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Expected Bequests and Current Wealth of Older Households

Discussion Paper 10/2010-074

EXPECTED BEQUESTS AND CURRENT WEALTH OF OLDER HOUSEHOLDS

by

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October 16, 2010

Abstract: The life-cycle theory predicts that wealth should be fully annuitized to insure longevity risks. If annuity markets are incomplete and elderly individuals face other risks (notably, health risks) wealth holdings will include other financial and real assets. However, the life-cycle model under uncertainty does imply that non-annuitized wealth should be decumulated in old age. The extent to which this happens is an open issue.

There are three questions in SHARE that provide information on intended bequests: they record the probability that the respondent will give any bequest, a bequest above 50,000 euro or a bequest above 150,000 euro. Similar questions are also asked to HRS and ELSA respondents. Using this information and current wealth holdings in SHARE, ELSA and HRS data we assess whether and to what extent households plan to decumulate assets in old age. We build upon previous work by Hurd and Smith (2002) on the HRS sample to estimate expected bequests for each respondent, and show how bequests differ across countries. Our quasi-likelihood estimation procedure models the expected value of the intended bequest as a function of household demographics, current consumption, financial and real wealth, health status, cognition and social interaction indicators.

By comparing the current wealth holdings and the expected intended bequests we compute the pattern of future saving and assess its cross-country variability with respect to the importance of housing wealth.

Acknowledgements. An earlier version of this paper was presented at the RTN conference on "The Economics of Ageing", Venice 6-8 October 2005. We are grateful to Jim Smith for drawing our attention to the topic of this paper, to Dimitris Georgarakos, Stefan Hochguertel, Tullio Jappelli, Enrico Rettore, Alessandra Salvan, and Joachim Winter for useful discussions, and Viola Angelini for her assistance with the data. We also thank seminar participants at the NBER Summer Institute, the 1st RAND Workshop on Comparative International Research based on the HRS, ELSA, and SHARE, the Netspar Pension Workshop in Utrecht, the conference on Subjective Probabilities and Expectations at Jackson Lake, Wyoming, the 12th International Conference on Computing in Economics and Finance, and at the universities of Cyprus and Piraeus. This paper uses data from the first wave of SHARE, collected in 2004-2005. The SHARE data collection has been primarily funded by the European Commission through the 5th framework programme (project QLK6-CT-2001-00360 in the thematic programme Quality of Life). Additional funding came from the US National Institute on Aging (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, Y1-AG-4553-01 and OGHA 04-064). Data collection in Austria (through the Austrian Science Fund, FWF), Belgium (through the Belgian Science Policy Office) and Switzerland (through BBW/OFES/UFES) was nationally funded. The SHARE data set is introduced in Börsch-Supan et al. (2005); methodological details are contained in Börsch-Supan and Jürges (2005). Christelis acknowledges the financial support provided through the European Community's Human Potential Programme under contract HPRN-CT-2002-00235 [AGE], and from Netspar. Weber acknowledges financial support from MIUR (FIRB RBAU01YYHW and PRIN 2005133231), and Netspar.

Introduction

The life-cycle theory predicts that wealth should be fully annuitized to insure longevity risks. If annuity markets are incomplete and elderly individuals face other risks (notably, health risks), however, wealth holdings will include other financial and real assets. Even in this case, the life-cycle model under uncertainty does imply that non-annuitized wealth should be decumulated in old age. The extent to which this happens is an open issue (see Browning and Lusardi, 1996, for a recent survey of the literature).

In this paper we address this issue using individual data from the first wave of the Survey on Health, Aging and Retirement in Europe (SHARE), that was conducted in 2004-5 in eleven European countries and from the 2004 waves of the English Longitudinal Study of Aging (ELSA) and the US Health and Retirement Study (HRS). An interesting feature of these datasets is that we have records of wealth holdings (financial and real), as well as subjective probabilities of leaving bequests. As Hurd and Smith (2002) point out, this implies that we can estimate whether and to what extent households plan to decumulate assets in old age. We estimate expected bequests for each respondent, and show how bequests differ across countries.

