



The Saving Behavior of the Retired Elderly in Italy

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Paper prepared for the 35th IARIW General Conference

Copenhagen, Denmark, August 20-25, 2018

Session 2D-2: Retirement and Aging

Time: Tuesday, August 21, 2018 [14:00-17:30]

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February 1, 2018; revised March 27, 2018, May 3, 2018, July 27, 2018

Abstract: In this paper, we analyze the wealth accumulation and saving behavior of the retired elderly in Italy using micro data from the “Survey of Italian Households’ Income and Wealth,” a panel survey of households conducted every two years by the Bank of Italy. We are particularly interested in shedding light on whether or not the “Wealth Decumulation Puzzle” (the tendency of the retired elderly to decumulate their wealth more slowly than expected) applies in the case of Italy, and if so, why. We find that not only do the retired elderly in Italy not decumulate wealth but that they continue to accumulate wealth at a considerable rate and thus that the “Wealth Decumulation Puzzle” applies in the case of Italy. We then conduct an econometric analysis of the determinants of the wealth accumulation and saving behavior of the retired elderly in Italy and find that the degree of relative risk aversion, bequest intentions, the amount of the intended bequest, and whether or not the household is saving to make inter vivos transfers to children or grandchildren all have a positive and significant impact on the wealth accumulation and saving behavior of the retired elderly in Italy. This implies that both the presence of precautionary saving as well as the presence of intergenerational transfers are important explanations for the “Wealth Decumulation Puzzle” in Italy.

Journal of Economic Literature classification numbers: D14, D15, E21, J14

Keywords: Aged, ageing, bequests, bequest intentions, bequest motive, elderly, household saving, life cycle model, precautionary saving, retired elderly, saving, saving and consumption, saving rate, wealth, wealth accumulation, wealth decumulation, and wealth decumulation puzzle

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1. Introduction

The central tenet of the life-cycle model is that people work, earn income, and save (accumulate wealth) when young and retirement and dissave (decumulate wealth) when old, but previous studies for most countries have found that the elderly continue to accumulate wealth or that they decumulate their wealth (dissave) but that their rate of wealth decumulation is much slower (and that their saving rate is much higher) than predicted by the simple life cycle model with no lifespan uncertainty and no bequest motives. For example, the country studies in Poterba (1994) show that median saving rates remain positive well beyond retirement in virtually all countries.

At least two explanations have been proposed for this so-called “Wealth Decumulation Puzzle” (see Mirer, 1979, for an early exposition of this puzzle). The first explanation is that the retired elderly are continuing to accumulate wealth or are decumulating their wealth (dissaving) more slowly than expected because they are worried about longevity risk (lifespan uncertainty) and the possibility of facing high medical and long-term care expenses in the future and that they are engaging in precautionary saving in response to these worries. The second explanation, which of course is not mutually exclusive with the first, is that the retired elderly are continuing to accumulate wealth or are decumulating their wealth (dissaving) more slowly than expected because they are saving in order to leave bequests and other intergenerational transfers to their children.

Many studies have been conducted in the United States and other countries that attempt to shed light on the relative importance of these two explanations of the failure of the retired elderly to decumulate their wealth as quickly as expected, but no consensus has been reached in any country (studies for the U.S. include Palumbo (1999), Dynan, et al. (2002), French, et al. (2006), and De Nardi, et al. (2010), studies for Europe include Borsch-Supan (1992), Alessie, et al. (1999), and Dobrescu (2015), and studies for Japan include Horioka, et al. (1996), Horioka (2010), and Niimi and Horioka (2017); see Niimi and Horioka, 2017, for a more comprehensive literature survey).

Looking in particular at studies for Italy, Jappelli and Modigliani (2003) do a detailed analysis of the age-saving profiles and age-wealth profiles of Italian households using the same data source we use for our analysis and find that discretionary wealth (exclusive of pension wealth) declines in old age, at least after the age of 65, as predicted by the life-cycle model, but that discretionary saving remains positive throughout the life cycle (at

least until age 80) if it is calculated as disposable income minus consumption. Moreover, Jappelli and Pagano (1997) find that Italian households of all ages save positive amounts even though their saving rates have declined over time for almost all age groups. Thus, whether the elderly in Italy accumulate or decumulate wealth depends on how the calculation is done, but what can be said for sure is that the decline in wealth during retirement in Italy is at best slow. Thus, these findings suggest that the “Wealth Decumulation Puzzle” applies in the case of Italy, as it does in most other countries. However, previous studies for Italy have not clarified the reasons for why the “Wealth Decumulation Puzzle” is observed although Guiso and Jappelli’s (2002) finding that the share of intergenerational transfers in total household wealth does not exceed one-fourth suggests that saving for bequests and other intergenerational transfers is not the dominant explanation.

In this paper, we analyze the wealth accumulation and saving behavior of the retired elderly in Italy using micro data from the 2000-02 and 2012-14 waves of the “Survey of Italian Households’ Income and Wealth,” a panel survey of households conducted every two years by the Bank of Italy. We are particularly interested in shedding light on whether or not the “Wealth Decumulation Puzzle” applies in the case of Italy, and if so, whether it is due to the presence of precautionary saving and/or to the presence of bequests and other intergenerational transfers.

This paper makes a number of original contributions. First, it is one of the first papers to examine whether the “Wealth Decumulation Puzzle” applies in the case of Italy. Second, it is one of the first papers to shed light on the relation importance of precautionary saving and intergenerational transfers as possible explanations of the low wealth decumulation rates of the retired elderly. Third, it is one of the first papers to examine the impact of the degree of relative risk aversion and saving motives on the wealth accumulation and saving behavior of the retired elderly.

