Consumption Patterns around the Time of Retirement: Evidence from the Consumer Expenditure Surveys

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Abstract

This study, using the *Consumer Expenditure Surveys* from 1984 through 1998, revisits the widely pronounced retirement-savings puzzle, which claims the existence of a sharp drop in consumption at the time of retirement. In contrast to previous work, I find that consumption of the retired households is consistent with the smoothing behavior implied by the conventional permanent income/life-cycle models. The results present evidence that the elderly actually do not reduce their standard of living around the time of retirement due to a shortage in savings or some other reasons. While the evidence does not favor a dramatic drop in consumption, the composition of consumption changes significantly as households move into the retirement period. The difference between the results of this study and those of the previous work is mainly driven by the fact that I use a comprehensive measure of consumption that includes not only nondurables and services but also service flows from housing and durables. Moreover, using detailed information on the prices faced by the households yields a more accurate measure of household consumption.

1. Introduction

Over the last couple of decades economic status of the elderly in the U.S. has been the central theme of many studies done by economists. These studies have been stimulated mostly by demographic changes that have taken place with respect to the age structure of the U.S. population (due to either decreases in the fertility or increases in life expectancy) and the uncertainties that are faced by the Social Security and pension system. A particular importance has given to investigating the consumption and savings patterns of the elderly population in terms of an assessment of their post-retirement well-being and an evaluation of whether the elderly are able to sustain their standard of living as they head to the retirement period. The results are controversial in the sense that while some studies find evidence of a sharp decline in consumption at the time of retirement, the others dispute this conclusion. Moreover, some studies suggest that the current elderly are at least as well-off as the non-elderly (see Hurd (1990)).

Among those studies, for example, Hamermesh (1984) and Mariger (1987) using data from the U.S. find that the elderly are not able to sustain their pre-retirement well-being and reduce their consumption levels dramatically as they move into retirement. Hamermesh also infers that Social Security retirement benefits cannot meet sufficiently one of the program's main goals- the maintenance of consumption. On the other hand, Kotlikoff, Spivak, and Summers (1982) claim that only a few elderly suffer significant reductions in their standard of living in their old age. They attribute this result to the compulsory savings role played by Social Security and private pension systems, and conclude that these institutions have succeeded in redistributing the lifetime consumption of private individuals from their youth to their old age. In a similar study Robb and Burbridge (1989), using data from Canada, also find that consumption at retirement shows a sharp decline. Hausman and Paquette (1987) investigate the effects of involuntary early retirement on consumption for the U.S. households, and they find that food consumption declines by about 30 percent for individuals who suffer involuntary retirement.

Two of the more recent studies along this line of research are done by Banks, Blundell, and Tanner (1998) and Bernheim, Skinner, and Weinberg (2001). Banks, Blundell, and Tanner (1998) analyze income and nondurable expenditure patterns around the time of retirement for the successive date-of-birth cohorts using data from the U.K. They find a fall in nondurable consumption as households heads retire, and argue that this finding cannot be fully explained by a forward-looking consumption-smoothing model. Bernheim, Skinner, and Weinberg (2001), after imputing the consumption of *Panel Study of Income Dynamics (PSID)* households, investigate the relation between the accumulated wealth and the shape of consumption profile. They also find a decrease in consumption at retirement and argue that the data are consistent with "rule of thumb", "mental accounting", or hyperbolic discounting theories of wealth accumulation, and inconsistent with the standard life-cycle models that attribute the variation in consumption and savings to differences in time preference rates, risk tolerance, and relative tastes for work and leisure at advanced ages etc.

Assuming that the role of private arrangements such as intervivos transfers from children to parents is negligible, it is mostly the case that consumption of the elderly is financed either through their own savings or through social programs. If the elderly do not have enough own savings then an increase in the retired elderly population will clearly bound the ability of the social institutions in helping to finance their consumption throughout the years of the end of the life-cycle. Therefore, a clear understanding of the standard of living of the elderly during their retirement years is necessary for the formation of effective social policies and more research is needed to achieve this goal. Thus, in the present study I take a further step along the lines of Banks, Blundell, and Tanner (1998) and Bernheim, Skinner, and Weinberg (2001) and revisit the so-called retirement-savings puzzle described as a one-time sharp drop in consumption at the time of retirement. That is, using data from the *Consumer Expenditure Surveys (CEX),* I investigate whether the U.S. households really significantly reduces their consumption as they retire, after controlling for other factors such as changes in demographics (household sizes etc.). In contrast to most of the previous work, by looking at the patterns in both the consumption growth and the level of consumption throughout the life-cycle, I find evidence that does not support the widely pronounced retirement-savings puzzle. The results, however, suggest that U.S. households do not decrease their consumption at the time of retirement, and the well-being of the elderly (measured by either per-capita or per adult equivalent consumption) in post-retirement years is compatible with their well-being in pre-retirement years which is consistent with results presented by Hurd (1990).

While, consistent with the consumption smoothing implication of the life-cycle hypothesis, the findings in this study indicate no evidence of a sharp reduction in (real) total household consumption around the time of retirement, there is not a priori to believe that the composition of consumption would also be the same before and after retirement. Since exploring the changes in demand patterns at or after retirement would also have important policy implications in an aging society such as the U.S., my second set of investigations in this study looks at the two-stage budgeting effects of retirement on consumer demands such as housing, food, consumer services. The findings of this part indeed suggest that households significantly shift their demands from some goods to others as they move into retirement period.

The rest of the paper is organized as follows. In section 2 I describe the theoretical approach used to identify the effects of retirement on consumption smoothing patterns. Section 3 describes the data used and section 4 presents the estimation results of the econometric specifications given in section 2. In section 5 I look at the composition of total household consumption and estimate the changes in demand patterns around the time of retirement and in section 6 I conclude the paper.

2. Theoretical Approach

In investigating whether the consumption smoothing patterns significantly changes at the time of retirement, my first approach is to estimate functions of the following form as similar to the approach taken by Bernheim, Skinner, and Weinberg (2001):

$$\Delta \ln(C_{it})=\mu(age_{it})+ \beta'\Delta Z_{it} + \alpha'\ln(1+r_t)+\varepsilon_{it} \qquad (1)$$

In this equation $\Delta x_t \equiv x_{t+1}- x_t$ for any variable x, C_{it} represents the level of real total consumption of household i at time t, $\mu(.)$ is a function (discussed in greater detail below), age_{it} is the age of head of the household i at time t, β is a vector of parameters, Z_{it} is a vector of household characteristics that may change through time and r_t is the real interest rate at time t, and ε_{it} is a disturbance term.

I specify the function $\mu(age_{it})$ as follows.

$$\mu(age_{it}) = \gamma^{br} I(age_{it} < 65) + \gamma^{ar1} I(65 <= age_{it} < 68) + \gamma^{ar2} I(age_{it} >= 68) \quad (2)$$

where $I(.)$ is an indicator function that returns a value of unity when the expression is satisfied and zero otherwise, and γ^{br}, γ^{ar1}, γ^{ar2} are parameters. With this specification, I allow households to have three different consumption growth rates pertaining to the years before retirement age 65, years between ages 65 and 68, and years after the age 68. Thus the observed differences across the parameters γ^{br}, γ^{ar1} and γ^{ar2} will indicate whether consumption smoothing patterns differ before and after retirement periods, after controlling for other factors such as changes in household demographics.

The expression in (1) is an Euler equation which can be derived from a simple expected lifetime utility maximization problem allowing for shifts in household demographic characteristics to affect the marginal utility of consumption. Indeed, Attanasio, Banks, Meghir, and Weber (1999) derive this expression by choosing the intra-period utility as equal to $U(C_{it}\exp(\beta' Z_{it}))$, where U(.) belongs to the constant relative risk aversion (CRRA) family of utility functions.