There are three questions in HRS, ELSA and SHARE that provide information on intended bequests: they record the probability that the respondent will leave any bequest, a bequest worth more than a first threshold or a bequest above a second threshold value, higher than the first. We apply a quasi-likelihood estimation procedure to model the expected value of the intended bequest as a function of household demographics, current consumption and wealth, health status, cognition and social interaction indicators.

By comparing the current wealth holdings and the expected intended bequests we can compute the pattern of future saving and compare the results of the aforementioned saving calculations with the predictions of a standard life-cycle model.

While we are primarily focusing our analysis on expected bequests given, one can also find in all three surveys information on expected bequests received. In SHARE and ELSA there is first a question on the probability of receiving any bequest and then if the answer is positive another question on the probability of receiving a bequest above a certain threshold. In the HRS on the other hand respondents are asked if they expect to receive any bequest and if the answer is affirmative

they are asked about the amount of the expected bequest. Using a similar methodology as with bequests given we also estimate the expected bequests received for SHARE and ELSA respondents.

The paper is organised as follows: Section 1 describes the key patterns in the expected bequests data and provides details on the estimation strategy. Section 2 presents the data. Section 3 discusses estimation results and presents country-specific wealth-age profiles. Section 4 concludes.

1. Expected bequests

1.1 Expected bequests given

All three survey questionnaires contain three questions on intended bequests: respondents are first asked what chance there is that they leave a bequest worth the first threshold value or more. If they answer zero, they are asked the probability they leave any bequest; if instead they answer a positive number they are asked the probability of leaving a bequest above the second threshold value. The two threshold values are 50,000 and 150,000 euro for SHARE countries (or the local currency equivalent for non-euro countries), 50,000 and 150,000 pounds for ELSA, and 10,000 and 100,000 dollars for the HRS[1].

The questions are quite clear that real estate and other valuables should be included in the calculation. In the case of couples, the question is asked to both respondents about the probability that "you or your spouse/partner" leave such a bequest. The issue of how to interpret replies in the case of couples is not easily solved. (Hurd and Smith, 2002, use similar questions in HRS, but the exact wording there is "you and your spouse/partner"). Fortunately for singles no such problem arises.

Each individual then provides answers to two questions, and this allows us to assign a probability to each of the three intervals: (0 – 1st threshold), [1st threshold – 2nd threshold), [2nd threshold – infinity). In the event of an individual answering "zero" to the probability of leaving a bequest in the last two intervals, we are able to assign a probability to a zero-valued bequests equal to one minus the probability of leaving a bequest in the first interval. We shall distinguish between desired and actual expected bequests: desired expected bequests can be negative, whereas reported

[1] We are using the RAND HRS files where three bequest questions are recorded. In the original HRS data there is also a fourth question, asking whether the respondent expects to leave a bequest higher than 500,000 dollars.

expected bequests cannot be. Thus a non- zero probability of no bequests is interpreted as an identical probability of zero or negative desired bequests.

The frequency distribution of the cumulative (i.e. not interval) probabilities is shown in Table 1. We note that approximately 14% of SHARE respondents, 10% of HRS respondents and 8% of ELSA respondents do not intend to leave any bequest, while the corresponding percentages for leaving a bequest that is above the second threshold with probability equal to one are approximately 20%, 22% and 29%.

When designing our estimation strategy we face the fact that the information we have consists of the three cumulative probabilities of leaving a bequest above zero, the lower and the upper threshold. From these three cumulative probabilities we compute the probabilities of being in each of the three intervals p(1), p(2) and p(3). From these three probabilities we can also compute as a residual the probability that the desired bequest is less or equal to zero p(0). Furthermore, for the purposes of estimation, we assume that when someone reports a positive probability p(2) of leaving a bequest above the first threshold, then p(0) is equal to zero, and p(1) = 1 – p(2) – p(3). Since leaving absolutely nothing at death is unlikely and passing on debt to heirs impossible, we consider this assumption as not particularly strong.

