when leisure and consumption are not separable provided the increase in leisure is discontinuous. As an empirical matter a substantial majority of retirement is from full-time to completely out of the labor force (Rust, 1990) and there are good reasons for such a sharp transition.[34]

3. Data

Our data come from the Health and Retirement Study (HRS) and from a supplemental survey to the HRS, the Consumption and Activities Mail Survey (CAMS). The HRS is a biennial panel. Its first wave was conducted in 1992. The target population was the cohorts born in 1931-1941 (Juster and Suzman, 1995). Additional cohorts were added in 1993 and 1998 so that in 2000 it represented the population from the cohorts of 1947 or earlier. The HRS interviewed about 20,000 subjects in the year 2000 wave. In October, 2001, wave 1 of CAMS was sent to 5000 persons, a random sub-sample of the HRS. In married households it was sent to one of the spouses. There were about 3800 responses.[35]

In October, 2003, CAMS wave 2 was sent to the same households. The structure of the questionnaire was almost the same so as to facilitate panel analysis. In this paper we will use cross-section data from CAMS wave 1 and from both waves for panel comparisons/

CAMS has three main topics: Part A is about activities or uses of time; Part B collects data on spending, including anticipations and realizations about changes in spending at retirement; and Part C asks information about labor market status and prescription drug usage.

The focus of this paper is on anticipated and actual changes in spending at retirement, and time use as it varies with retirement status. We will make limited use of the information in Part C about labor force status, and we will link to the HRS core data to obtain data on income, wealth, health and other personal characteristics. Our main analyses will be based on data from the following question sequence.

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[34] For example, a defined benefit pension plan can have such strong incentives to retire that workers within a wide range of tastes for retirement will all retire. Most firms will not allow a gradual reduction in work hours, so that a worker who would like to retire gradually will be forced to change employers and possibly occupations (Hurd, 1996).

[35] Although the response rate was high there was some differential non-response by demographic characteristics. HRS has supplied weights to account for non-response, and most of our analyses will use them. Because our main variables are about household spending we will use the household weights. We have conducted parallel analyses using unweighted data and the result are very little different.

Excerpt from the CAMS Questionnaire:
Question B38.

      We would like to understand more about spending in retirement.

                    Are you retired?

    _____   Yes ➔ **Complete BOX A**   No ➔ **Complete BOX B**

BOX A – Retired:	BOX B – Not Retired:

a. How did your TOTAL spending change with retirement?
    _____ Stayed the same ➔ **Go to c**
    _____ Increased
    _____ Decreased
	d. How do you expect your TOTAL spending to change with retirement?
	    _____ Stay the same ➔ **Go to f**
	    _____ Increase
	    _____ Decrease

b. By how much?
    _____%
	e. By how much?
	    _____%

c. For the items below, check (✓) whether the spending increased, decreased or stayed the same in retirement:	**f**. For the items below, check (✓) whether you expect spending to increase, decrease or stay the same in retirement:

B39.	Increase(d)	Decrease(d)	Stay(ed) the same
a. Trips, travel, or vacations			
b. Clothing			
c. Eating out / food and beverages			
d. New home, home repairs, or household items			
e. Entertainment, sports, and hobbies			
f. Automobile expenses			

4. Average Change in Spending, cross-section from CAMS wave 1.

According to the answers in B38, 64.5% of the sample in the raw data classify themselves as retired, 29.4% as not retired and 6.2% did not respond to this question.[36]

To arrive at the analytical sample for this study we make some minimal selections. We require valid responses to anticipated and realized changes in spending at retirement (B38a and

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[36] Some respondents might have found this routing question simplistic. Take for example a person who is a homemaker or who is disabled. We have studied how respondents of different labor market status answered this question. See Hurd and Rohwedder (2003) for a detailed analysis.