Unfortunately, panel data on consumption are not available at the household level. Therefore, I estimate the above equation using *pseudo-panel* method. Details for this method are described in the data section below. Even though the *pseudo-panel* method allows us to estimate equation (1) and makes the analysis here consistent with a structural model, it has some disadvantages in the sense that the fit of the estimation is limited by the aggregation of the data to the mean levels of each cohort. Thus, as a robustness check to the first approach, I estimate the following form of a consumption function using repeated cross-sections data in a pooled way.

$$\ln(c_i)=\xi(age_i) + \theta' Z_i + \sum_k \alpha_{k'} D_{ik} + \zeta_i \qquad (3)$$

where c_i is real per-capita consumption of household i, age_i is the age of head of household, Z_i is a vector of other household characteristics as in specification (1) above, D_{ik} is a dummy variable indicating whether the head of the household belongs to the year of birth cohort k, θ and α_k denote the unknown set of parameters, and ζ_i is a disturbance term. $\xi(.)$ is a function which captures any changes happening in the standard of well-being at or during the retirement period after controlling for other factors. For the specification of this function I use a linear formulation as in the case of specification of equation (1). That is,

$$\xi(age_i)= \lambda^{br} I(age_i<65) + \lambda^{ar1} I(65<= age_i <68) + \lambda^{ar2}\, I(age_i>= 68) \qquad (4)$$

where $I(.)$ is an indicator function that returns a value of unity when the expression is satisfied and zero otherwise, and λ^{br}, λ^{ar1}, λ^{ar2} are parameters.

Even though this second approach seems a little adhoc theoretically, it does not suffer from the aggregation problems discussed above since the estimation uses data at the household level. The use of multiple years of data in a pooled way makes me enable to separate the cohort effects from age effects thereby capturing the effects of retirement on the level of well-being in a much better way than a use of a single year of data would. In this approach, rather than using the logarithm of household level consumption as the dependent variable, I use the logarithm of per-capita consumption to be able to give a welfare interpretation to the changes in the consumption at retirement. However, the empirical results that will be presented later in the paper are robust to using either the logarithm of total household consumption or the logarithm of per-adult equivalent consumption as the dependent variable.

3. The Data

In order to assess the role of retirement in determining the standard of living of the elderly relative to pre-retirement, ideally one needs panel data which have information on household level consumption. Unfortunately panel data on total household consumption are almost universally unavailable, and in the U.S. detailed micro level information on consumption is only available on a repeated cross section basis in the *CEX* published by the Bureau of Labor Statistics. These surveys are representative of the civilian non-institutionalized population of the U.S. My sample includes data for 1984-1998.[1]

In these surveys, the unit of observation is the "consumer unit" which is defined as all members of a household who are related by blood or legal arrangement. Even though limited information is available at the individual level in the *Member Files* of the *CEX*, most of the information is collected at the household level focusing on the characteristics of the head of the household in the *Consumer Unit Files*. The format of the data in each year

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[1] The *CEX* are available on an annual basis starting from 1980. However, in 1982 and 1983 the data were collected for the urban population only. Since I want to keep my analysis representative of the overall U.S. population on an annual basis, in this paper I do not use data from the period 1980-1983

is a rotating panel in which each consumer unit stays in the sample for five quarters. In every quarter, 20 % of the households are dropped and replaced by new consumer units. In the first quarter information on demographics and consumer durables is collected. In the remaining four quarters information on detailed household expenditure is collected.

Even though the surveys are available quarterly, to avoid the problems created by attrition and the seasonality with respect to total expenditure, I use only the second quarter of each annual wave of the *CEX*. In the empirical analysis, quarterly consumption levels are multiplied by four to obtain total consumption on an annual basis for each household. The sample size in each quarter ranges from between 4000 to 6000 households.

In general, the CEX reports the out-of-pocket expenditures of consumer units in a very detailed way. Using these out-of-pocket expenditures I construct the total consumption of each household. My construction of total consumption differs from that used by the Bureau of Labor Statistics in several important ways. First, I delete gifts and cash contributions to persons and organizations outside the consumer unit, and contributions to pensions, retirement, and social security from the total expenditure. Second, I replace outlays on owner occupied housing with consumer units' estimated rental equivalents, and the purchases of durables with estimates of the services received from the households' stocks. I divide the total consumption into six commodity groups: energy, food, consumer goods, durables, housing (rental or owner occupied), and consumer services. I, then, connect each commodity consumption with its price level calculated by Slesnick (2000). In the empirical analysis, I use these commodity group expenditures and the prices to convert nominal total consumption into real terms. The use of these price levels is relatively new to the literature in the sense that it captures the regional variation in prices, where the regions are urban-West, urban-South, urban-Mid-West, urban-North-East, and overall rural parts of the U.S.[2]

As mentioned previously, in estimating the Euler equation described by (1), I use the *pseudo-panel* method developed by Deaton (1985). This method is simply tracking year-of-birth cohorts and estimating the economic relationships based on cohort means rather than individual observations. Table 1 below indicates the definition of 14 year-of-birth cohorts created using the CEX data from 1984-1998 and their average cell sizes. Since my goal is to capture the changes in consumption patterns around the time of retirement, I keep the age bands at 4 years rather than choosing relatively larger age intervals. One can see from column 4 that the average cell sizes are large enough to calculate the cohort means with small measurement errors. They range from between 158 and 504. While the average cell size is the lowest for the oldest cohort (cohort 14), it is the highest for cohort 3 whose years of birth are 1955-1958.

Given the definition of the year-of-birth cohorts provided in table 1, by way of description I now present the data based on cohort means. Figure 1 shows the life-cycle profile of logarithm of real total household consumption. It is clearly observable from this figure that the household consumption follows a hump-shaped profile implied by the permanent income/life-cycle hypothesis. Mean real log-consumption takes a value ranging approximately from 9 to 10.3 and reaches its peak at the age of 44.

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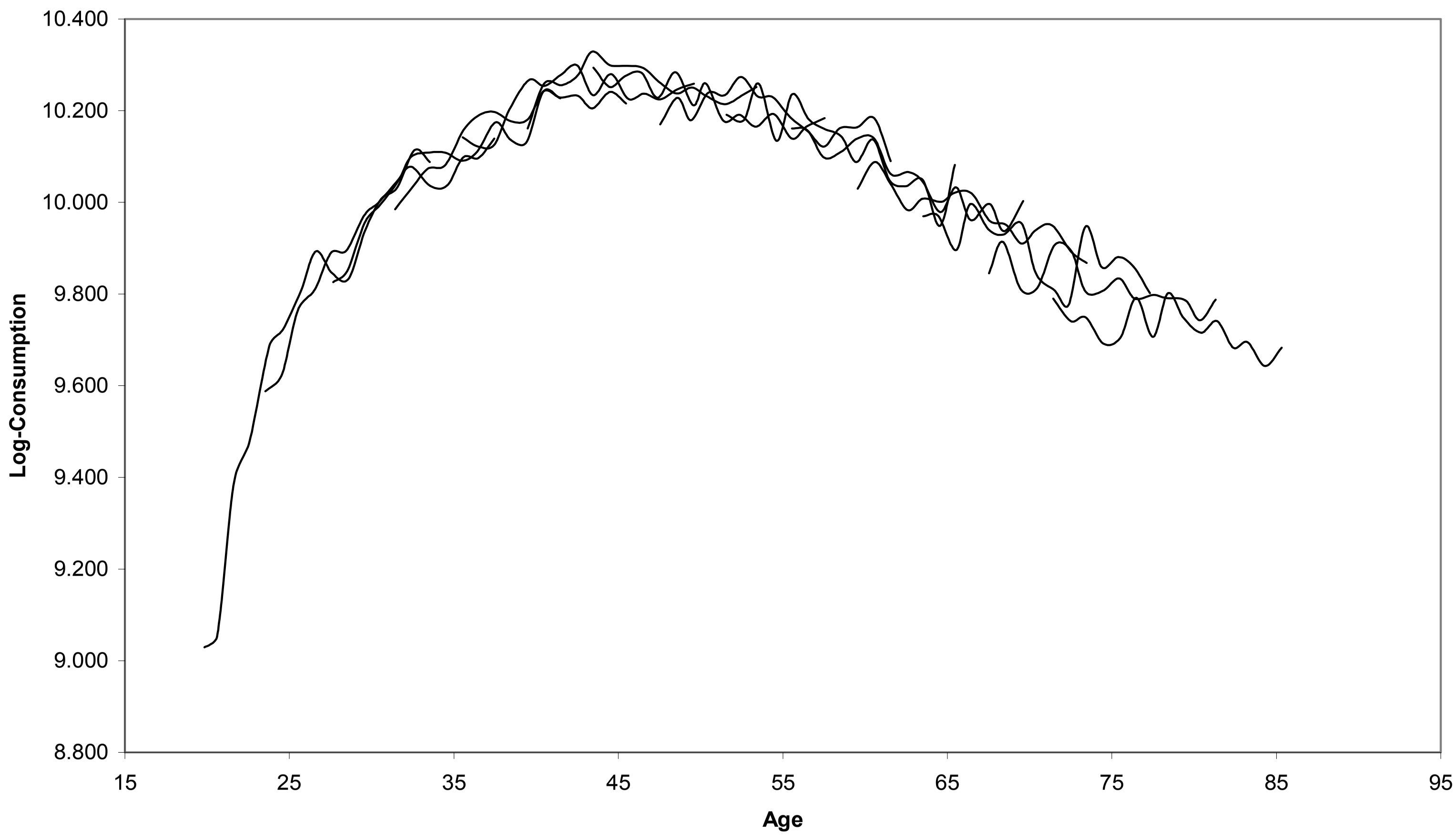
[2] Indeed, Slesnick (2000) find that the assessment of the standard of living changes substantially with the inclusion of regional price variation. Also, for detailed information on construction of these prices, see Slesnick (2000).

