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(Un)expected Retirement and the Consumption Puzzle

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(Un)expected retirement and the consumption puzzle*

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Abstract

In this work we revisit the retirement consumption puzzle using Italian panel data. As emphasized in the literature, the observed consumption drop might be due to unexpected wealth shocks at retirement, which modify optimal consumption plans. Using an Euler equation approach, we test the impact of unexpected retirement on the consumption patterns of individuals around the age of retirement by using the panel component of the Survey of Household Income and Wealth (SHIW). This data set contains information on the expected age of retirement, which can be used to distinguish between expected and unexpected retirement. We furthermore investigate the heterogeneous behaviour of individuals with different levels of education and wealth. We find evidence of a consumption drop at retirement, especially for low-educated people and individuals with low wealth. The consumption drop at retirement seems to be rationally planned by individuals, rather than a response to unexpected retirement.

Keywords: consumption, life cycle, retirement puzzle, unexpected retirement

JEL classification: D91, J26

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1. Introduction

One of the main predictions of the simple version of the Life Cycle Model (LCM) is that consumption should be kept stable over the life span, irrespective of income fluctuations.[1] Borrowing and dis/saving act as channels through which consumption smoothing is accomplished. One of the biggest fluctuations in income takes place at retirement, when consumption is also observed to exhibit a sizeable drop, which cannot be fully explained in a standard intertemporal utility optimization framework (the 'retirement consumption puzzle', after the work by Banks, Blundell andand Tanner, 1998). Understanding whether and why consumption drops at retirement is important not only as a way to test the validity of the LCM, but also because it may signal a situation of vulnerability of the family at retirement, a matter in which policy-makers should perhaps intervene.

As first emphasized by Banks, Blundell and Tanner (1998), the consumption drop at retirement could be reconciled within the LCM to the extent that retirement and the related income drop – the pension income is commonly lower than the last wage – is unexpected: households should indeed react to unforeseen events by modifying their consumption rules. In this line, Smith (2006) finds for the UK that food consumption drops at retirement only for those households whose head had retired involuntarily, while there is no drop at retirement for those who decided to retire. Using subjective retirement expectations, Haider and Stephens (2007) find for the US a less pronounced decline in consumption when retirement is expected by individuals. The degree of retirement expectedness could in theory be an important factor for a better understanding of whether the consumption drop is a response to an (unexpected) shock or something rationally planned by individuals.

Other potential explanations for the consumption drop at retirement are the decrease in work-related expenditures, the non-separability of preferences about leisure and consumption, and home production. Work-related expenditures (Banks, Blundell andand Tanner, 1998; Miniaci, Monfardini andand Weber, 2010) are expenses for goods and services that do not create utility per se for the individual. They are necessary while the individual works (travel, clothing and eating out expenses), but become superfluous during retirement. In the same vein, if workers compensate for the disutility of work with consumption (i.e. leisure is non-separable from consumption), they can reduce their consumption according to the increase in leisure occurring at retirement (French, 2005; Blau, 2008). Finally, as shown by Hurd and Rohwedder (2003) and Aguiar and Hurst (2005, 2008) concerning the US, because they have more spare time, during retirement individuals can home produce some goods (such as food) or search for the best price for quality goods. In this way they spend less, but they attain the same level of utility that they had before retirement.

A residual explanation for the retirement–consumption puzzle could be the unpreparedness of households for the reduction in income that normally follows retirement: households might have not saved adequately during their working life and therefore might have to reduce their expenditures. Gustman and Stenmeier (2001) find that misinformation or a lack of information about retirement benefits is the norm among US workers. Lusardi (1999, 2000) finds that, *ceteris paribus*, households that have given little thought to retirement have far lower wealth than those that have paid the subject more attention. Bernheim, Skinner and Weinberg (2001) find for the US that the wealth accumulation behaviour of individuals responds more to a 'rule of thumb' than to the LCM. Angeletos et al (2001) demonstrate through simulation methods that hyperbolic (rather than

[1] In general, utility maximization implies that the marginal utility of consumption is constant over time. If utility depends upon consumption only and under equality between the interest rate and the subjective discount rate, the result converts into constant consumption.

geometric) discounting households have self-control problems that lead to dynamic-inconsistent behaviours and induce a planned fall in consumption at retirement.