This analysis is meaningful not only because it sheds light on the wealth accumulation and saving behavior of the retired elderly (who hold a substantial share of household wealth) and on the applicability of the life-cycle model but also because it has important policy implications. For example, whether and the extent to which the retired elderly decumulate their wealth (dissave) will determine what impact the aging of the population will have on the aggregate household saving rate. Second, if precautionary saving arising from inadequacies in social safety nets are the root cause of the higher than expected

wealth accumulation rates of the retired elderly, it may be desirable for the government to expand social safety nets so households will not feel compelled to save as much for precautionary purposes. Third, if financial market imperfections (such as the unavailability of home equity loans, reverse mortgages, lifetime annuities, and other financial products more generally) are preventing the elderly from decumulating their wealth and using it to finance their living expenses during retirement, it may be desirable for the government to eliminate regulations and other factors impeding the introduction of such products. Fourth, if the wealth accumulation rates of the elderly are so high because they wish to leave bequests and other intergenerational transfers to their children, the high wealth accumulation rates of the elderly are not necessarily a bad thing because they enable the elderly to achieve their goal of transferring their wealth to their children. We should note, however, that bequests and other intergenerational transfers to children cause wealth disparities to be passed on from generation to generation, and it may be desirable for the government to impose heavier taxes on bequests and other intergenerational transfers to alleviate this tendency.

It is especially interesting to look at the case of Italy because household saving rates have traditionally been very high in Italy, because the share of the elderly in the total population in Italy is the highest in the EU, because the fertility rate is very low in Italy, and because it would be interesting to shed light on the impact of Italy's unique cultural and institutional setting (relative strong family ties, relatively underdeveloped financial system, high government debt to GDP ratio, well-developed public pension system, absence of a public long-term care insurance system, etc.) on the wealth accumulation and saving behavior of Italian households. Moreover, Italy is similar to Japan in many ways but different in not having a public long-term care insurance program, making it interesting to conduct an Italy-Japan comparison of the wealth accumulation and saving behavior of the retired elderly (see Niimi and Horioka (2017) for a companion piece on Japan).

To summarize our main findings, we find that not only do the retired elderly in Italy not decumulate wealth but that they continue to accumulate wealth at a considerable rate and thus that the "Wealth Decumulation Puzzle" applies in the case of Italy. We then conduct an econometric analysis of the determinants of the wealth accumulation and saving behavior of the retired elderly in Italy and find that the degree of relative risk aversion, bequest intentions, the amount of the intended bequest, and whether or not the household is saving to make inter vivos transfers to children or grandchildren all have a positive and

significant impact on the wealth accumulation and saving behavior of the retired elderly in Italy. This implies that both the presence of precautionary saving as well as the presence of intergenerational transfers are important explanations for the “Wealth Decumulation Puzzle” in Italy.

The remainder of this paper is organized as follows. In section 2, we discuss theoretical considerations; in section 3, we explain the estimation model we use for our regression analysis of the determinants of the wealth accumulation and saving behavior of the retired elderly in Italy; in section 4, we explain the data source we use for our analysis and present some descriptive statistics; in section 5, we present and discuss our estimation results; in section 6, we discuss robustness checks and directions for further research; in section 7, we discuss directions for further research; and section 8 is a concluding section.

2. Theoretical Considerations

According to the simple life cycle model, households work and save in preparation for their life after retirement when young and retire and finance their living expenses by decumulating their previously accumulated wealth when old. Moreover, in the absence of bequest motives and precautionary saving arising from longevity risk and future medical and long-term care expenses, retired households should decumulate their wealth so as to precisely exhaust their wealth at the time of death. If the wealth decumulation rate of retired households is slower than predicted by the simple life cycle model, it is presumably due to bequest motives and/or to precautionary saving arising from longevity risk or future medical and long-term care expenses. The purpose of this paper is to determine whether the wealth accumulation and saving behavior of the retired elderly in Italy is consistent with the life cycle model once we take account of the presence of precautionary saving and bequest motives.

3. The Estimation Model

In this section, we explain the estimation model we use for our regression analysis of the determinants of the wealth accumulation and saving behavior of the retired elderly in Italy. We use the following six dependent variables in our estimations:

- (1) The level of wealth (net worth) at the end of 2000
- (2) The wealth accumulation (decumulation) rate between 2000-02

- (3) The amount of saving in 2002
- (4) The average amount of saving in 2000-02
- (5) The saving rate in 2002
- (6) The average saving rate in 2000-02

The first of these six variables is a stock measure of wealth, computed as total assets minus total liabilities, while the remaining five measures are flow measures of saving. The second variable measures saving as the change in the stock of wealth (net worth), computed as the percentage change in net worth from year 2000 to year 2002, while the remaining four variables measure saving as disposable income minus consumption. The saving rates are computed by dividing saving by disposable income. Average measures are simple mathematical averages of the corresponding variables in 2000 and 2002.