Table 1. Cohort Definition

Cohort	Year of birth	Age in 1984	Average cell size
1	1963-1966	18-21	375
2	1959-1962	22-25	460
3	1955-1958	26-29	504
4	1951-1954	30-33	472
5	1947-1950	34-37	453
6	1943-1946	38-41	360
7	1939-1942	42-45	302
8	1935-1938	46-49	269
9	1931-1934	50-53	252
10	1927-1930	54-57	267
11	1923-1926	58-61	262
12	1919-1922	62-65	246
13	1915-1918	66-69	203
14	1911-1914	70-73	158

Figure 1. Life-Cycle Profile of Log of Real Total Household Consumption: Cohort Means



The specification in equation (1) assumes that the changes in demographics might be some of the main forces which drive the life-cycle profile of total household consumption. As in Attanasio, Banks, Meghir, and Weber (1999), it is reasonable to think that the most important demographic change which would have a life-cycle tie to consumption is the change in household composition. Given this, in figures 2 and 3, respectively, I present the life-cycle profiles of number of adults and number of children in a household. An adult is described as an individual who is at least 18 years old.

As in the case of consumption, both of number of adults and number of children follow a hump-shaped profile over the life-cycle. Approximately, the mean number of adults in a household starts at a level of 1.2 at the beginning of the life-cycle, and reaches its peak level of 2.4 around the age of 55, and then levels back to 1.2 at the end of the life cycle. Similarly, the mean number of children in a household starts at a level of 0.3 at the beginning of the life-cycle, and reaches its peak level of 1.6 around the age of 40, and then drops to 0 at the end of the life cycle.

Similar hump-shaped life-cycle profiles observed in figures 1 through 3 suggest that accounting for changes in household composition might substantially alter the movement of consumption over the life-cycle. Indeed, that is what I observe in comparison of the life-cycle profiles of per-capita consumption and per-adult equivalent consumption with that of total household consumption in figure 4. In the case of per-adult equivalent consumption the hump-shape observed in total household consumption is almost flattened out. In the case of per-capita consumption, on the other hand, the hump-shape completely disappears and the consumption shows an increasing trend over the life-cycle. It is also important to notice from figure 4 that, after controlling for the variation in household composition, the