Since probabilities are constrained to lie between zero and one we have to find a conditional expectation function for them that meets this requirement, and allows us to estimate the parameters governing the process of the desired expected bequest, which are ultimately our parameters of interest. To that effect, we make the assumption that a particular monotonic transformation of desired expected bequests is a linear function of a vector of observables **X**, with parameter vector β and of a normally distributed, homoskedastic disturbance, i.e.

$$\phi(y_i) = X_i\beta + u_i \quad \text{where } u_i \sim N(0,\sigma^2) \tag{1}$$

To approximate normality of the distribution we transform the data using the inverse hyperbolic sine (IHS) transform (see Burbidge et al, 1988), that we specify as follows:

$$\varphi(y) = \ln(y + \sqrt{y^2 + 1}) \tag{2}$$

This function is symmetric around zero, and is equal to zero when the argument is zero.

Under these assumptions, a natural choice for the conditional expectation of the three probabilities p(1,i), p(2,i) and p(3,i) for household i is the following:

$$E[p(j,i) \mid X_i] = G_j(X_i\beta) \quad j = 0,1,2,3 \tag{3}$$

The next step is to specify the form of the conditional expectation functions $G_j(X_i\beta)$. A natural choice would be to use the probabilities of the desired expected bequests being in a given interval as implied by (1), i.e.

$$\begin{aligned}
G_0(\beta X_i) &= \Phi(\frac{0 - X_i\beta}{\sigma}) \\
G_1(\beta X_i) &= \Phi(\frac{a - X_i\beta}{\sigma}) - \Phi(\frac{0 - X_i\beta}{\sigma}) \\
G_2(\beta X_i) &= \Phi(\frac{b - X_i\beta}{\sigma}) - \Phi\ (\frac{a - X_i\beta}{\sigma}) \\
G_3(\beta X_i) &= 1 - \Phi(\frac{b - X_i\beta}{\sigma})
\end{aligned} \tag{4}$$

where Φ denotes the cumulative standard normal distribution, and a, b the IHS transformation of the two thresholds.

Since p(0) can be derived from the other three interval probabilities we don't use it in our estimation. This does not mean however that those individuals who report that there is a positive probability (even if it is equal to one) that they will leave no bequests are excluded from the estimation, since the other three probabilities are also defined for them as well. Thus we use the whole sample for the estimation and not a selected one. Furthermore, since the conditional expectation of the bequest probabilities is specified using the desired bequests equation (1), which is an equation for a latent variable, we do not face any censoring problem.

Having specified the conditional expectation of the three interval probabilities we perform the estimation using the quasi-maximum likelihood estimation method introduced by Gourieroux et al (1984). This method allows for consistent estimation of the parameters of the three bequest expectation equations as long as the conditional expectation function (4) is correctly specified and the misspecified density belongs to the linear exponential family. This convenient feature of the quasi-maximum likelihood methods allows us to estimate expected bequests by using the fractional regression methods proposed by Papke and Wooldridge (1996). They use the Bernoulli density as

the potentially misspecified density of the fractional variables, which correspond in our case to the bequest probabilities that that lie in the [0,1] interval. In addition, given that we model three different fractional variables, we use the multivariate quasi maximum likelihood framework proposed by Cameron and Trivedi (2005, p. 150), i.e. our likelihood function is the product of the three potentially misspecified densities. We thus specify the quasi-log-likelihood function for individual i as

$$\begin{aligned}\ln L_i(\beta) = {} & p(1,i)\ln G_1(X_i\beta) + (1-p(1,i))\ln(1-G_1(X_i\beta)) + p(2,i)\ln G_2(X_i\beta) + \\ & (1-p(2,i))\ln(1-G_2(X_i\beta)) + p(3,i)\ln G_3(X_i\beta) + (1-p(3,i))\ln(1-G_3(X_i\beta))\end{aligned} \tag{5}$$