Turning to the explanatory variables, the four key explanatory variables we use in our analysis are as follows:

- (1) The respondent's rate of relative risk aversion (computed in a simple expected utility framework from the question "You are offered the opportunity of buying shares which, tomorrow, with equal probability, will be worth either 10 million lira or nothing. How much would you be prepared to pay (maximum amount) for these shares?")
- (2) A dummy variable that takes a value of one if the household holds at least one of the following products (life insurance, private health insurance, or insurance-based saving) and zero otherwise ("insurance")
- (3) A dummy variable that takes a value of one if the respondent intends to leave a bequest to his or her children and zero otherwise
- (4) The amount of the bequest that the respondent intends to leave to his or her children

We would expect the degree of relative risk aversion to have a positive impact on all of the dependent variables because risk-averse households should engage in more saving for precautionary purposes than other households. If households' rate of relative risk aversion is found to have a positive and significant impact on their wealth accumulation and saving behavior, as expected, we will be able to conclude that saving for precautionary purposes (such as precautionary saving arising from longevity risk and the possibility of facing high medical and long-term care expenses in the future) is important in explaining the higher than expected saving rates of the elderly. It is quite possible that risk-averse households will be more likely to purchase insurance products, and this will alleviate the

need for them to save more, but since we include a variable relating to the ownership of insurance products as an additional explanatory variable, this effect will be netted out and the coefficient of relative risk aversion will capture the pure impact of relative risk aversion on wealth accumulation and saving behavior.

The ownership of insurance products such as life insurance, private health insurance, and insurance-based saving can be expected to influence wealth accumulation and saving behavior through a number of channels. First, households who are risk-averse will be more likely to purchase insurance products and will also save more than other households. Second, since insurance and saving are alternate ways of insuring against various risks, households owning insurance products may actually save less than other households. Since the first effect is controlled for by including a measure of relative risk aversion as an explanatory variable, the insurance variable might be serving as a proxy for prudence in view of the analytical relationship between the two variables under the constant relative risk aversion (CRRA) assumption (under this assumption, relative prudence is equal to $1 + \text{relative risk aversion}$).

Furthermore, we would expect bequest intentions and the amount of the intended bequest to both have a positive impact on all six dependent variables because households that intend to leave a bequest (or that intend to leave a larger bequest) would be expected to moderate their rate of wealth decumulation so they have enough wealth left over to leave as a bequest to their children. If bequest intentions and/or the amount of intended bequests are found to have a positive and significant impact on households' wealth accumulation and saving behavior, as expected, we will be able to conclude that saving for bequests is an important motive for saving and an important explanation for the higher than expected saving rates of the elderly. Since both bequest intentions and the amount of the intended bequest are included in the regression equations, the coefficient of bequest intentions captures the impact of intending to leave a bequest (irrespective of the amount) on wealth accumulation and saving behavior, whereas the coefficient of the amount of the intended bequest captures the impact of the amount of the intended bequest on wealth accumulation and saving behavior given that the household intends to leave a bequest.

In addition, we tried including a large number of control variables including those relating to the respondent's age, square of age, educational attainment, and marital status and the household's housing type, place of residence (whether or not the respondent lives in a city with a population of 500,000 or more), bequest receipts, wealth (except in the case of the

wealth equation), etc., but we will not discuss them in detail due to space limitations.

4. Data Source and Descriptive Statistics

In this section, we explain the data source we use for our analysis and then present some descriptive statistics. The data set we use for our analysis is the “Survey of Italian Households’ Income and Wealth (hereafter SHIW),” conducted by the Bank of Italy. This data set is ideally suited for the topic of this paper because it includes detailed data on the flow of saving, the stock of wealth, saving motives, actual and expected bequest receipts, bequest intentions, preference parameters such as those relating to time preference and risk aversion, demographic and economic characteristics, etc.

Each wave of the Survey, which is conducted every two years, collects information about 8000 households randomly chosen from population registers and includes a panel component (attrition hovers around 20% per wave). The Survey is very rich and collects information on virtually every aspect of households’ lives, including social and geographic characteristics (such as age, gender, educational attainment, type of job, number of income earners, dynamics of the household in terms of members entering and leaving, information about parents and spouse’s parents, etc.), consumption (including detailed breakdown by type), income, gross and net wealth, and categories thereof.

Importantly, some waves of the SHIW include special sections devoted to particular aspects of households’ lives (for example, time preference, attitudes toward risk, life satisfaction, job satisfaction, financial literacy, etc.). For our purposes, of particular interest are the 2002 and the 2014 waves of the Survey, which include a special section on intergenerational transfers, with information on bequests and inter vivos transfers received, bequest intentions (2002 wave only), and saving motives (2014 wave only).

The sample we will use in our main analysis will be a subset of the panel components of the 2000 and 2002 waves of the Survey, but we will also use the 2012 and 2014 waves later on. Our interest in the panel component is motivated by at least two considerations: first, as the dependent variables are drawn from the 2002 wave of the survey, we would like to mitigate potential endogeneity issues by selecting explanatory variables from the 2000 wave. Second, some key explanatory variables, such as those relating to risk attitudes and time preference are available for 2000 but not for 2002.

We will confine our sample to only single-person or couple households in which both the husband and wife are 65 or older and retired and for which all of the necessary information is available for both the 2000 and 2002 waves. This procedure yielded an estimation sample of 377 households. However, we dropped observations in both the bottom 5% and the top 5% of the wealth accumulation rate distribution in order to purge the sample of outliers, leaving 330 observations. For comparability purposes, the regressions using the other dependent variables (saving amounts and saving rates) were also estimated for the same sample.

Table 1 shows descriptive statistics (means, standard deviations, and minimum and maximum values) for all dependent and explanatory variables used in our regression analysis for the estimation sample. As can be seen from this table, the saving rate in 2002 (calculated as the ratio of the difference between disposable income and consumption to disposable income) was 18.58%, the average saving rate in 2000-02 was 21.45%, and the average wealth accumulation rate in 2000-02 (calculated as the ratio of the change in wealth (net worth) in 2000-02 to the level of wealth (net worth) in 2000) was 21.41%, which corresponds to an annual wealth accumulation rate of 10.19%. All of these figures show that not only do the retired elderly in Italy not decumulate wealth but that they continue to accumulate wealth at a considerable rate, indicating that the Wealth Decumulation Puzzle applies with even greater force in Italy than in other countries.