B38d); a successful match to the HRS core survey; and that respondents are not in the extreme tails of the age distribution among the retired and the not-retired.[37]

Table 1 shows that about 69% of the not-retired in our sample anticipate a reduction in spending at retirement and about 52% of the retired experienced a reduction at retirement.[38] On average the decline in spending is not a surprise. Thus there is no basis for interpreting the decline to be evidence that the population failed to anticipate economic resources at retirement. If anything there seems to be a suggestion of a positive surprise in that among the not-retired a larger fraction anticipates a decline than is reported by the retired.

These results are similar to those of Ameriks, Caplin and Leahy (2002). They found in a sample of TIAA-CREF participants that among those not retired 55% expect lower spending in retirement, 35% expect the same and 10% expect an increase in spending. Among those already retired 36% experienced lower spending, 44% had the same spending, and 20% had an increase in spending. The most important difference between the TIAA-CREF sample and our sample is that the TIAA-CREF sample is much wealthier and does not represent the entire population. The main point, of course, is that their results as well as ours do not support the interpretation of Banks, Blundell and Tanner, and of Bernheim, Skinner and Weinberg.

Based on the responses to B38b and B38e, which give the percentage change in spending at retirement, we find that among not-retired singles the average anticipated decline in spending is about 19% compared with an average realized decline of about 12%. Among couples the averages are about 19% and 9% (Table 2). These reductions are similar to those reported in Bernheim, Skinner and Weinberg, who estimate a mean reduction of 14%.

A possible objection to our comparing anticipated spending change to realized spending change is that our comparison is cross-sectional: we are comparing the anticipations and experiences of different people.[39] Perhaps retirement is associated with an unanticipated decline in spending, and had the retired been asked about anticipations when they were still working many would not have anticipated a decline.

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[37] See Hurd and Rohwedder (2003) for details.

[38] These percentages are almost identical to those based on the complete sample (before selections for age and matching to the HRS core).

[39] Because we have anticipations by workers, our data have a panel aspect that cross-sectional data typically lack. Nonetheless, to verify unambiguously that the anticipations are realized requires panel data showing actual change at retirement.

We address this issue by studying the age-pattern of responses. At younger ages in the HRS there has been little if any selection: the population has not yet begun to retire. At older ages in the HRS almost the entire population has retired. We fit the percent change in spending at retirement to age, and separately to the expected retirement age in the case of the not-retired, and to the actual retirement age in the case of the retired.[40] Figure 1 shows the fitted values from these estimations, evaluated at age 63. Whether fitted to age or to years before or since retirement, the pattern is the same. At age 50 or 13 years before retirement workers anticipate a 23-24% reduction in spending at retirement. This figure decreases until at age 63 or at retirement the reduction is between 16.7% and 17.7%. At age 63 or immediately following retirement the realized reduction is between 14.4% and 15.9%, and the realized reduction declines somewhat with increasing age. Thus the estimated difference between anticipated and realized changes in spending at retirement obtained from the age trends is about two percentage points, but the difference points to smaller reductions among the retired, not larger ones. The figure shows that the rather large difference between average anticipations and realizations in Table 2 is due to the differences in the ages of the not-retired and retired populations. Once age has been taken into account there is little difference.

One reason for a spending decline at retirement has to do with stochastic events that cause people to retire sooner than expected. For example, a health event can lead to early retirement and the associated reduction in lifetime resources should lead to a decline in spending. The entire population is at some risk for a health shock and so should with some probability anticipate a reduction, but those in worse health are at greater risk (McClellan, 1998). Thus in the working population bad health should be associated with a greater anticipated decline in spending at retirement. In the retired population those in worse health are more likely to have had a health shock and to have retired earlier than expected, so they should have experienced a larger decline in spending.

Table 3 shows the percent of those retired who experienced a decline in spending as a function of whether health was an important reason for retiring. Thus among those who give health as an important reason (21.9% of the sample), 68% had a decline in spending and the average amount was about 25%. This contrasts with those who said health was not important at

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[40] These data were taken from the HRS core instrument.

all (about 68%): their reduction in spending was about 11%. While these results do not directly address the issue of a health shock (because some of those whose health was an important cause of retirement were probably always in bad health), they are supportive of the view that at least some of the decline in spending is due to a health shock causing early and unexpected retirement. This interpretation is consistent with studies of the effects of health shocks on actual retirement (McClellan, 1998).