Figure 2. Life-Cycle Profile of Number of Adults in a Household: Cohort Means

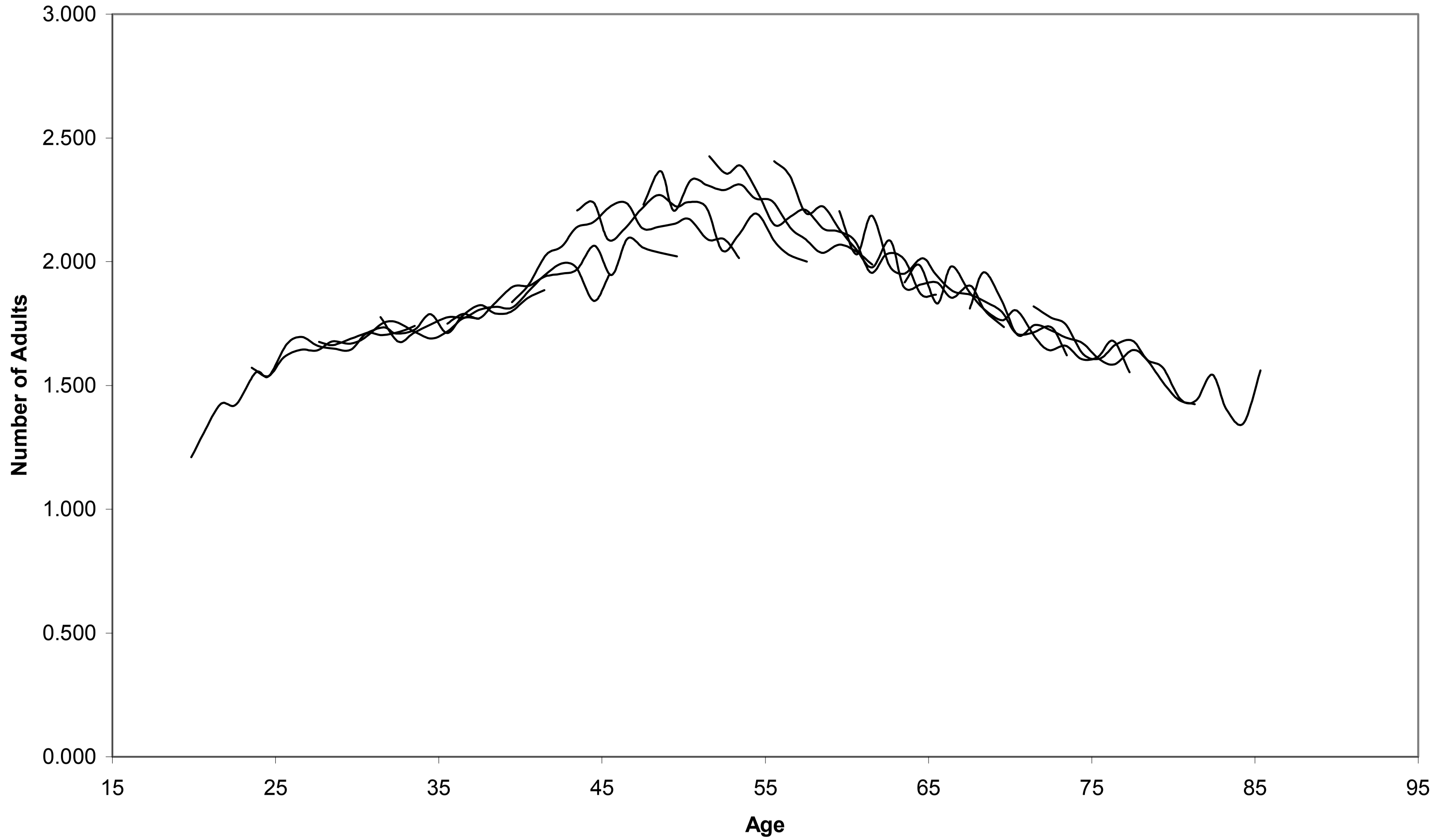


Figure 3. Life-Cycle Profile of Number of Children in a Household: Cohort Means

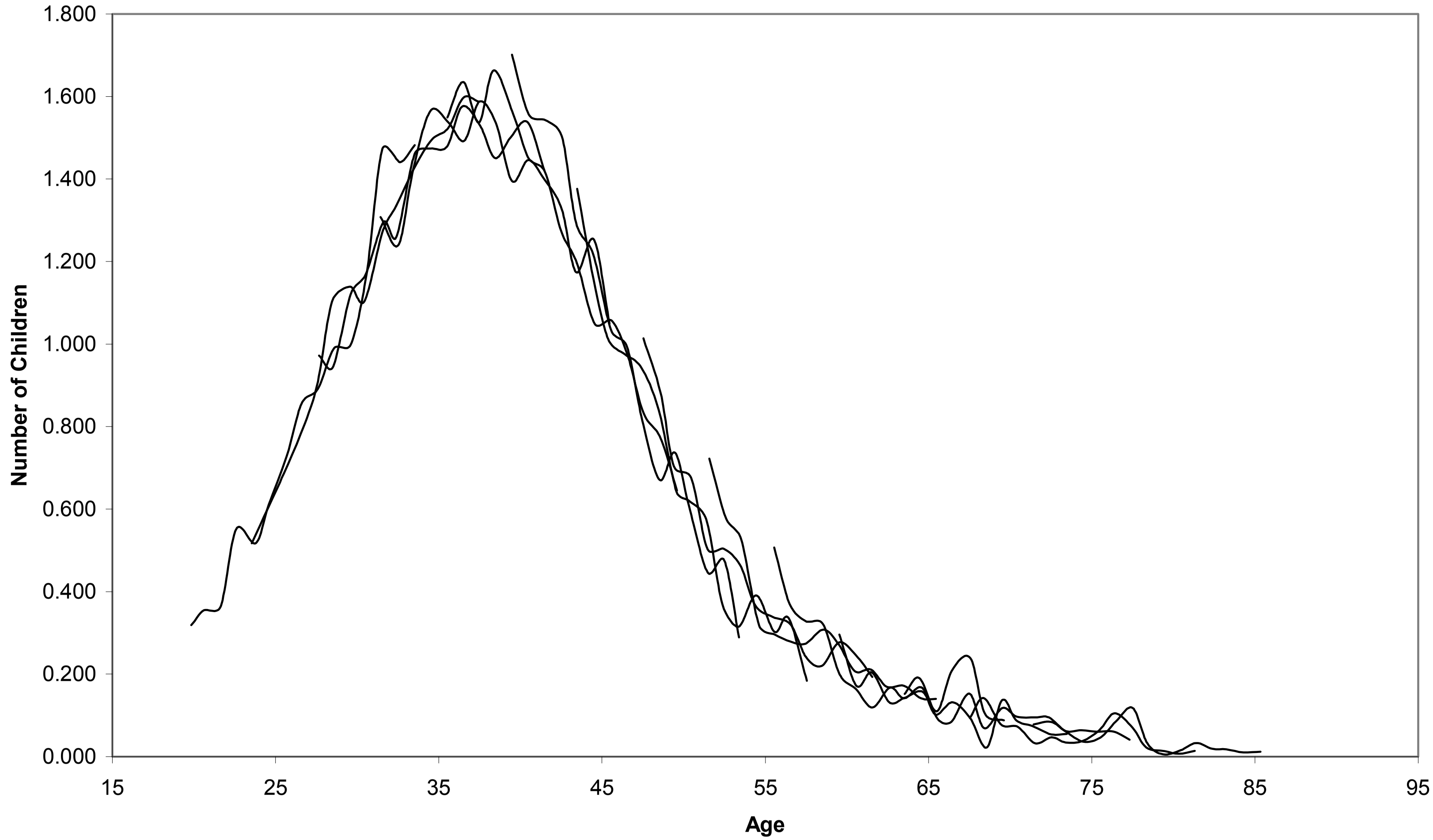
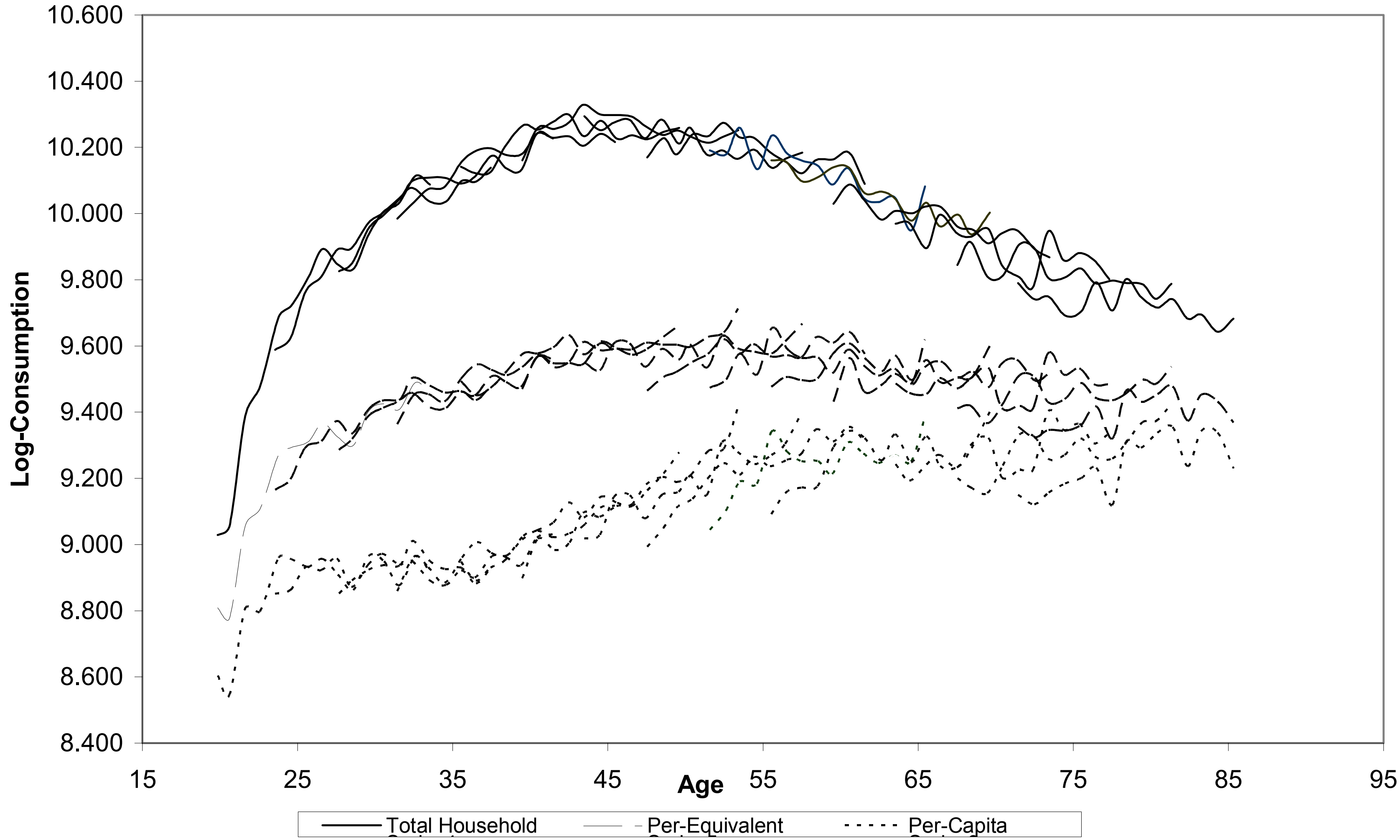


Figure 4. Comparison of Life-Cycle Profile of Consumption:
Total Household Consumption, Per-Equivalent Consumption, and Per-Capita Consumption



observed consumption profile is suggestive of no-change in the standard of living around the age of retirement, which is assumed to 65.

4. Results

Table 2 presents estimates of the specification in equation (1) using the *pseudo-panel* data created based on cohort means. To account for aggregation of data within cohort cells and the correlation of the disturbances with the regressors, the estimation is preformed using the generalized method of moments. The annual average of the 90-day treasury-bill rate is used as the risk-free nominal interest rate. The real interest rate is calculated as the difference between the nominal interest rate and the inflation rate which is calculated based on the price levels derived in Slesnick (2000). The set of instruments used include age dummies as described in equation (2), and two- and three-period lags of consumption growth, changes in number of adults, changes in number of children, and the logarithm of 1 plus the real interest rate.

In this regression estimated coefficients on age dummies simply give us the consumption growth rate for before-, at-, and after-retirement periods, after removing the effects of any changes in household demographics and the real interest rate. The interesting result emerging from this table is that the consumption growths of all of the pre-, at-, and post-retirement periods are, though negative, statistically insignificant. That means that the changes in the life-cycle profile of real total household consumption are entirely explained by the changes in the life-cycle profile of household demographics, and by the changes in real interest rate over time. The fact that I do not reject the hypothesis of

Table 2. GMM Estimation Results of Euler Equation for Total Consumption

	Parameter Estimate	Standard Error
age dummy (=1 if age<65)	-0.050	0.049
age dummy (=1 if 65≤age<68)	-0.037	0.052
age dummy (=1 if 68≤age)	-0.052	0.050
Δadult	0.499	0.195
Δchildren	0.084	0.104
log(1+r) (r=90-day T-bill rate)	0.301	0.122
Test of Overidentifying Restrictions	5.720	
p-value	0.334	
Number of Observations	154	

equal coefficients across three age dummies also implies that the consumption growth rates do not differ across pre-, at-, and post-retirement periods. Moreover, since the estimated coefficients are statistically equal to 0, the suggested profile for the consumption (of course, after removing the effects of changes in household demographics and interest rate) is a flat one, which is entirely consistent with the patterns observed in figure 4. Thus, based on the estimates provided in table 2, I conclude that the widely pronounced sharp drop in consumption around the time of retirement is not observable for the CEX data.