The results are not shown in Table 1, but the proportion of households whose average wealth accumulation rate in 2000-02 was negative was 51% while the proportion of households whose saving rate in 2000-02 (saving rate in 2002) was negative was 12% (14%). This suggests that at most only about one-half of the retired elderly in Italy are decumulating wealth (dissaving), which provides further evidence that the Wealth Decumulation Puzzles applies in Italy.

Table 2 shows the correlations among the six wealth accumulation and saving measures used as dependent variables in our analysis, and as can be seen from this table, the correlations are positive in all but two cases, as we would expect, although they are not necessarily very high, ranging from -0.18 to 0.67 (the low correlations among the various measures are consistent with the findings of Jappelli and Modigliani, 2003).

Returning to Table 1, this table shows that nearly half (48.8%) of respondents intend to

leave a bequest to their children, suggesting that bequest motives are very strong in Italy.

Table 3 shows the correlations between the six wealth accumulation and saving measures we used as dependent variables in our analysis and relative risk aversion, bequest intentions, and the amount of the intended bequest, and as can be seen from this table, all six dependent variables are positively correlated with relative risk aversion, as expected, and that the correlations are relatively high (as high as 0.58). All six dependent variables are also positively correlated with bequest intentions and the amount of the intended bequest (except in the case of the correlation between the wealth accumulation rate and the amount of the intended bequests), as expected, but the correlations are somewhat lower (no higher than 0.17 and 0.41 in the case of bequest intentions and the amount of the intended bequest, respectively).

Table 4 shows the six wealth accumulation and saving variables used as dependent variables in our analysis broken down by relative risk aversion, bequest intentions, and the amount of the intended bequest, and as can be seen from this table, all six dependent variables increase with the degree of relative risk aversion, as expected, except in the case of quintile 5 for the saving rate. Similarly, all six dependent variables are higher in the case of households with bequest intentions than in the case of those without bequest intentions, and wealth in 2000 and saving in 2002 increase with the amount of the intended bequest, as expected, but the pattern of the other four dependent variables by the amount of the intended bequest is not necessarily very clear. Thus, the six dependent variables show the expected pattern by relative risk aversion and bequest intentions but not necessarily by the amount of the intended bequest.

These findings suggest that the presence of precautionary saving and the presence of bequest motives are both important as explanations of the Wealth Decumulation Puzzle in Italy, but a definitive verdict must await the results of the regression analysis we conduct in the next two sections, where we control for the impact of other factors.

5. The Estimation Results

In this section, we present the estimation results of our regression analysis of the determinants of the wealth accumulation and saving behavior of the retired elderly in Italy. The results for the level of wealth and the wealth accumulation (decumulation) rate are shown in Table 5, those for the amount of saving are shown in Table 6, and those for the

saving rate are shown in Table 7.

Looking first at the impact of relative risk aversion, Tables 5-7 show that it has a positive and significant impact on four out of the six dependent variables (all dependent variables except for the average amount of saving and the average saving rate). Thus, it appears that risk-averse households not only have higher levels of wealth but that they also save more and accumulate their wealth faster (or decumulate their wealth more slowly) than other households, *ceteris paribus*. These findings suggest that the higher than expected saving rates of the retired elderly in Italy are due, at least in part, to the importance of precautionary saving (for example, precautionary saving arising from longevity risk, future medical and long-term care expenses, etc.).

Turning next to the impact of bequest intentions and the amount of the intended bequest, Tables 5-7 show that bequest intentions have a positive and significant impact on four out of the six dependent variables (those relating to the amount of saving and the saving rate), as expected, but that they have a negative and significant impact on wealth and a positive but insignificant impact on the wealth accumulation rate. By contrast, the amount of the intended bequest has a positive and significant impact on three out of the six dependent variables (wealth, the wealth accumulation rate, and on the 2002 saving amount) but an insignificant impact on the remaining three dependent variables (the average saving amount, the 2002 saving rate, and the average saving rate). Thus, the coefficient of at least one bequest-related variable has a positive and significant impact in the case of all six dependent variables, and the coefficients of both bequest-related variables are significant in the case of the 2002 saving amount. Moreover, the only instance in which the coefficient of a bequest-related variable is negative and significant is in the case of the impact of bequest intentions on wealth, and there are a number of possible explanations for this finding. For example, as Hurd (1987) points out, it is quite possible that households that want to leave bequests to their children also want to give other forms of intergenerational transfers to their children and that their wealth is lower than that of other households because they have already given *inter vivos* transfers to their children including investments in their children's education. The fact that households that intend to leave a bequest to their children (or that intend to leave a larger bequest) accumulate their wealth faster (or decumulate their wealth more slowly) than other households, *ceteris paribus*, suggests that the high saving rates of the retired elderly in Italy is due, at least in part, to the strength of bequest motives in Italy.

To summarize, we find that the degree of relative risk aversion, bequest intentions, and the amount of the intended bequest all have a positive and significant impact on the level of wealth, wealth accumulation rate, amount of saving, and saving rate of the retired elderly in Italy, which implies that both precautionary saving as well as saving for bequests are important explanations for the high saving and wealth accumulation rates of the retired elderly in Italy, as in other countries.