5. Time Use Before and After Retirement

If home production is partly responsible for the observed drop in spending the amount of time spent on activities such as cooking, cleaning, home maintenance and the like should increase at retirement. To investigate this in a reliable way we would need panel data.

In section A of CAMS, the respondent was asked about his or her use of time. Many of these categories of time use would neither be complements nor substitutes with market purchased goods. For example, "walking," or "watching TV" would seem to interact very little with market purchased inputs. We chose seven activities as shown in Table 4 that might be substitutes for market purchased goods or services and one that might be a complement.[41] Because time use changes rather sharply with age we have limited our analysis to narrow age bands.[42] The table compares hours spent per week among those 60-64 classified by retirement status and by sex. Thus, not-retired men spent 2.9 hours per week on house cleaning while retired men spent 3.2 hours per week. Women spent much more time on house cleaning and the difference between the not-retired and the retired is greater than among men. For men the not-retired spent about 14.3 hours per week on the possible substitutes and the retired spent about 19.5 hours.

The reported hours of work show a difference of about 29 hours for men and 30 for women.

We performed a similar analysis for the age band 65-69, and Table 5 summarizes these hours differences by retirement status for both age bands 60-64 and 65-69. The last line of the

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[41] Section A of CAMS has 31 categories of time use, but they were not chosen for an analysis of home production, which is the reason they are so lacking in complements.

[42] The sample has the additional restriction that the same person answered parts A and B of CAMS. We imposed this restriction because we want to observe the concurrent change in hours and spending, which could not be assured if different persons answered A and B. This selection reduced the sample by 77 observations out of 1294 (both age bands combined).

table gives a rough guess of the dollar savings in market purchases when we evaluate an hour at $10. We emphasize that this valuation is merely to gain some sense of whether the time amounts are approximately large enough to explain the anticipated and actual change in spending. If we add the possible dollar savings for men and women and compare them with total household spending in the relevant age bands as found in the CEX, we calculate that the saving due to reduced market purchases is approximately 15.4% for 60-64 year-olds and 15.0% for 65-69 year-olds. We conclude that the time spent on possible substitutes is large enough that in principle it could explain a large part of the observed drop in spending at retirement. Of course, work-related expenses could also account for 5-10% of the decline in spending.

6. Spending change at retirement in panel: CAMS wave 1 to wave 2.

With a few minor exceptions CAMS wave 2 was sent to the same persons who were sent CAMS wave 1. The structure of the questionnaire was almost identical. Our main objective in panel analysis in this paper is to find whether we can verify the results from cross-section.[43] The importance is that the cross-section analysis compares answers across people whereas the panel is a within person analysis. The results will respond to a possible criticism of the cross-section results that the time between retirement and the CAMS 1 survey response can be substantial resulting in large recollection error in the case of those already retired and in large forecast error in the case of those not yet retired.

Between waves 1 and 2, two hundred twenty eight respondents retired: these respondents stated they were not retired in wave 1 and were retired in wave 2. Table 6 shows that 132 of the 228 stated in wave 1 that they anticipated a decline in spending at retirement which is 59% of the responses excluding the "missing." In wave 2, 106 stated that spending had declined which is 48% of the responses excluding the "missing." These percentages are rather close to the cross-section percentages of 68% and 52% as shown in Table 2.

There is individual-level variation in anticipations compared with recollections as shown in the rows of the table. For example, among those anticipating a decline, just 56% recollected a decline after retirement. Nonetheless, the wave 1 responses have considerable discriminatory power for predicting an actual decline: the risk of a decline for someone who anticipated that

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[43] In future research we will use actual spending change as measured by the 32 spending items.

spending would decline relative to the risk of a decline for someone who anticipated that spending would remain the same is 1.77.