Being potentially due to a number of different causes, the consumption drop at retirement is likely to present a huge amount of heterogeneity across households. Work-related expenditures, the elasticity of substitution between market-produced and home-produced goods and the return to home production can widely differ among households, depending on their characteristics. In addition, differences in planning effort and in the propensity to plan are likely to be strongly associated with differences in wealth accumulation (Ameriks, Caplin andand Leahy, 2003) and with different variations in consumption after retirement (Bernheim, Skinner andand Weinberg, 2001; Aguiar andand Hurst, 2005). To the extent that the retirement income decline is partly unanticipated, we expect those households with a more consistent level of net worth to be more protected against negative income shocks.

Concerning the Italian case, previous studies using Italian data find evidence of a small consumption drop at retirement. Battistin et al (2009) and Miniaci, Monfardini and Weber (2010) argue that it is due to a fall in the consumption of work-related goods and an increase in home-produced food and goods. Their analyses, however, do not explicitly account for unexpected retirement and are based on pseudo-panel data, so they are not able to account fully for individual heterogeneity.

In our work we study the consumption dynamics of Italian households by exploiting the panel dimension of the Survey of Household Income and Wealth (SHIW) database. We make use of a unique feature of the SHIW data: the fact that it reports, for each worker in each wave, the expected age of retirement. In addition, we characterize the behaviour of each household conditional on some observed features that can reveal interesting differences among individuals. Primarily, individuals' educational and cultural backgrounds as they are likely to influence both their wealth, and hence their capability to self-insure against risks, and their preferences for home production (and the return to it) – expected to be higher, on average, for the low educated, who should be more prone to substituting their time for non-durable expenditures. Finally, we also look at the accumulated wealth level to account explicitly for the role of buffer stock in preventing a consumption drop at retirement.

Our analysis detects a significant drop at retirement concerning the expenditure on non-durables. We add to the literature on the consumption drop by shedding light on whether households are actually willing to reduce their consumption when they retire. To achieve this we isolate retired individuals according to whether they are expected to retire or not. In this way, we can clearly identify the extent to which households consciously plan their behaviour rather than being forced to reduce their welfare (by reducing expenditures) when retirement occurs. Our findings suggest that the consumption drop is a rational response to retirement rather than a response to an unexpected shock, for the average household. Households plan a reduction in their consumption when retirement approaches rather than being forced to reduce their consumption as a consequence of their unpreparedness for retirement. However, only agents without substantial protection against shocks, measured in terms of wealth, show a reduction in consumption when retirement occurs unexpectedly. Put differently, the more vulnerable households, those without a comfortable buffer stock of wealth, show an expenditure contraction that has been a negative shock to them rather than a choice. The rest of the paper is laid out as follows. Section 2 shows the empirical strategy we apply to test the presence and the determinants of the consumption drop. Section 3 illustrates the data. Section 4 discusses the results and section 5 reports the conclusions.

2. Empirical strategy

In order to analyse the consumption patterns of individuals around retirement, we estimate an Euler equation derived on the assumption of intertemporal separable lifetime preferences and constant relative risk aversion (CRRA) within-period utility. To take into account the role of demographic variables, we specify the within-period utility function as:

$$u(C_{i,t}) = \frac{\exp(\beta_1 Z_{i,t})}{1-\rho} C_{i,t}^{1-\rho} \tag{1}$$

where (ρ) is the inverse of the elasticity of intertemporal substitution – assumed constant across individuals – and Z is a set of demographic characteristics acting as taste shifters.

The resulting Euler equation shows the consumption evolution over time as a function of the parameters of the utility function, of the intertemporal rate of time preference – which following Banks, Blundell and Tanner (1998) is allowed to depend on age – and of the market interest rate:

$$\ln C_{i,t} - \ln C_{i,t-1} = k + \frac{1}{\rho} r_t + \beta_1 \Delta Z_{i,t} + \beta_2 age_{it} + e_{i,t} \tag{2}$$

The constant k captures both the (constant across households part of the) discount factor and conditional higher moments of consumption growth and of the interest rate, and $e_{i,t}$ represents all the unexpected news received in year t. Shocks may be related to individual or aggregate factors, such as an unforeseen unemployment spell or an unexpected recession, that cause a revision to the lifetime resources and hence to consumption.