Just to give the reader an idea about the magnitude of the impact of bequest intentions on wealth accumulation and saving, the coefficient of the bequest intention dummy in the equation for the 2002 saving rate is 6.832, which implies that the wealth accumulation rate of households with bequest intentions is a full 6.8 percentage points higher than those without bequest intentions (18.6 percent vs. 25.4 percent). This suggests that the 2002 saving rate of households with bequest intentions is close to 1.4 times as high as those without bequest intentions. Thus, bequest motives appear to be a much more important driver of the wealth accumulation and saving behavior of the retired elderly in Italy than precautionary saving.

6. Results based on the 2012-14 Waves

In this section, we present results from the 2012 and 2014 waves of the same survey because these waves are more recent and because some relevant and important information (such as on inter vivos transfers and saving motives) are available only in these waves.

For example, there is an interesting question in the 2012 wave about the motives for which respondents are saving. Ten motives are listed (to purchase one's own home, for other major expenditures (e.g., other houses, vehicles, furniture, etc.), to start a business or to finance investment in an existing business, to cope with unexpected contingencies, to repay debts, for old age, for travel and vacations, for inter vivos transfers to children or grandchildren for educational expenses and economic support, for bequests to children or grandchildren, and other) and respondents are asked to select up to three motives. We included dummy variables for saving for housing purchase, saving for old age, saving to make inter vivos transfers to children or grandchildren, and saving to leave bequests to children or grandchildren to get a handle on how important saving for these motives is.

As for the other explanatory variables, we included the same explanatory variables that

we used for the 2000 and 2002 waves except that we did not include all of the variables we used for the 2000 and 2002 waves either because they were not available or because their coefficients were not statistically significant.

For example, no information was collected on bequest receipts, bequest intentions, and the value of the intended bequest in the 2012 and 2014 waves so we were not able to include these variables as explanatory variables in the estimation equation. Moreover, variables relating to the age, age squared, educational attainment, and marital status of the household head and whether or not the household lives in a major city were omitted as explanatory variables and fewer variables relating to the housing type of the household were included because their coefficients were not statistically significant. However, we did include a regional dummy for southern Italy (i.e., regions below Latium but including Abruzzo) and the major islands (i.e., Sardinia and Sicily), which are typically the least industrialized regions.

As for the dependent variable, we used the 2014 saving amount/rate and the average saving amount/rate in 2012 and 2014 but not wealth or the wealth accumulation rate because we included variables relating to whether or not respondents are saving for specific motives as explanatory variables and these variables refer to the flow of saving and hence would presumably have more of an impact on the flow of saving than on the stock of wealth.

With respect to the estimation method, we used ordinary least squares (OLS) throughout. However, in some of the variants for 2012-14, whether or not the respondent or another household member makes donations or other cash gifts to non-profit organizations, voluntary organizations, charities, etc., is used as a proxy for the degree of altruism and used to construct a measure of whether the respondent is saving to make inter vivos transfers or saving to leave bequests for reasons unrelated to altruism.

The descriptive statistics (means, standard deviations, and minimum and maximum values) for all dependent and explanatory variables used in the analysis are shown in Table 8, and the estimation results are shown in Tables 9 and 10. The estimation results for the amount of saving are shown in Table 9, while those for the saving rate are shown in Table 10.

As can be seen from Tables 9 and 10, the coefficient of the “insurance” variable has a

positive and significant impact on the amount of saving as well as the saving rate whether we look at the 2014 saving amount/rate or the average saving amount/rate and whether we use actual or exogenized measures of saving for inter vivos transfers and saving for bequests. These results are consistent with the results based on the 2000 and 2002 waves.

Looking next at the results for the saving motive dummies, households who are saving to make inter vivos transfers to their children or grandchildren save more than other households whether we look at the 2014 saving amount/rate or the average saving amount/rate and we use actual or exogenized measures of saving for inter vivos transfers and saving for bequests. However, households that are saving to leave bequests to their children or grandchildren do not save any more than other households. As for the impact of saving for old age, households that are saving for old age saved more than other households whether we look at the 2014 saving amount/rate or the average saving amount/rate and whether we use actual or exogenized measures of saving for inter vivos transfers and saving for bequests, but the difference is only marginally significant in the case of the average saving amount whether we use actual or exogenized measures of saving for inter vivos transfers and saving for bequests.

Thus, our findings based on the 2012 and 2014 waves are broadly consistent with our findings based on the 2000 and 2002 waves, suggesting that the higher than expected saving of the retired elderly in Italy is due, at least in part, to precautionary saving and to saving to make inter vivos transfers to their children or grandchildren.

7. Directions for Further Research

In this section, we discuss directions for further research. One issue we plan to examine is the issue of positive/negative (saving, saving rate, wealth decumulation) asymmetry in our regressions. We tried re-estimating our regressions over subsamples, and indeed the results are not uniform. Thus, we plan to adopt different estimation techniques such as, for example, tobit (in the case of saving) or a fractional response model (in the case of positive saving rates) to address this issue.

8. Conclusion

In this paper, we analyzed the wealth accumulation and saving behavior of the retired elderly in Italy using micro data from the “Survey of Italian Households’ Income and

Wealth,” a panel survey of households conducted every two years by the Bank of Italy. We were particularly interested in shedding light on whether or not the “Wealth Decumulation Puzzle” (the tendency of the retired elderly to decumulate their wealth more slowly than expected) applies in the case of Italy, and if so, why. To summarize our main findings, we found that not only do the retired elderly in Italy not decumulate wealth but that they continue to accumulate wealth at a considerable rate and thus that the “Wealth Decumulation Puzzle” applies in the case of Italy. We then conducted an econometric analysis of the determinants of the wealth accumulation and saving behavior of the retired elderly in Italy and found that the degree of relative risk aversion, bequest intentions, the amount of the intended bequest, and whether or not the household is saving to make inter vivos transfers to children or grandchildren all have a positive and significant impact on the wealth accumulation and saving behavior of the retired elderly in Italy. This implies that both the presence of precautionary saving as well as the presence of intergenerational transfers are important explanations for the “Wealth Decumulation Puzzle” in Italy.