Table 7 shows expected and recollected spending amounts calculated from the reported percentage changes that were anticipated or recollected. We converted them to amounts by applying the percentages to CAMS wave 1 total spending as measured by the 32 spending categories in Section B. The average anticipated spending reductions was about $6.3 thousand; the average recollected spending reduction was about $4.5 thousand. The difference ($1.8 thousand) amounts to about 4.5% of total spending among the 228 households. The distribution shows that the median recollected change was zero and that about 55% either had no change or an increase in spending. Thus any retirement-consumption puzzle with respect to changes in spending at retirement is not a population-wide phenomenon.

Table 8 shows the average of the individual level anticipated and recollected percentage changes in spending. The difference between them is about 4.6 percentage points. This compares closely with gap between anticipation and recollections at retirement which is shown in Figure 1. There the gap is approximately 2 percentage points at age 63 or at the age of retirement.

Table 9 shows the change in hours spent on activities what we have classified as possible substitutes for market purchased goods. The changes are calculated as wave 2 hours spent in the activities minus wave 1 hours. For example, the 228 individuals who retired between the waves spent 1.46 hours more per week in yard work and gardening at wave 2 than they did in wave 1. Overall the time spent in market substitutes increased by about 5.5 hours per week. This is in close agreement with the cross-section comparisons. For example, in Table 4, men aged 60-64 who were retired spent 5.2 more hours on market substitutes than men who were not retired and women spent 5.1 hours more. Even the components of market substitutes show close agreement between panel and cross-section. For example, yard work/gardening and meal preparation increased the most in panel: they increased the most in cross-section.

Men had a larger reduction in hours of work than women and also a larger increase in hours spent on market substitutes (Table 10). We can calculate a rate of substitution of time spent in these activities for time spent in employment from the differences by sex. Thus men increased time in market substitutes by 0.87 hour more than women and decreased their time

spent in employment by 3.83 hours more than women. These figures imply a rate of substitution of 0.23 (0.87/2.83).

We conclude that the cross-section results are similar to the panel results. Both show that declines in spending are anticipated, but that recollected declines are smaller than anticipated. Further the magnitudes of the anticipated declines and the recollected declines are similar in cross-section and panel. Similarly the change in time spent in possible market substitutes as observed in panel following retirement is approximately the same as found in cross-section from a comparison of those retired with those not retired.

8. Conclusions

In a life-cycle model where the utility function is not separable in leisure and consumption, we would expect consumption to change at retirement, but the magnitude and direction of the change depends on utility function parameters. In this study we have used data on anticipated changes in consumption at retirement and compared them with recollected changes both in cross-section and panel. Our results indicate that consumption does changes at retirement but the change is not a surprise to most people, which is consistent with rational forward-looking behavior.[44] In fact the average anticipated decline in consumption is larger than the average realized decline in consumption.

Conventional economic theory has several explanations for the decline. The use of the newly available time can reduce market expenditures through home production and through more efficient shopping. For some people health shocks or other stochastic events are likely to be the important events leading to earlier-than-expected retirement and a reduction in spending necessitated by lower-than-expected lifetime resources.

We believe that these conclusions are adequate explanations to describe the population broadly. But there is considerable heterogeneity in the population. It is likely that some households anticipate a reduction in consumption at retirement which will be forced by the lack of economic resources. To the extent they anticipate that a decline in work-related expenses and the use of time for home production will compensate for the decline in income, their behavior is

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[44] Financial planners state that retired household need 75-80% of their pre-retirement income to maintain the same level of "well being."

consistent with a life-cycle model. But some households may anticipate that a reduction in consumption will be required by a reduction in income at retirement and may understand that overall they would be better off by immediately reducing consumption; yet they lack the control to reduce consumption. Whether this group is numerically important cannot be determined by our data, but it is likely not to be the dominant group.

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Table 1
Anticipated and Realized Changes in Spending at Retirement, CAMS 1 cross-section.

		Change in Spending			
Retirement Status	N	Decrease	Same	Increase	Total
Not retired	1,094	67.6	27.4	4.9	100.0
Retired	2,407	51.5	37.1	11.4	100.0
Missing	93	47.3	40.9	11.8	100.0

Source: Authors' calculations

Table 2
Anticipated and recollected percent change in spending at retirement, CAMS 1 cross-section.