As Wooldridge (2002) and Cameron and Trivedi (2005) point out, this likelihood leads to consistent estimates since its logarithm is the sum of the log likelihoods of the three equations, each of which has a derivative with respect to the parameters equal to zero under the assumption that the formulation of the conditional expectations in (5) is correct. A zero derivative is a sufficient condition for consistency of the parameters (Cameron and Trivedi, 2005). It is important to note that the specification of the likelihood as the product of the three individual likelihoods is not meant to represent the joint density of the three random variables denoting the bequest expectations (and consequently an assumption of independence across the three equations). As Wooldridge (2002) and Cameron and Trivedi (2005) point out, one does not need to specify the joint likelihood of the three random variables, since consistency of the estimated parameters still obtains as long as the conditional expectations of the three dependent variables are correctly specified.

It is worth noting that while the conditional expectations $G_j(X_i\beta)$ bear a resemblance to an ordered probit, the likelihood function in (5) is not that of an ordered probit. First of all, there are three different dependent variables (the three bequest expectations) instead of a single one (there is also a fourth bequest probability, as noted above, which is however fully determined by the other three, and thus not modelled independently). Second, it is usually the case that in an ordered probit the latent index $X\beta$ has little economic content, whereas in our case it denotes the level of desired bequests. Third, in a typical ordered probit, one estimates only the ratio of the thresholds and coefficients to the standard deviation σ of the error process; in our case, since we know the thresholds and estimate their ratio to σ, we can subsequently identify σ, and thus we can also identify the coefficients β that determine the latent variable denoting desired expected bequests. This is crucial for our model, because the level of expected bequests is precisely the magnitude that we want to calculate.

A consequence of using a possibly misspecified density for the tree bequest probabilities is that we can make inferences for the conditional expectation but for no other features of the density. As a result, we choose to compute the standard errors of our estimates by bootstrap, using 500 replications.

The **X** variables include quartiles of financial and real wealth, food consumption, self-assessed health status, number of limitations in activities of daily living (ADL), having one and more than one child, the existence of grandchildren, education, employment status, cognition as measured by the score on an immediate recall question, homeownership, expectation to receive a bequest in ten years, social activities like volunteering and provision of help to relatives and friends occupational dummies and regional indicators. A separate regression is estimated for each country, to allow for common cultural and institutional factors affecting bequests.

In the case of couples, one needs to make a decision whether to use the two partners as separate observations in the regression and consequently whether to compute the expected bequest separately for the two partners separately. This decision is quite difficult because the relevant question is ambiguous. Let us take a simple case, a married couple with children. The wife is asked the probability that she OR her husband leave an inheritance worth a particular amount or more. Interpreting her reply is not easy. First of all, it is not clear whether the beneficiary includes her husband or not. The phrasing of the question may suggest not, so that she should consider solely the estate left to her children. Even in this simple case, she should reply keeping in mind two different scenarios, according to who survives longer between her and her husband. Suppose she is confident to be the survivor. In that case, she should also need to make assumptions on how much financial wealth her husband will pass on to her, and how much real wealth she will receive. If the family home is passed on to her, and non-annuitized financial wealth is relatively small in comparison, she should then answer by giving the probability that she will eventually leave such inheritance. But if financial wealth is relatively large, or legal restrictions force equal distribution of the estate between the surviving spouse and the children, then this probability may refer to the husband's bequest, or even be the sum of the wife's assessment of the two spouses' probabilities. A similar reply is also elicited of the husband, so the data contain two separate records of the subjective probabilities of the same event.