We turn finally to the implications of our findings. First, our findings show that the wealth accumulation and saving behavior of the retired elderly in Italy is consistent with the life cycle model once we take account of precautionary saving and saving for bequests. Second, our finding that the retired elderly in Italy are continuing to accumulate wealth (save) implies that Italy’s household saving rate will not necessarily decline as her population ages. Third, our finding that precautionary saving is important implies that it may be desirable for the government to expand social safety nets and/or to remove restrictions on the introduction of commercial financial products such as home equity loans, reverse mortgages, and lifetime annuities so that the elderly will not have to save as much for precautionary purposes. Fourth, if the elderly are saving so much because they wish to leave bequests and other intergenerational transfers to their children, the high saving rates of the elderly are not necessarily a bad thing because they enable the elderly to achieve their goal of transferring their wealth to their children. We should note, however, that bequests and other intergenerational transfers to children cause wealth disparities to be passed on from generation to generation, and it may be desirable for the government to impose heavier taxes on bequests and other intergenerational transfers to alleviate this tendency.

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Table 1: Descriptive Statistics for All Variables				
Variable	Mean	Std. dev.	Minimum	Maximum
Amount of saving in 2002 (10,000 euros)	0.489	0.787	-1.428	7.380
Average amount of saving in 2000-02 (10,000 euros)	0.827	1.356	-8.817	10.898
Saving rate in 2002	18.583	26.149	-200.000	77.703
Average saving rate in 2000-02	21.453	29.758	-357.636	206.176
Wealth accumulation rate, 2000-02	21.412	100.745	-93.463	589.361
Net worth in 2000 (10,000 euros)	34.413	49.478	0.050	415.750
Household head's age	73.539	6.166	65.000	91.000
Household head's age ² /100	54.459	9.269	42.250	82.810
No schooling	0.127	0.334	0	1
Elementary school	0.521	0.500	0	1
Middle school	0.164	0.371	0	1
Professional secondary School	0.021	0.144	0	1
High school	0.106	0.308	0	1
Associate's degree	0.003	0.055	0	1
Bachelor's degree	0.055	0.227	0	1
Married	0.470	0.500	0	1
Single	0.091	0.288	0	1
Divorced or separated	0.030	0.172	0	1
Non cohabiting children	0.706	0.456	0	1
Homeowner	0.788	0.409	0	1
Renter	0.130	0.337	0	1
Redemption (renting with option to buy)	0.006	0.078	0	1
Relative risk aversion	6.185	14.882	-8.665	146.481
Bequests received	0.182	0.386	0	1
Bequest intentions	0.488	0.501	0	1
Value of intended bequest	8.837	18.093	0	200.000
Insurance	0.161	0.368	0	1
Residing in a major city	0.061	0.239	0	1
Observations	330			

Wealth Accumulation and Saving Measures	Wealth accumulation rate, 2000-02 (%)	Amount of saving in 2002 (10,000 euros)	Average amount of saving in 2000-02 (10,000 euros)	Saving rate in 2002 (%)	Average saving rate in 2000-02 (%)
Net worth in 2000 (10,000 euros)	-0.1838	0.5113	0.4766	0.1487	0.1226
Wealth accumulation rate, 2000-02 (%)	1.0000	0.0185	-0.0734	0.0521	0.0363
Amount of saving in 2002 (10,000 euros)		1.0000	0.5471	0.6677	0.3645
Average amount of saving in 2000-02 (10,000 euros)			1.0000	0.3072	0.3314
Saving rate in 2002 (%)				1.0000	0.5116
Average saving rate in 2000-02 (%)					1.0000

Wealth Accumulation and Saving Measures	Relative risk aversion	Bequest intentions	Amount of intended bequest
Net worth in 2000 (10,000 euros)	0.5626	0.0752	0.4061
Wealth accumulation rate, 2000-02 (%)	0.1572	0.0354	-0.0040
Amount of saving in 2002 (10,000 euros)	0.5406	0.1655	0.3140
Average amount of saving in 2000-02 (10,000 euros)	0.4133	0.0750	0.1256
Saving rate in 2002 (%)	0.1993	0.1688	0.1523
Average saving rate in 2000-02 (%)	0.1263	0.1169	0.0485

Degree of relative risk aversion	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Full sample	
Net worth in 2000 (10,000 euros)	6.26	6.61	10.34	14.16	42.64	33.73	
Wealth accumulation rate, 2000-02 (%)							
Amount of saving in 2002 (10,000 euros)	0.22	0.26	0.32	0.42	1.12	0.50	
Average amount of saving in 2000-02 (10,000 euros)	0.27	0.55	0.59	0.77	1.68	0.81	
Saving rate in 2002 (%)	12	17	20	29	14	18	
Average saving rate in 2000-02 (%)	14	21	21	28	19	21	
Bequest intentions	Bequest intentions	No bequest intentions	Full sample				
Net worth in 2000 (10,000 euros)	18.64	14.08	33.73				
Wealth accumulation rate, 2000-02 (%)							
Amount of saving in 2002 (10,000 euros)	0.56	0.36	0.5				
Average amount of saving in 2000-02 (10,000 euros)	0.86	0.64	0.81				
Saving rate in 2002 (%)	20	15	18				
Average saving rate in 2000-02 (%)	23	17	21				
Amount of intended bequest	No bequest	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Full sample
Net worth in 2000 (10,000 euros)	14.00	7.50	10.30	14.80	24.40	47.10	33.73
Wealth accumulation rate, 2000-02 (%)							
Amount of saving in 2002 (10,000 euros)	0.36	0.26	0.43	0.60	0.78	0.89	0.50
Average amount of saving in 2000-02 (10,000 euros)	0.65	0.65	0.68	1.16	1.21	0.59	0.81
Saving rate in 2002 (%)	15	15	21	23	21	23	18
Average saving rate in 2000-02 (%)	18	22	23	22	26	22	21