	Couples			Singles
	Males	Females	All	
Anticipated	-18.5	-19.9	-19.3	-19.2
Recollected	-9.7	-9.0	-9.3	-12.1

Source: Authors' calculations

Table 3
Importance of Poor Health as a Reason for Retirement, CAMS 1 cross-section.

Importance of Poor Health for retirement	Distribution	Percent who experienced a decline	Average change (%)
Very important	21.9	67.5	-24.5
Moderately important	5.9	65.8	-15.5
Somewhat important	4.7	60.9	-13.7
Not important at all	67.6	48.4	-11.4
All	100.0	54.2	-14.5
Observations	*1212*	*1212*	*1007*

Note: Based on HRS 2000 question G138a-1: "I am going to read you a list of reasons why some people retire. Please tell me whether, for you, these were very important reasons for retirement, moderately important, somewhat important, or not important at all.

Source: Authors' calculations

Table 4

Importance of home production: Evidence from Time-Use Data for Respondents aged 60-64, CAMS 1 cross-section.

	Hours per week			
	Males 60-64		Females 60-64	
	Not retired	Retired	Not retired	Retired
Possible substitutes				
House cleaning	2.88	3.16	5.80	7.25
Washing/ironing	1.03	1.14	3.56	3.91
Yard work/gardening	2.10	4.07	1.48	2.10
Shopping	3.16	3.41	3.86	4.74
Meal preparation	3.46	4.51	7.42	9.34
Money management	0.78	0.84	0.89	0.86
Home improvements	0.88	2.32	0.75	0.74
Total	14.29	19.45	23.76	28.94
Possible complement				
Concerts/movies	0.72	0.32	0.27	0.25
Work for pay	34.62	5.65	31.73	1.73
Observations	*88-90*	*176-179*	*153-155*	*250-255*

Source: Authors' calculations

Table 5

Change in hours per week associated with retirement, CAMS 1 cross-section.

	Males		Females	
	60-64	65-69	60-64	65-69
Substitutes	5.16	9.20	5.18	0.89
Complement	-0.40	0.23	-0.02	0.08
Work for pay	-28.97	-30.04	-30.00	-24.24
Possible dollar saving	*2,683*	*4,784*	*2,694*	*463*

Note: "dollar saving" (annual) from evaluating substitute hours at $10 per hour.
Total household spending for this age group from CEX: about $35,000.
Source: Authors' calculations

Table 6

Anticipated and recollected change in spending at retirement. Panel. Percent distribution

Anticipated in wave 1 while working	Recollected in wave 2 (following retirement)					
	Increase	Decrease	Same	Missing	All	N
Decrease	56.1	31.8	8.3	3.8	100	132
Same	31.7	60.8	6.3	1.3	100	79
Increase	36.4	36.4	27.3	0.0	100	11
Missing	50.0	0.0	33.3	16.7	100	6
All	46.5	41.2	9.2	3.1	100	
N	*106*	*94*	*21*	*7*		*228*

Source: Authors' calculations

Table 7
Expected and recollected change in actual spending. Panel

	Expected	Recollected
Mean	-6,303	-4,497
20th percentile	-12,445	-10,381
45th	-3,842	-316
50th	-2,136	0
85th	0	0
90th	0	0
95th	1,095	8,325

Source: Authors' calculations

Table 8
Percent change in spending at retirement, panel

	Singles	Couples	All
Anticipated	-18.7	-15.2	-16.2
Recollected	-13.3	-10.9	-11.6

Source: Authors' calculations

Table 9
Changes in hours per week at retirement, panel

House cleaning	0.68	Washing, ironing	0.14
Yard work/gardening	1.46	Shopping	0.82
Food preparation	1.42	Finances	0.10
Home improvements	0.79		

Total substitutes 5.48 hours per week

Source: Authors' calculations

Table 10

Changes in hours per week at retirement, panel

	Market substitutes	Work
Male	6.02	-21.25
Female	5.15	-17.42

Source: Authors' calculations

Figure 1

Spending change at retirement (%)