Even though the results presented in table 2 seem pretty reasonable, as mentioned previously they are limited to the extent that the estimation uses aggregated cohort level data rather than household level data. Therefore as a robustness check, I now present in table 3 the estimation results for equation (3) using the 1984-1998 CEX data in a disaggregated way.

The same results are apparent in this table as well. That is, controlling for other demographic characteristics and the cohort effects, the elderly who are in their at- or post-retirement period achieve the same standard of living achieved by their non-elderly counterparts who are below 65. The estimated coefficient on age dummy of at-retirement elderly indicates that the reduction in per-capita consumption relative to pre-retirement is only 0.7 percent, which is statistically equal to zero. Similarly, the coefficient on the age dummy of the elderly who are in their post-retirement period is -0.016 which implies only 1.6 percent reduction in per-capita consumption relative to pre-retirement standard of living. Again, this coefficient is statistically not different from 0. Therefore, the results presented in table 3, as the results presented in table 2, provide evidence that does not support the retirement-savings puzzle claimed by some of the previous studies. Rather

Table 3: OLS Regression Results for Equation (3)

Dependent Variable: Log-real per-capita consumption		
Variables	Estimate	t-statistic
Constant	9.20	244.68
Married	0.12	23.20
Female head	-0.07	-15.86
White	0.23	43.97
College educated or more	0.33	88.04
Urban	0.00	-0.07
West	0.12	23.82
North Central	0.14	27.14
South	0.07	13.43
Number of adults	-0.18	-64.39
Number of children	-0.27	-149.57
age dummy (=1 if $65 \le age < 68$)	-0.01	-0.62
age dummy (=1 if $68 \le age$)	-0.02	-1.55
R-square	0.42	
Number of observations	78526.00	

Note: Additional variables included in the regression are year-of-birth cohort dummies.

these results go in favor of the conventional models which imply consumption smoothing over the life-cycle, by yielding equal standard of living across before-, at-, and post-retirement periods.

5. Composition of Consumption

Although the evidence presented in the preceding section does not suggest a significant change in consumption due to retirement, it does not exclude the possibility of changes in the composition of consumption. Therefore, in this section for a better understanding of changes in needs over the life-cycle, I look at the two-stage budgeting effects of retirement on demand patterns.

As mentioned in the data section, I divide the total consumption into six demand groups: energy, food, consumer goods, durables, housing (rental or owner occupied), and consumer services. In this grouping, energy is derived as sum of expenditures on electricity and piped natural gas, gasoline and motor oil. Food includes food at home, food away from home, tobacco and alcohol. Consumer goods are expenditures on apparel, and consumer services are expenditures on professional medical services and entertainment. Housing is the services received from either rental or owner occupied housing, and consumer durables are the services derived from the stocks of household furnishings and operation, and vehicles.

In a descriptive way, figures 5-10 present the trend of the budget share of each category of goods around the time of retirement using the mean budget shares of the cohorts 10-12 described in Table 1.[3] These figures indicate that over the period considered