As far as retirement and the consequent change in income are expected – and therefore households are not caught unprepared – the permanent income does not change and the consumption growth should not be affected at all: to test this implication we add to equation (2) an indicator variable equal to one at the time of retirement:

$$\Delta \ln C_{it} = k + \frac{1}{\rho} r_t + \beta_1 \Delta Z_{it} + \beta_2 age_{it} + \gamma * retired_{it} + e_{it} \tag{3}$$

According to this specification of the model, if retirement is expected, the coefficient γ should be equal to zero.[2]

If, however, retirement is unexpected – that is, if retirement occurs earlier than expected as a consequence of early dismissal from work or redundancy, for example – then it is accompanied by an unexpected wealth shock, which causes, in turn, a negative revision of consumption (Banks, Blundell and Tanner, 1998). In order to distinguish between expected and unexpected decisions to retire, we use a unique source of information given for each (working) respondent: the expected age of retirement. In each wave, we compare the actual with the expected age of retirement. By combining these pieces of information we can distinguish among four cases: individuals retiring when expected, individuals retiring unexpectedly, individuals who expected to retire but did not and individuals who did not retire and did not expect to do so.

[2] The assumptions underlying the model we use rely on the separability of consumption and leisure and do not account for home production or for the effect of precautionary saving arising from income uncertainty.

3. Data

We use nine waves of the Italian Survey of Household Income and Wealth (SHIW) for the period 1991–2008. The survey began in the 1960s with the aim of gathering data on the incomes and savings of Italian households. Over the years, the scope of the survey has grown and it now contains detailed information on Italian households' consumption and household members' demographics, labour supply including the accumulated work seniority, income and real and financial wealth.

The data are representative of the Italian resident population and are collected (currently) every 2 years. Each wave covers approximately 8,000 households and 50% of the sample is re-interviewed in order to build up a rotating panel component. The unit of observation is the family, which is defined to include all the persons residing in the same dwelling who are related by blood, marriage, common-law marriage or adoption. Brandolini and Cannari (1994) and Brandolini (1999) describe the set-up of this data set and quality.

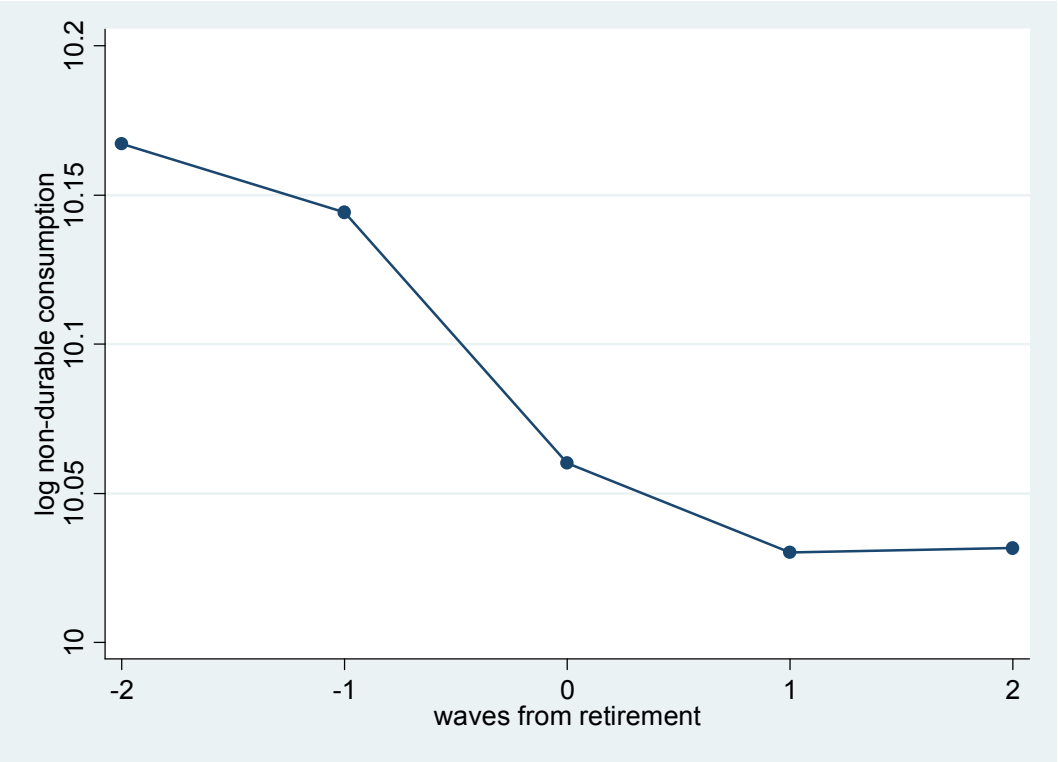
The availability of data on households' expenditure and on individuals' characteristics allows us to estimate the Euler equation (equation 3) for non-durable consumption. The utility changes associated with the consumption of durables are indeed difficult to measure, as households' current utility can depend on service flows from past purchases of these goods.