Table 5: The Determinants of Net Worth and the Wealth Accumulation Rate

Explanatory variable	Net worth in 2000 (10,000 euros)	Wealth accumulation rate, 2000-02 (%)
Household head's age	9.476 (6.312)	23.718 (18.058)
Household head's age ² /100	-6.382 (4.192)	-15.674 (11.995)
No schooling	-291.040 (35.758)***	-202.296 (112.364)*
Elementary school	-283.069 (35.339)***	-196.408 (110.738)*
Middle school	-282.091 (35.351)***	-170.973 (110.702)
Professional secondary school	-287.051 (37.343)***	-212.844 (116.218)*
High school	-267.991 (35.405)***	-180.366 (109.916)
Associate's degree	-293.594 (47.242)***	-259.180 (142.865)*
Bachelor's degree	-251.434 (35.101)***	-164.674 (108.075)
Married	2.329 (4.186)	-6.910 (11.940)
Single	-4.590 (7.018)	-20.900 (20.020)
Divorced or separated	-0.505 (10.842)	-21.477 (30.908)
Homeowner	20.462 (7.120)***	49.009 (20.566)**
Renter	-3.952 (8.546)	72.373 (24.371)***
Redemption (renting with option to buy)	13.981 (24.291)	38.917 (69.284)
Relative risk aversion	1.094 (0.146)***	2.446 (0.453)***
Bequests received	-1.725 (4.928)	5.995 (12.858)
Bequest intentions	-15.468 (4.424)***	-0.312 (14.051)
Value of intended bequest	0.955 (0.122)***	0.720 (0.381)*
Residing in a major city	-12.645 (7.922)	32.996 (22.676)
Insurance	9.065 (5.413)*	-4.898 (15.501)
Net worth in 2000 (10,000 euros)		-1.039 (0.162)***
Constant	-59.394 (239.729)	-711.969 (683.458)
R2	0.60	0.21
N	330	330

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 6: The Determinants of the Amount of Saving

Explanatory variable	Amount of saving in 2002 (10,000 euros)	Average amount of saving in 2000-02 (10,000 euros)
Household head's age	0.058 (0.115)	-0.204 (0.194)
Household head's age ² /100	-0.039 (0.076)	0.136 (0.131)
No schooling	-5.700 (0.615)***	-6.408 (1.394)***
Elementary school	-5.628 (0.602)***	-6.233 (1.377)***
Middle school	-5.572 (0.595)***	-6.262 (1.389)***
Professional secondary school	-5.455 (0.595)***	-6.064 (1.403)***
High school	-5.503 (0.577)***	-6.194 (1.362)***
Associate's degree	-5.453 (0.515)***	-6.939 (1.301)***
Bachelor's degree	-5.038 (0.608)***	-5.353 (1.418)***
Married	0.010 (0.066)	-0.058 (0.158)
Single	-0.111 (0.093)	-0.172 (0.156)
Divorced or separated	0.222	-0.155
Net worth in 2000 (10,000 euros)	-0.000 (0.001)	0.007 (0.004)*
Homeowner	-0.054 (0.101)	-0.473 (0.370)
Renter	-0.083 (0.120)	-0.376 (0.325)
Redemption (renting with option to buy)	0.360 (0.596)	-5.580 (3.316)*
Relative risk aversion	0.017 (0.006)**	0.013 (0.008)
Bequests received	-0.134 (0.094)	-0.056 (0.171)
Bequest intentions	0.146 (0.074)*	0.406 (0.177)**
Value of intended bequest	0.008 (0.003)**	-0.007 (0.007)
Insurance	0.194 (0.122)	0.435 (0.188)**
Residing in a major city	0.076 (0.143)	-0.074 (0.177)
Constant	3.694 (4.326)	14.651 (7.267)**
R2	0.52	0.44
N	330	330

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 7: The Determinants of the Saving Rate

Explanatory variable	Saving rate in 2002	Average saving rate, 2000-02
Household head's age	8.744 (7.409)	13.739 (16.500)
Household head's age ² /100	-5.884 (5.043)	-9.487 (11.324)
No schooling	-59.606 (15.534)***	-36.815 (15.977)**
Elementary school	-49.061 (13.887)***	-38.409 (16.229)**
Middle school	-45.794 (14.146)***	-34.116 (16.050)**
Professional secondary school	-47.633 (14.840)***	-32.943 (16.819)*
High school	-46.320 (13.287)***	-31.499 (15.252)**
Associate's degree	-47.318 (12.197)***	-56.336 (15.681)***
Bachelor's degree	-35.529 (12.224)***	-28.825 (14.654)*
Married	-0.982 (3.032)	-3.439 (3.919)
Single	-7.236 (5.765)	-17.307 (13.638)
Divorced or separated	-3.164 (6.250)	-9.423 (6.622)
Net worth in 2000 (10,000 euros)	-0.061 (0.032)*	-0.020 (0.044)
Homeowner	1.636 (6.647)	8.545 (13.326)
Renter	-4.310 (7.303)	4.305 (12.875)
Redemption (renting with option to buy)	2.812 (18.727)	84.117 (72.537)
Relative risk aversion	0.274 (0.100)***	0.213 (0.131)
Bequests received	-1.317 (3.322)	3.259 (3.744)
Bequest intentions	6.832 (3.657)*	5.517 (3.016)*
Value of intended bequest	0.092 (0.098)	-0.058 (0.105)
Insurance	4.439	5.318