Figure 5. Mean Budget Shares Around Retirement: Energy

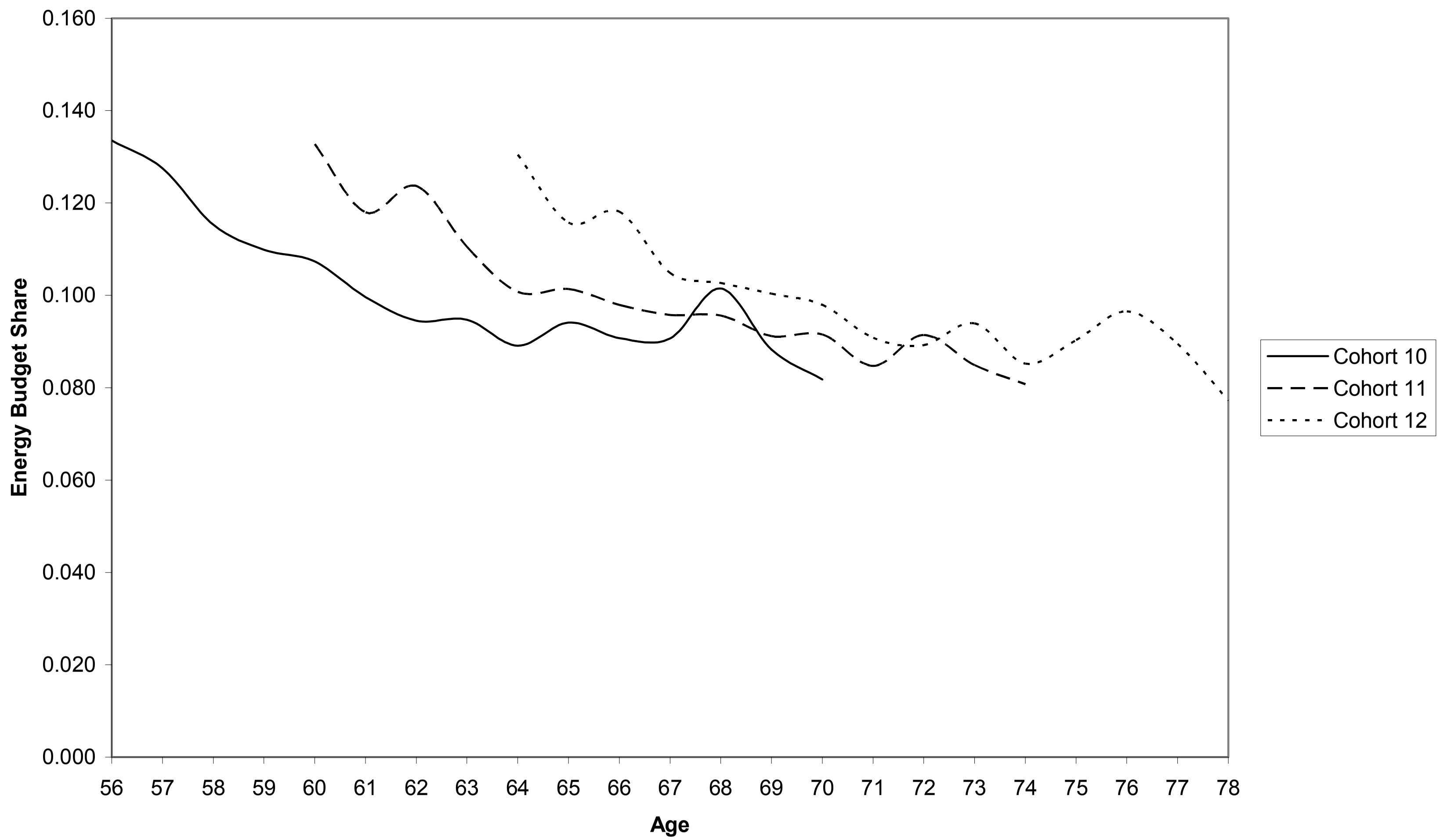


Figure 6. Mean Budget Shares Around Retirement: Food

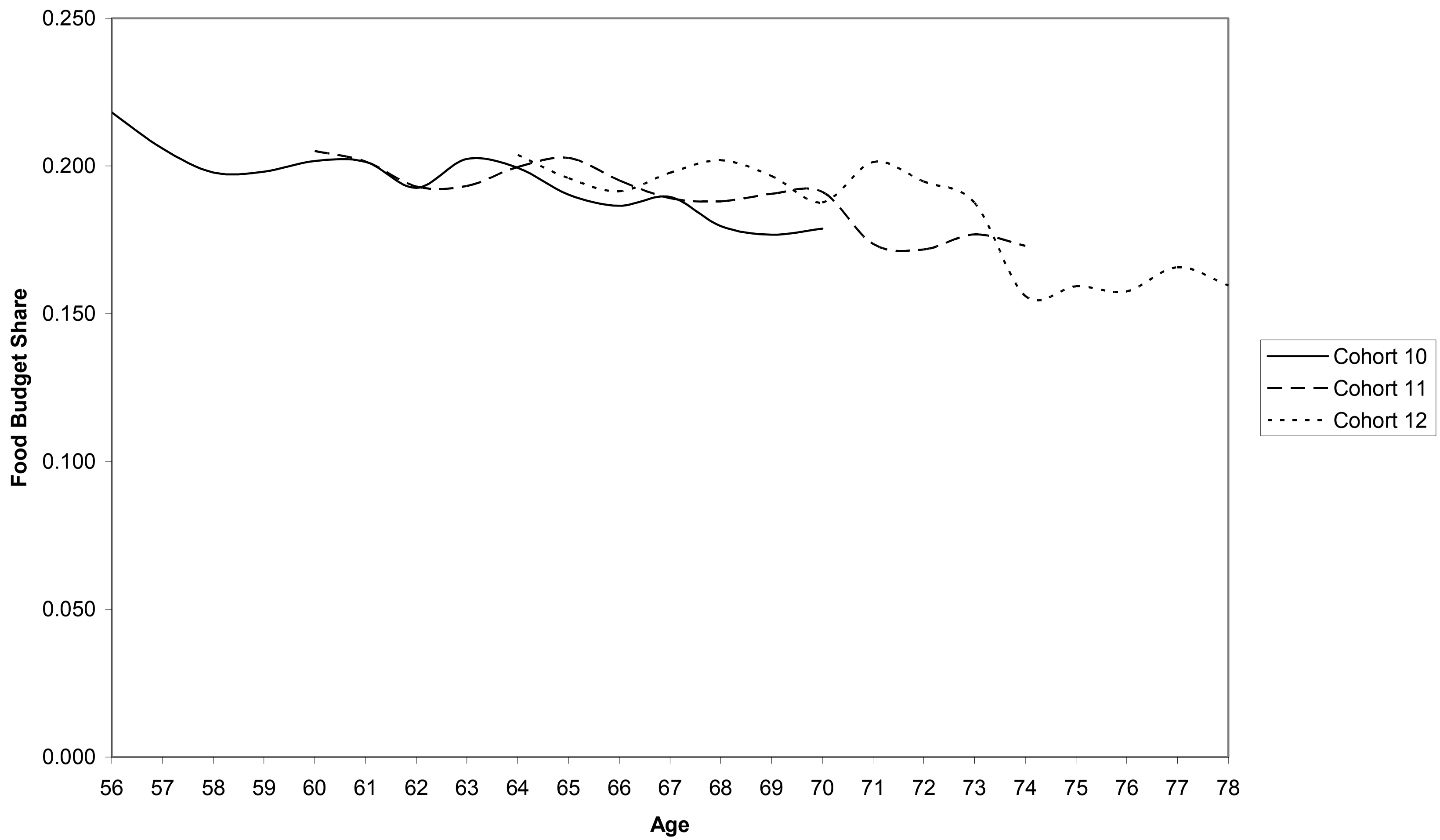


Figure 7. Mean Budget Shares Around Retirement: Consumer Goods