The data on individuals' expectations about retirement age constitute a special asset for our analysis, by knowing with certainty whether retirement was truly expected by individuals. In addition, knowing the educational attainment for each household component allows us to detect whether individuals with a low educational level behave differently from individuals with higher educational attainment. Finally, the survey contains information on financial and real wealth; we exploit this valuable information to explain the heterogeneity of individual behaviour.

To carry out the empirical analysis we select a sample of households whose head is around the age of retirement (in the age range 50–72). In particular, as we are interested in time variations, we focus on the group of households that are observed for at least 2 consecutive waves. We also exclude those individuals who return to work after retirement. In order to avoid exceptional and unrepresentative situations, we restrict our sample to male-headed households (the vast majority in Italy, about 73% of the sample age range). Moreover, we select households whose head is observed to be an employee, excluding those who exhibited any spell out of the labour market other than retirement. The final selected sample counts 3,480 observations for 1,426 heads of households.

Figure 1 illustrates the average (log) consumption across the years around retirement for the sample considered in our analysis. Corresponding to wave zero, the household head is experiencing retirement. The consumption behaviour around the wave (wave 0 in Figure 1) when retirement occurs is the focus of our analysis. As a first snapshot of our variable of interest, we can observe a general decline in consumption occurring in this part of the life cycle, with a more substantial drop at the time of retirement.

Figure 1. Consumption across waves centred at retirement



Note: Negative (positive) waves are associated with waves before (after) retirement occurs.

We provide the descriptive statistics of the variable of interest for the selected sample in Table 1. The average family spends about 27 thousand euros per year on non-durables. The average consumption growth, given by the first difference of the logarithm of non-durable expenditure, is close to zero. The average age of the heads of households is around 57 while the age at retirement is about 59.

The dichotomous variable low educated is built on the educational level of the head of the households and it takes a value equal to one if the head completed at most compulsory education: about 56% of the household heads in the selected sample belong to this group. The average family in our sample is made up of about 3 components, of which 2 are income earners. Finally, the ratio of household heads retiring during the sample is 13%: as reported in Table 2, we observe 443 individuals retiring in the sample period.

Table 1 – Descriptive statistics

	Mean	Std Dev.
Non-durable expenditure	27,203	12,732
Δlog (non-durable expenditure)	-0.005	0.343
Age	57.0	5.3
Age at retirement	59.2	4.0
Retired	0.13	0.33
Low educated	0.56	0.50
Household members	3.3	1.2
Household income recipients	2.0	0.8
Wealth (total)	266,603	574,864

Note: Source: SHIW 1991–2008, pooled sample of 3,480 observations related to 1,426 male household heads observed retiring in the period 1992–2008. Non-durable expenditure and wealth are reported in euros at 2009 prices.[3]

Table 2 reports the distribution of retiring people by educational and wealth level. Overall, 121 out of 443 retirement episodes (about 27%) are unexpected. The incidence of unexpected retirement is slightly lower for people with high education levels than for those with low education levels (83 out of 283, that is, around 30%) and for low-wealth individuals (again with an incidence of about 30%).