In our application, we shall assume that the relevant reply is the one given by the spouse with the higher life expectancy. This is consistent with the following interpretation: the two partners

know their life expectancy, but have different attitudes to bequeathing wealth. Each answers on the basis of their preferences, on the assumption that their partner will behave the same way as they would. Thus, in the case where the husband is likely to die first, his reply takes into account whatever he intends to leave to the children, and what he expects his wife to leave in the end. The wife provides an answer under the same scenario. Given that the first spouse to die typically leaves most of the estate to the surviving spouse (particularly for home-owners), the relevant reply is the wife's. Vice versa in the (rarer) case where the husband is likely to survive the wife.

Our parametric approach differs markedly from the approach taken by Hurd and Smith (2002), who rely on much weaker distributional assumptions (they "shift to the left the actual wealth distribution until it matches the three probability points of the bequest distribution, while preserving the shape of the wealth distribution", p. 11), but must assume that all individuals in the same expected bequest bracket intend to dissave at the same rate as the individual who is closest to the lower limit within that bracket. We believe the gains from using conditioning variables should outweigh the costs of the distributional assumptions we have to make.

After estimating expected bequests, E(B), we can compute a measure of expected decumulation, DW, as follows:

$$DW_i = W_i - PV(E(B_i)) \tag{6}$$

where PV denotes present value and W is current total wealth. The present value calculation requires selecting a discount rate (we follow Hurd and Smith and take 3% as the relevant real rate) as well as the length of time over which to discount, which we take to be the expected years of life. We compute expected years of life using country, age and gender-specific survival tables.

The variables defined in equation (6) are based in the difference between current wealth and the present value of bequests: this difference would be zero if the individual plans to use all current wealth, suitably invested, to build up the reported expected bequest. For each individual i with positive wealth, we can compute an average annual saving rate "Sav1" that is of economic interest as follows:

$$E(B_i) = W_i(1 + Sav1_i)^{ETl_i} \Rightarrow Sav1_i = \left(\frac{E(B_i)}{W_i}\right)^{1/ETL_i} - 1 \tag{7}$$

where ETL denotes the expected time to live. In other words the saving rate defined implicitly in (7) is the rate that, compounded for the expected remaining life, reconciles net worth with expected bequests. Obviously, when there is asset decumulation this rate becomes negative. In contrast to equation (6) and the previous tables, expected bequests are not discounted. This is in line with standard practice, that defines saving as inclusive of the return on wealth. An alternative interpretation of this procedure is the assumption that households consider a zero real return on their investments.

While the aforementioned saving rate concept is time-invariant, one can also consider a concept of a saving rate that varies with age, so as to be arguably closer to the life-cycle theory (suffice it to say that the three youngest age groups contain non-negligible proportions of working individuals). For example, younger cohorts might still save for the next 5-10 years, and then dissave at a large rate, resulting in an overall negative compound saving rate. In order, however, to derive saving rates that change with age from cross-sectional data one needs to make assumptions about future behaviour. For example, one could assume that the saving rate of a given cohort in the future is going to be the same as the saving rate of the cohort that has this age today. In other words, we have to assume that the saving rate (as opposed to wealth levels) does not exhibit any cohort effect. As an example, we assume that a member of the cohort aged 67-73 in Sweden will have the same saving rate (e.g. the median one) in 6 years as that of a cohort aged 74-80 today. In order to make these future projections we also need to assume that there are no time effects in the saving rate, i.e. that the years 2004 (and 2005 for some countries) were not subject to any shocks that made the saving rates observed in those years untypical. When we tried these calculations, however, we sometimes ended up with highly implausible time paths for saving rates and wealth. This could be due to the assumption of the absence of cohort effects in saving rates, or to the assumption that all cohort members will have the same saving rate in the future, while exhibiting substantial heterogeneity in the present.

Up to this point we have not addressed the issue of what happens to household wealth when the first partner in a couple dies. One would expect that a substantial part of those assets remain with the surviving partner (this should be true especially for the main residence), but we would also like to account for the possibility that part of the wealth is transferred to descendants who live

outside the household. These bequeathed assets represent a reduction in the household's net worth that is not due to dissaving, and thus overlooking them would overestimate asset decumulation.