	(3.929)	(3.469)
Residing in a major city	5.306	-6.076
	(5.050)	(4.977)
Constant	-259.426	-444.430
	(272.393)	(603.362)
R2	0.13	0.16
<i>N</i>	330	330

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 8: Descriptive Statistics for All Variables (2012 and 2014 Waves)

Variable	Mean	Std. dev.	Minimum	Maximum
Amount of saving in 2014 (10,000 euros, constant 2012 prices)	0.606	0.942	-3.318	16.654
Average saving in 2012-14 (10,000 euros, constant 2012 prices)	0.570	0.855	-1.509	9.759
Saving rate in 2014	17.252	25.002	-317.769	84.408
Average saving rate in 2012-14	15.721	19.191	-138.633	75.195
Southern Italy and islands	0.366	0.482	0	1
Renter	0.135	0.342	0	1
University graduate	0.001	0.037	0	1
Saving for housing purchase	0.041	0.198	0	1
Saving for old age	0.612	0.488	0	1
Saving to make inter vivos transfers to (grand)children	0.131	0.338	0	1
Saving to make inter vivos transfers to (grand)children, exogenized	0.000	0.337	-0.172	0.878
Saving to leave bequests to (grand)children	0.219	0.414	0	1
Saving to leave bequests to (grand)children, exogenized	0.000	0.413	-0.272	0.793
Net worth in 2012 (10,000 euros)	25.770	34.012	-1.413	550.500
Insurance	0.235	0.424	0	1
Number of observations	1440			

Table 9: The Determinants of the Amount of Saving (2012 and 2014 Waves)

Explanatory variable	Amount of saving in 2014 (10,000 euros, constant 2012 prices)	Amount of saving in 2014 (10,000 euros, constant 2012 prices)	Average amount of saving, 2012-14 (10,000 euros, constant 2012 prices)	Average amount of saving, 2012-14 (10,000 euros, constant 2012 prices)
Southern Italy and islands	-0.144 (0.038)***	-0.144 (0.038)***	-0.104 (0.035)***	-0.104 (0.035)***
Renter	-0.194 (0.047)***	-0.195 (0.047)***	-0.121 (0.044)***	-0.121 (0.044)***
University graduate	1.831 (0.366)***	1.829 (0.366)***	2.161 (0.117)***	2.160 (0.118)***
Saving for housing purchase	-0.180 (0.071)**	-0.180 (0.071)**		
Saving for old age	0.122 (0.043)***	0.122 (0.043)***	0.056 (0.036)	0.056 (0.036)
Saving to make inter vivos transfers to (grand) children	0.172 (0.061)***		0.189 (0.051)***	
Saving to leave bequests to (grand) children	0.088 (0.057)		0.039 (0.047)	
Net worth in 2012	0.011 (0.002)***	0.011 (0.002)***	0.013 (0.002)***	0.013 (0.002)***
Insurance	0.297 (0.077)***	0.300 (0.078)***	0.279 (0.061)***	0.281 (0.061)***
Saving to make inter vivos transfers to		0.171 (0.060)***		0.190 (0.051)***

(grand)				
children,				
exogenized				
Saving to		0.087		0.040
leave		(0.057)		(0.048)
bequests to				
(grand)				
children,				
exogenized				
Constant	0.228	0.269	0.147	0.179
	(0.048)***	(0.052)***	(0.046)***	(0.049)***
R2	0.27	0.27	0.40	0.40
N	1,440	1,440	1,440	1,440

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 10: The Determinants of the Saving Rate (2012 and 2014 Waves)

Explanatory variable	Saving rate in 2014	Saving rate in 2014	Average saving rate, 2012-14	Average saving rate, 2012-14
Southern Italy and islands	-3.713 (1.384)***	-3.714 (1.384)***	-4.127 (1.022)***	-4.139 (1.022)***
Renter	-13.585 (2.455)***	-13.602 (2.456)***	-12.845 (1.903)***	-12.846 (1.903)***
University graduate	30.275 (10.819)***	30.233 (10.785)***	36.879 (6.547)***	36.825 (6.570)***
Saving for housing purchase	-5.457 (2.594)**	-5.459 (2.596)**	0.822 (2.101)	0.812 (2.104)
Saving for old age	3.768 (1.348)***	3.765 (1.348)***	1.862 (0.974)*	1.868 (0.974)*
Saving to make inter vivos transfers to (grand)children	4.636 (1.563)***		5.117 (1.122)***	
Saving to leave bequests to (grand)children	2.013 (1.384)		1.287 (1.061)	
Net worth in 2012	0.060 (0.016)***	0.060 (0.016)***	0.079 (0.013)***	0.079 (0.013)***
Insurance	5.849 (1.373)***	5.920 (1.374)***	5.382 (1.130)***	5.446 (1.129)***
Saving to make inter vivos transfers to (grand)children, exogenized		4.534 (1.563)***		5.173 (1.125)***
Saving to leave bequests to (grand)children, exogenized		1.922 (1.380)		1.338 (1.065)
Constant	14.364 (1.360)***	15.387 (1.294)***	13.502 (1.025)***	14.435 (0.988)***
R2	0.10	0.10	0.17	0.17
N	1,440	1,440	1,440	1,440

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$