Table 2 – Distribution of retiring people by educational level and wealth

		Retired when expected	**Unexpected retirement**	**Total**
By education:				
	high educated	122	38	160
	low educated	200	83	283
By wealth levels:				
	below the median	153	77	230
	above the median	169	44	213
Total		322	121	443

4. Results

As discussed in section 2, we write our basic specification for consumption growth as[4]:

$$\Delta \ln C_{it} = \ln C_{it} - \ln C_{it-2} = \alpha + \gamma * retired_{it} + X_{it}\beta + T_t\theta + e_{it}$$

[3] We use the ISTAT consumer price index for blue- and white-collar worker households (FOI).

[4] See Banks, Blundell and Tanner (1998) for a similar specification.

(4)

where our dependent variable is the variation in the logarithm of non-durable household expenditures that occurred between two consecutive waves of the survey.

In our baseline specification, the set of regressors includes the dummy variable for retiring in the current wave,[5] the coefficient γ of which measures the so-called consumption drop at retirement, and the time dummies T_t, to capture the effect of time-varying interest rates. In addition, we control for a set of individual specific characteristics (X) as follows:

- the age of the household head that captures the changes in the intertemporal rate of time preferences,
- the educational level of the household head, as the cultural background normally shapes individual behaviour,
- the change in the number of household components, as it is expected to affect consumption growth substantially[6],
- the change in the number of income earners as a proxy for the change in the income of the household,
- the area of residence (north, centre and south), to allow for macro-regional differences in discount rates.

The results of our baseline models are reported in Table 3. Given that in our estimations we exploit the panel dimension of the data, we compute clustered robust standard errors in order to account for heteroscedasticity and serial correlation of individual errors over time.

For brevity reasons we provide comments on the estimates on the coefficient of our main interest only. In the first and simplest specification considered (see column 1 of Table 3), the OLS coefficient on the retirement dummy implies an average consumption drop of about 4% at retirement.

However, as shown in column 2, retiring does not have the same impact across households. More educated people seem not to be significantly affected by retiring. Highly educated individuals – here defined as individuals with more than compulsory education – actually show at retirement a drop in consumption of about 1.5 percentage points, not statistically different from zero. Conversely, people with a lower level of education are characterized by a significant contraction of consumption at retirement of about 5 percentage points. One possible interpretation of these results could be imputed to home production, which could be more pronounced among less educated people. Different educational levels are likely to be associated with different preferences for leisure and consumption. In particular, the low educated are likely to know better how to produce at home a variety of goods and during retirement they finally have the time to do so, consequently being able to reduce their consumption of market goods (Hurd andand Rohwedder, 2003).

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[5] As there is a two-year lag between each wave, an individual observed retiring in wave t could actually have retired one year previously.

[6] See Attanasio and Weber (1995). Alternatively, as in Miniaci et al (2010), we could have attributed shares of the household consumption to the household members according to an equivalence scale and we could have regressed the individual consumption on each household member's characteristics. However, this would have been at the cost of introducing a substantial measurement error.

Table 3 – OLS by alternative specifications

	(1)	(2)	(3)
Retired	-0.0383**		
	(*0.0179*)		
Retired*high educated		-0.0177	
		(*0.03*)	
Retired*low educated		-0.0505**	
		(*0.0218*)	
Retired*low wealth			-0.0578**
			(*0.0232*)
Retired*high wealth			-0.0177
			(*0.0242*)
Low educated	-0.0118	-0.0079	-0.0102
	(*0.0083*)	(*0.0098*)	(*0.0084*)
Age	-0.0029**	-0.0030**	-0.0029**
	(*0.0012*)	(*0.0012*)	(*0.0012*)
Hh members(Δ)	0.0441***	0.0442***	0.0440***
	(*0.0124*)	(*0.0125*)	(*0.0125*)
HH receipients (Δ)	0.0621***	0.0620***	0.0621***
	(*0.0103*)	(*0.0103*)	(*0.0103*)
Previously retired	0.0042	0.0040	0.0040
	(*0.0154*)	(*0.0154*)	(*0.0154*)
Constant	0.0833	0.0841	0.0824
	(*0.0672*)	(*0.0672*)	(*0.0673*)
R-squared	0.043	0.043	0.044
N	3480	3480	3480

Note: ***1% significance level; **5% significance level; *10% significance level.
Clustered standard errors. Standard errors in parentheses.