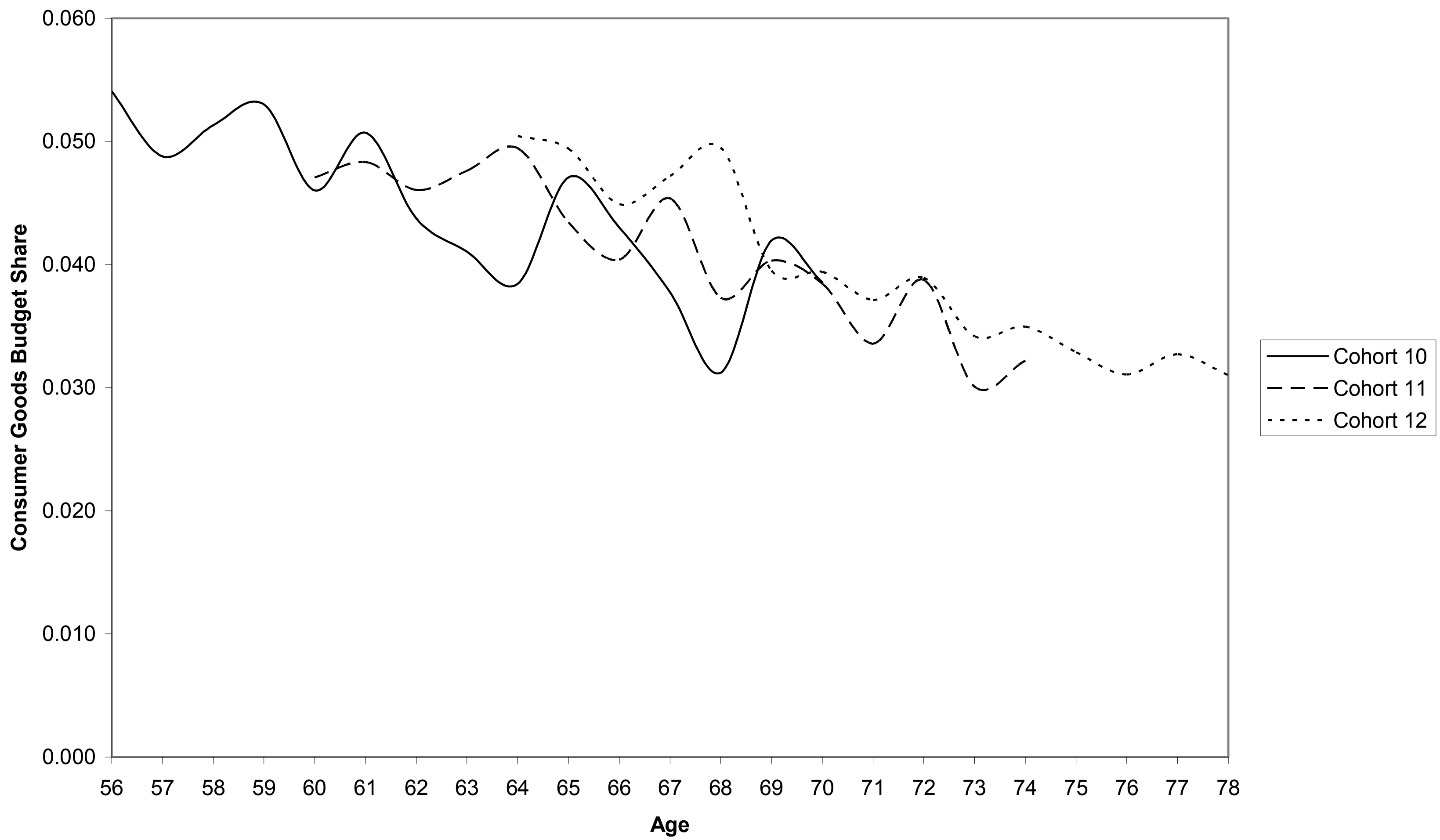


Figure 8. Mean Budget Shares Around Retirement: Housing

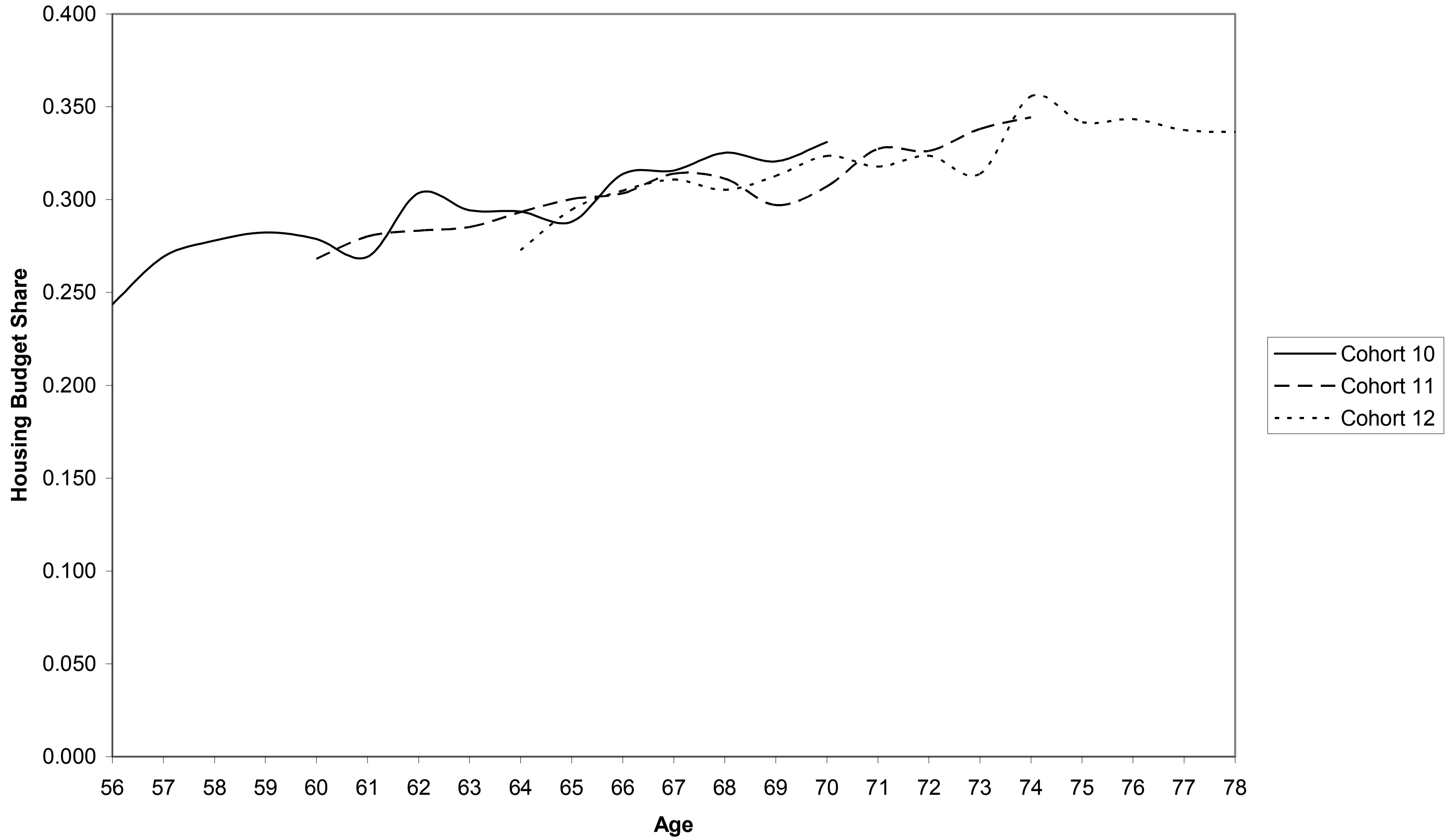


Figure 9. Mean Budget Shares Around Retirement: Durables

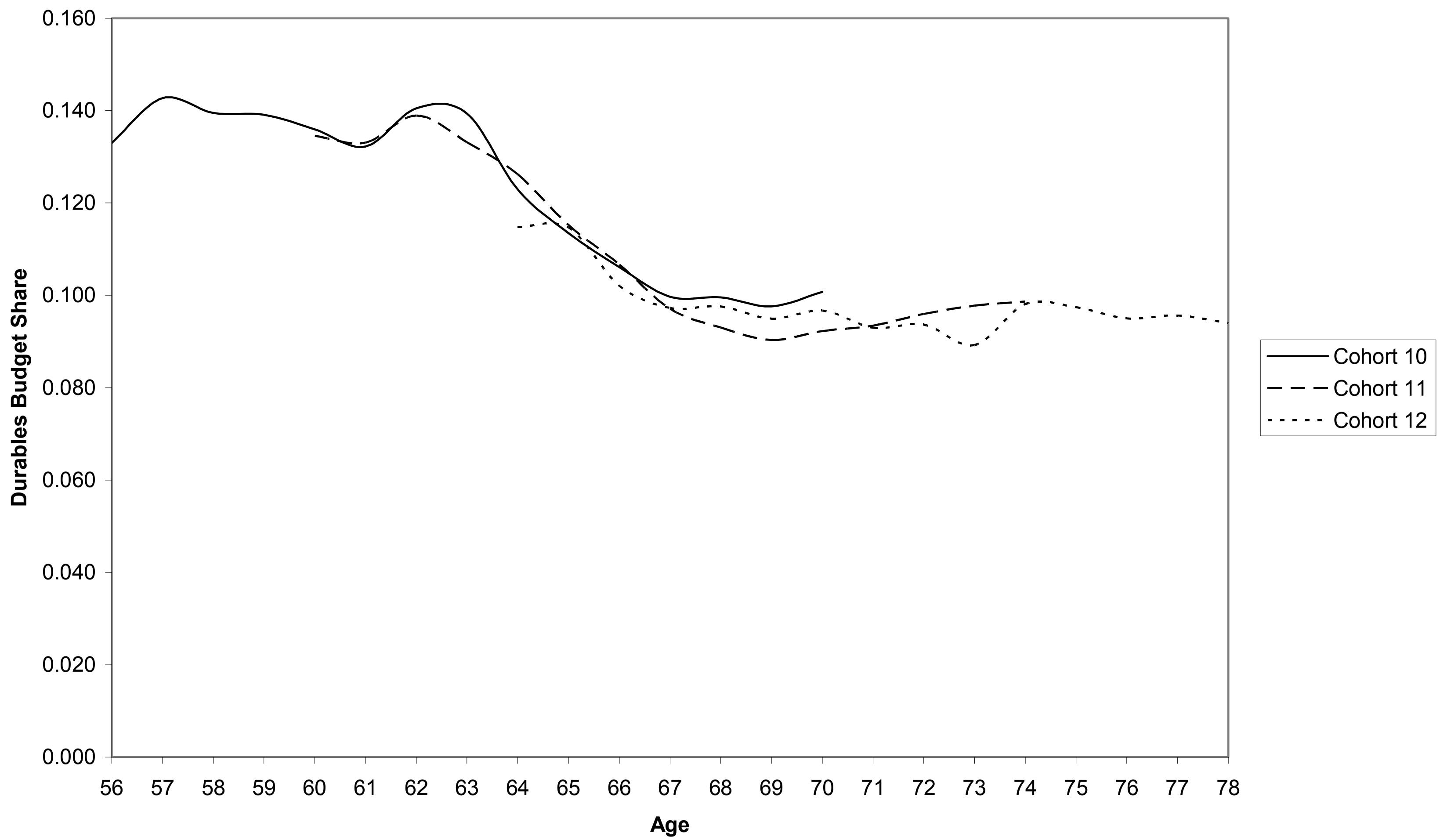
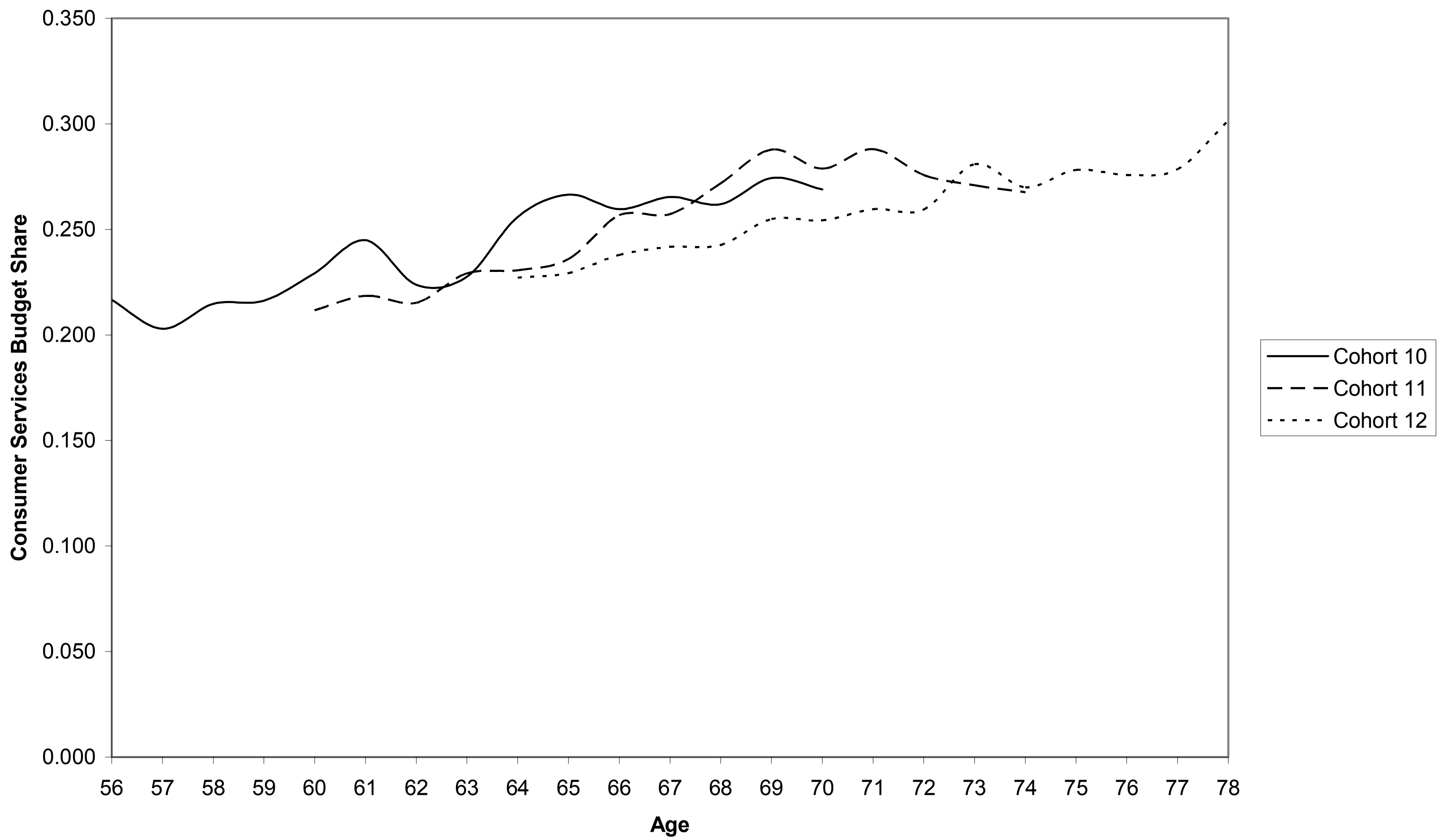