In order to estimate the wealth bequeathed to descendants when the first partner in a couple dies we need to examine the inheritance tax provisions in the countries represented in the three surveys. E.g. in continental Europe inheritance law typically sets bounds to how the estate is split among heirs, following Napoleon's "Code Civil" provisions. Table 3 shows for the countries in Continental Europe the share of bequeathed wealth in two cases: i) if the minimum levels are bequeathed; ii) if the deceased dies without a will.[2] In order to determine the amount bequeathed we assumed that the minimum allowable sums under the law are given to descendants. In the case of the US and the England there are no minima as far as we know, so we assume that half of the property belonging to the deceased is passed on to descendants.

Using those assumptions, and by denoting by TD1 the time of death of the first partner and by k the share of household wealth bequeathed to descendants, one can define a new average saving rate, Sav2, that takes into account this wealth "leak" and thus reflects asset decumulation net of this "leak" (obviously Sav2 will be equal to Sav1 in the case of singles). We know that household wealth at the death of the first partner but before the inheritance is given to the descendants (denoted by W^{TD1}) is going to be equal to

$$W_i^{TD1_i} = (1 + Sav2_i)^{TD1_i} \cdot W_i \tag{8}$$

We also know that expected bequests given at the time of death of the second partner are equal to

$$E(B)_i = (1 + Sav2_i)^{ETL_i - TD1_i} \cdot (1-k) \cdot W_i^{TD1_i} \tag{9}$$

By combining (8) and (9) one can easily solve for Sav2:

$$E(B)_i = (1 + Sav2_i)^{ETL_i - TD1_i} \cdot (1-k) \cdot (1 + Sav2_i)^{TD1_i} \cdot W_i \Leftrightarrow E(B)_i = (1 + Sav2_i)^{ETL_i} \cdot (1-k) \cdot W_i \Leftrightarrow$$
$$Sav2_i = \left(\frac{E(B)_i}{(1-k) \cdot W_i} \right)^{\frac{1}{ETL_i}} - 1 \tag{10}$$

[2] We are grateful to Viola Angelini for providing us with this information.

As is clear from inspection of (7) and (10), taking into account the bequest given at the death of the first partner to the descendants results in an increased saving rate due to the reduced asset decumulation that results from this wealth "leak".

1.2. Expected bequests received

The HRS, ELSA and SHARE provide information not only on expected bequests given but also on expected bequests received. In ELSA and SHARE households are asked first what is the probability that they expect to receive any inheritance in the next ten years and if they answer affirmatively they are then asked what is the probability that they will receive an inheritance above a certain threshold (50,000 pounds for ELSA and 50,000 euros for SHARE). In the HRS on the other hand the question is not asked using probabilities. First households are asked whether they expect to receive any bequest and if they answer affirmatively they are asked the amount that they expect to receive.

The distribution of the answers on the probabilities of receiving an inheritance found in the ELSA and SHARE can be seen in Table 2. As in the case of bequests given we define as p(1) the probability that an inheritance lying between zero and the first threshold value will be received, and by p(2) the probability that this inheritance will be above the first threshold value. The vast majority of respondents do not expect to receive any inheritance (76% for SHARE countries , 67% for ELSA while in the HRS 66% of respondents respond negatively to the question whether they expect to receive a bequest or not).

In a completely analogous fashion to the case of bequests given, we perform a quasi-maximum likelihood estimation also for bequests received (the only difference being that two probabilities enter into the likelihood function instead of three). The covariates used are the same as those for bequests given, with the addition of an indicator of any parent is alive and the omission of the quartiles for food consumption.

Inheritance received influences asset decumulation in the opposite way than that of bequests given to descendants since it represents an inflow of wealth, and thus tends to increase the saving rate. This effect should however be relative small given the low percentage of households expecting to receive an inheritance.