A key actor shaping consumption smoothing is wealth, for which education can act as a good proxy. Transitions from working statuses are likely to be smoother the higher the available (liquid) assets. In our sample the majority of households accumulate wealth, with 70% of the highly educated individuals accumulating wealth above the median, opposed to 40% of individuals with low education levels. To test whether wealthier individuals manage to smooth consumption more easily, we run a regression disentangling the retiring population into two groups, those with wealth above or below the median of the distribution (see column 3). Wealth is defined as the sum of financial and real wealth accumulated at the time of retirement.

We find that the consumption drop only characterizes the group of individuals whose wealth is below the median, while those families with above-the-median wealth exhibit consumption smoothing between working and retirement. For the former group, the coefficient of the dummy

retired in the estimated equation is about -6%, significant at the 5% level. For the second, it is very close to and not statistically different from zero.

Nonetheless, retirement can be unexpected and, if so, it is likely to be associated with a wealth shock determining sizeable effects on consumption. Permanent income, the main determinant of current consumption, is negatively affected by earlier retirement, as retirement coincides with a flow of pensions that are lower than labour incomes. In addition, unexpected retirement is associated with a lower than expected replacement rate, further exacerbating the income drop when retired. This leads to an estimation of the consumption drop at retirement that mixes up for some individuals the effects of the unexpected income shock as a consequence of retirement with all the other potential explanations for the reduction in consumption at retirement, namely preferences, non-separability between consumption and leisure, etc.

As discussed in section 2, we deal extensively with unexpected retirement by using information on the expected age of retirement. In particular, at each time t we observe whether an individual is currently retired and whether he expected to be. More specifically, we build up a dummy variable capturing whether retirement was expected. The variable takes the value equal to one if, at time t, an individual just retired and stated in the previous wave (at t-2) that he expected to do so. In this way we can disentangle our sample according to the unexpectedness of retirement, which could potentially drive the consumption drop. By interacting these two dichotomous variables we obtain four dummy variables to cover the four possible cases: (i) in period t an individual is not retired and did not expect to be retired; (ii) in period t an individual is not retired but expected to be retired; (iii) in period t an individual is retired but did not expected to be retired and (iv) in period t an individual is retired and expected to retire. Case (iii) is labelled 'retired when not expected', while case (iv) is labelled 'retired when expected'. Actually, in our sample, about 68% of the individuals who retire correctly predict retirement. Case (i) is our base case and we exclude the corresponding dummy variable from the regressions.

Table 4 reports the results with the expectedness degree. Our baseline specification (column 1) shows that households in which retirement was expected reduced their consumption by about 4%, while households that retired unexpectedly, on average, did not change their consumption pattern. Such a finding sheds important light on the willingness to drop consumption at retirement. Households are in fact aware that retirement is happening and they reduce their consumption when retirement occurs in a voluntary way. Whether retirement is unexpected or not does not matter to the respondents. In other words, the surprise in retirement is not driving the consumption drop.

In order to explore in more detail the characteristics that may drive this result, we break down our results according to the educational level of the head of the household. As reported in column 2, consumption drops at retirement only when it is expected, and only for low-educated individuals; on average for this group consumption drops by about 6%.