Figure 10. Mean Budget Shares Around Retirement: Consumer Services



(from age 56 to 78) the budget shares of energy, consumer goods, and durables have a negative slope, while those of housing and consumer services have a positive one. The budget share of food, on the other hand, seems almost flat with a very slight negative slope, implying no significant change in food demand due to retirement. Even though I do not control for everything else, these summary statistics suggest that retirement causes the elderly to reduce their demand on energy, consumer goods, and durables, and to spend relatively more on housing and consumer services.

In order to assess the actual magnitude and significance of changes in demand patterns due to retirement, using the repeated cross sections of the CEX from 1984-1998 in a pooled way as in estimation of equation (3), I estimate the following form of a translog demand system.[4]

$$w_{hi} = \xi_h(age_i) + \pi_{1h}'\ln M_i + \pi_{2h}'(\ln M_i)^2 + \eta_h' Z_i + \sum_k \alpha_{hk} \cdot D_{ik} + \zeta_{hi} \quad (5)$$

where w_{hi} is the budget share of household i on good h, and M_i denotes its total nominal expenditure. As in equation (3), age_i is the age of head of household i, Z_i is a vector of household i's other demographic characteristics, and D_{ik} is a dummy variable indicating whether the head of the household belongs to the year of birth cohort k. The unknown parameters are denoted by π_{1h}, π_{2h}, η_h and α_{hk}, and ζ_{hi} is the standard error term. The function $\xi_h(.)$ has the same specification as in equation (4), which captures any changes

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[3] In these descriptive statistics I simply use the data from only cohorts 10-12, since these three cohorts cover most of the transitions from work-force participation to retirement.
[4] Recent evidence presented by Lewbel (1991) and Blundell, Pashardes and Weber (1993) indicates that this form of demand system fits the data quite well in terms of a better description of expenditure patterns in both the U.S. and the United Kingdom.

happening in the demand pattern of good h at or during the retirement period after controlling for other factors. That is,

$$\xi_h(age_i)=\lambda_h^{br} I(age_i<65) + \lambda_h^{ar1} I(65<= age_i <68) + \lambda_h^{ar2} I(age_i>= 68) \qquad (6)$$

where $I(.)$ is an indicator function that returns a value of unity when the expression is satisfied and zero otherwise, and λ_h^{br}, λ_h^{ar1}, λ_h^{ar2} are parameters.

The estimation results of the demand system specified in equation (5) are presented in table 4. As suggested by the descriptive figures, except for the category of food, the estimated coefficients on age dummies are statistically highly significant. Relative to pre-retirement, households spend more on housing and consumer services, and less on energy, consumer goods and durables at the time of retirement. For the post-retirement period the same conclusion applies, but, in comparison to pre-retirement, the degree of shifts from energy, consumer goods and durables to housing and consumer services is higher for the post-retirement period than that of shifts at retirement. Households spend a little more on food at retirement, but there is not a statistically significantly different pattern for food demand between the pre- and post-retirement periods.

6. Conclusion

In most of the aging societies the implications of an expanding retired population with a shrinking working-age population have stimulated a great deal of research on the economic status of the elderly. In the U.S., for example, whether the elderly save enough to

Table 3. Demand System Estimation Results

Variables	Energy		Food		Consumer Goods	
	Estimate	t-stats.	Estimate	t-stats.	Estimate	t-stats.
Cosntant	-1.283	-14.667	2.693	20.289	-0.035	-0.491
Log-total expend.	0.315	17.689	-0.449	-16.586	0.004	0.268
Log-total expend. sqr.	-0.017	-19.178	0.019	14.052	0.000	0.637
Married	0.008	5.371	0.000	-0.151	-0.001	-0.956
Female head	-0.001	-1.032	-0.029	-13.492	0.003	2.542
White	-0.004	-2.204	0.011	4.388	0.003	1.918
College educated or more	-0.003	-2.562	0.000	-0.085	0.006	6.724
Urban	-0.030	-18.893	0.004	1.825	-0.004	-3.303
West	0.005	3.339	-0.011	-4.927	0.004	3.708
North central	-0.005	-3.836	-0.013	-6.257	0.001	1.130
South	-0.020	-13.053	-0.009	-3.760	0.000	-0.071
Household size	0.007	14.016	0.017	22.552	0.000	0.858
age dummy (=1 if 65≤age<68)	-0.009	-6.118	0.006	2.573	-0.006	-4.812
age dummy (=1 if 68≤age)	-0.018	-13.597	0.001	0.359	-0.015	-13.740

Table 3 continued

Variables	Housing		Durables		Consumer Services	
	Estimate	t-stats.	Estimate	t-stats.	Estimate	t-stats.
Cosntant	-1.305	-8.011	-0.380	-5.566	1.271	7.051
Log-total expend.	0.311	9.350	0.090	6.464	-0.262	-7.134
Log-total expend. sqr.	-0.015	-8.806	-0.004	-5.653	0.016	8.539
Married	-0.023	-8.224	0.003	2.558	0.014	4.349
Female head	0.021	8.087	-0.015	-14.088	0.022	7.517
White	-0.006	-2.142	-0.009	-7.222	0.006	1.736
College educated or more	-0.002	-1.068	-0.003	-3.051	0.002	0.658
Urban	0.051	17.418	0.016	13.375	-0.038	-11.752
West	-0.019	-7.118	-0.004	-3.356	0.024	8.110
North central	-0.024	-8.911	0.011	9.517	0.031	10.442
South	0.032	11.165	-0.003	-2.310	0.000	-0.040
Household size	-0.022	-22.980	0.006	15.357	-0.009	-8.692
age dummy (=1 if 65≤age<68)	0.019	7.110	-0.036	-32.135	0.026	8.869
age dummy (=1 if 68≤age)	0.030	12.114	-0.035	-33.219	0.038	13.596

Note: Additional variables included in the regression are year-of-birth cohort dummies.

finance their retirement consumption in the current system (either through own savings or through Social Security and pensions) is a critically important policy question as the baby boom generation heads to retirement. In this paper I, using the CEX from 1984 through 1998, revisit the widely pronounced retirement-savings puzzle which claims the existence of a sharp drop in consumption at the time of retirement. In contrast to previous work, I find that the consumption of the retired households is consistent with the smoothing behavior implied by the conventional permanent income/life-cycle models. The results present evidence that the elderly actually do not reduce their standard of living around the time of retirement due to a shortage in savings or some other reasons.

While I find no evidence in favor of a dramatic change in the standard of well-being at retirement, the composition of consumption changes significantly as households move into the retirement period. Relative to pre-retirement, households shift their demand from energy, consumer goods and durables to housing and consumer services during the post-retirement period. However, the demand pattern for food does not statistically significantly differ between the pre- and post-retirement periods.

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