2. The data

We use data from eleven countries participating in the first wave of SHARE, namely Sweden, Denmark, Germany, the Netherlands, Belgium, France, Switzerland, Austria, Italy, Spain and Greece. SHARE is a new survey of individual aged 50 and above, which are asked questions on a variety of issues, including physical and mental health, children, income, assets, expectations, social activities and financial transfers given and received (see Börsch-Supan et al. (2005) for an extended discussion of the survey). We also use data from the 2004 wave of the Health and Retirement Study (Rand public use tape) and of the English Longitudinal Survey on Ageing. The overall sample consists of 37,688 households (13,255 in HRS, 5,200 in ELSA and 19,233 in SHARE) where at least one individual is 50 or over, for a total of 59,267 eligible individuals.

We use information from the three aforementioned questions on expected bequests, and from questions on various asset holdings, on self-reported health, on food consumption and on children. In SHARE we have imputed missing values for assets, expected bequests, self-reported health and food consumption following a multivariate approach that aims at preserving the correlation structure in the original data (a more detailed account of the SHARE imputations can be found in Christelis, 2008). Imputations in HRS and ELSA have been obtained following different approaches, and are documented elsewhere. Multiple imputations are available for SHARE, but not for HRS and ELSA, and thus we use multiple imputation methods for SHARE countries following the approach in Rubin (1987).

We exclude from our calculations households if : i) they contain persons other than the head aged 50 and above, since in this case there is no obvious way to determine how the household wealth will be divided for bequest purposes; ii) the reported household net worth is less than 500 dollars, since households with very low net worth are likely to behave quite differently than the rest. Since we condition our analysis on demographics and current wealth, the above exclusions do not bias our results, but care should be taken to keep in mind that our sample does not cover “untypical households” (siblings, widows living with unmarried children) and those who do not have or do not report wealth; iii) imputation of missing data is not feasible in the case of ELSA.

Table 4 presents country-levels descriptive statistics for a number of variables that we use in this paper, for the sample used in the estimation (i.e. one partner in married households is included). For the most part, these statistics are simple averages of 0-1 indicators, but the last six lines present

median household net worth, net financial assets, real assets, yearly food consumption, the and number of observations (divided in couples and singles).

We note that the U.S. and Sweden have the younger sample while Italy, Spain and England the oldest, and the U.S. has also the largest proportion of households with at least one grandchild. The highest proportion of retired persons (above 50%) can be found in Austria, Sweden, and England, while the lowest in Spain and the Netherlands. In the US and Sweden we find the highest proportion of employed while in Austria, Italy, Spain and Greece the lowest. The countries with the highest proportion of individuals who have finished post-secondary education are Denmark, Belgium, and Germany, while Switzerland, Spain, Italy and England display on average less than 10% of such respondents. There is remarkable variety in the self-reporting of health with Sweden having the lowest prevalence of bad health (14% for the respondent and for her/his partner) while Italy and Spain have the highest with roughly 43% for the respondent and his/her partner. Roughly 55% of households in the Sweden report providing help to relatives and friends, while 30% or fewer do so in Greece, Spain, and England. The US and the Netherlands have a high proportion of households engaging in volunteering (34%) while Greece and Spain have the lowest with less than 10%. The U.S. has the highest score on the recall test with an average of 5.7 while Italy and Spain the lowest with 2.6 and 2.3 respectively. The median household reports zero probability of receiving a bequest in the next ten years but the average probability differs substantially across countries, with Sweden, Denmark, Belgium, and Switzerland at roughly 20% while Austria and Italy have a mean of 10% or lower. Median net worth is highest in England, and then Belgium and Switzerland with values of approximately 250 thousand and 200 thousand ppp-adjusted dollars respectively while the countries with the lowest net worth are Sweden and Germany with 90 thousand and 93 thousand dollars respectively (these medians are computed after removing the poorest households as already mentioned above). [3]

3. Estimation Results

For each country, we use quasi-maximum likelihood estimation for interval probabilities assuming that expected bequests depend on the **X** covariates already described is Section 1.1. Separate equations were estimated for singles and for the partner with the higher expected time to live within couples. For the latter case, we also add as covariates for expected bequests the self-reported health and, number of ADL's of the partner.