Table 4 – OLS by alternative specifications disentangling expected and unexpected retirement

	(1)	(2)	(3)	(4)
Retired when expected	-0.0376*		-0.0377*	
	(*0.0200*)		(*0.0200*)	
Retired when not expected	-0.0431		-0.0497	
	(*0.0325*)		(*0.0470*)	
Retired when not expected (more than two years)			0.0120	
			(*0.0628*)	
Not retired when expected	-0.0063		-0.0064	
	(*0.0268*)		(*0.0268*)	
Retired when expected*high education		-0.0092		
		(*0.0315*)		
Retired when not expected*high education		-0.0574		
		(*0.0661*)		
Not retired when expected*high education		-0.0442		
		(*0.0346*)		
Retired when expected*low education		-0.0551**		
		(*0.0252*)		
Retired when not expected*low education		-0.0368		
		(*0.0360*)		
Not retired when expected*low education		0.0204		
		(*0.0380*)		
Retired when expected*low wealth				-0.0414
				(*0.0286*)
Retired when expected*high wealth				-0.0345
				(*0.025*)
Retired when not expected*low wealth				-0.0929***
				(*0.0358*)
Retired when not expected*high wealth				0.0430
				(*0.0593*)
Not retired when expected*low wealth				-0.0129
				(*0.0342*)
Not retired when expected*high wealth				-0.0000
				(*0.0422*)
Low education	-0.0117	-0.0113	-0.0117	-0.0100
	(*0.0082*)	(*0.0101*)	(*0.0082*)	(*0.0085*)
Age	-0.0029**	-0.0029**	-0.0029**	-0.0029**
	(*0.0012*)	(*0.0012*)	(*0.0012*)	(*0.0012*)
Hh members (Δ)	0.0440***	0.0437***	0.0440***	0.0440***
	(*0.0125*)	(*0.0125*)	(*0.0125*)	(*0.0125*)
HH receipients (Δ)	0.0621***	0.0624***	0.0621***	0.0627***
	(*0.0103*)	(*0.0102*)	(*0.0103*)	(*0.0103*)
Previously retired	0.0033	0.0027	0.0031	0.0029
	(*0.0156*)	(*0.0157*)	(*0.0157*)	(*0.0156*)
Constant	0.0807	0.0780	0.0797	0.0788
	(*0.0670*)	(*0.0675*)	(*0.0671*)	(*0.0671*)
R-squared	0.043	0.043	0.043	0.043
N	3480	3480	3480	3480

Note: ***1% significance level; **5% significance level; *10% significance level.
Clustered standard errors. Standard errors in parentheses.

We now add another dimension to our analysis, which might play a crucial role in determining the degree of preparedness to smooth a structural break in life such as the entry to retirement. We break down our sample of retiring individuals according to whether their wealth at retirement is above or below the median (column 4). We find evidence of a consumption drop at retirement significantly different from zero only for low-wealth individuals. For them, the consumption drop is sizeable and equal to about 9% if retirement was unexpected, while the drop is around 4% when expected, albeit not statistically significant.

In conclusion, the consumption drop at retirement is stable at around 5%, and on average it is well-planned behaviour. When retirement is expected, in fact, individuals still on average drop their consumption. Wealth is also important for a better understanding of the consumption drop. It is only when we distinguish among wealth levels that we are able to isolate a negative effect of unexpected retirement on consumption. When retirement comes unexpectedly, low-wealth households react by lowering their consumption even more, probably due to a low buffer to face negative shocks.

5. Conclusions

In this paper we exploit the panel dimension of the Bank of Italy data set to estimate the size of the consumption drop at retirement in Italy. We also use information on the expected age of retirement to distinguish between expected and unexpected retirement. In this way we are able to identify whether the consumption drop has been rationally planned by households rather than being a shock to them.

Our results show that on average the non-durable consumption drop at retirement in Italy is about 4%. This finding is in line with previous research on Italian data (Battistin et al, 2009; Miniaci, Monfardini and Weber, 2010). Further investigation reveals that the reduction in non-durable consumption at retirement only persists among low-educated (heads of) households.

With the ability to distinguish whether retirement was rightly expected rather than being a surprise, we are able to detect that the 5% consumption drop is made voluntarily by agents, particularly by those who have lower educational levels in the sample. When wealth is added to the model, we discover that unexpected retirement does act as a negative shock to households for those households without a substantial buffer stock of wealth. The average consumption drop for surprised households with wealth below the median is 9%, while for households that accumulated wealth above the median it is nil.

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