[3] Two reasons why net worth of US households appears low are: i) the substantial depreciation of the dollar relative to the euro in recent years; ii) the relatively high price level in the US compared to most of the other countries.

Table 5a reports estimated coefficients for couples in four particular countries, the US, Sweden, Denmark, and Germany. We see from Table 5 that the most important effects relate to real wealth: expected bequests are higher for all couples that are in the third or fourth real wealth quartile. Financial wealth plays a role in the US, Sweden and Denmark, whereas food at home consumption (introduced as a proxy for living standards) is important in the US and in Germany. The number of children and grandchildren do not have an impact in general, while other characteristics of the person likely to survive longer and their partner have a significant coefficient only in some cases. Bad health leads to lower expected bequests in the US while bad health of the partner does not have an effect in any country. Recall ability (standing for cognition) has a positive effect in the; engagement in voluntary activities is not significant. A strong, positive effect of the non-zero expectation of receiving bequests is found for couples in the US and Sweden (as indeed in Belgium, France and England) but not in other countries, while for singles the effect is in general not significant

Tables 5b-5c show similar results for the remaining nine countries. We see that real wealth and home-ownership play a major role in most countries. Financial wealth, instead, plays a role only for the rich (highest quartile) – and no role in Switzerland, Austria, Italy and Spain. Recall matters in Austria, Spain, and England, while no effects are found for the number of children and grandchildren (with the exception of France, Greece, and England), employment status. Education matters in Belgium, Italy and Greece.

The estimation results for singles (available upon request) are similar to those of couples, with the strongest associations being again those corresponding to real wealth. The results for expected bequests received (also available upon request) show that the only variable that is strongly significant is the existence of parents, which is to be expected since parents are probably the most likely source of these inheritances.

On the basis of the regressions for expected bequests given, we predict expected bequests for each individual or couple in the estimation sample. Table 6 presents median expected bequests of couples (panel A), single males (panel B) and single females (panel C) by country. We notice that there is considerable heterogeneity across countries in our predictions, which suggests that our estimation procedure does not introduce artificial uniformity in our predictions.

Of course some account should be taken of differences in life-expectancy. Median expected bequests should be expressed in present value terms, taking into account expected life-length (the larger between the two partners in couples) and applying a 3% real discount rate. At least for couples, shown in Table 7, we see that in many countries expected bequests increase with age. This should not be interpreted as evidence that age has a positive effect on bequests: households where both partners are alive at a relatively advanced age are typically richer, and their bequests reflect this. Even for singles a similar argument can be made, even though in this case there are two effects at work (richer women survive more than poorer women, and become single later). In all cases, cohort effects are also present, and work in the opposite direction (older individuals belong to poorer cohorts). Finally, since older households have shorter expected time to live they also have fewer years to draw down their assets.

If we want to start interpreting our expected bequests statistics in an economically interesting way, we must therefore compare them with some indicator of wealth. We choose the simplest possible indicator, net worth, that is the sum of net financial and real assets. A more comprehensive measure would include human capital (defined as the present value of future earnings and pension income), but human capital cannot be bequeathed.

In Table 8 we compute the median difference by country and age group between household net worth and the present value of expected bequests. This difference shows the total expected asset decumulation of the household during its remaining life. We notice that in the Netherlands, Belgium, France, Switzerland and England for younger age groups there exists substantial expected decumulation of wealth, whereas households in the Sweden, Denmark and Germany expect to draw down their wealth much less.

However, this calculation does not show the how important are the amounts of bequests compared to the households' financial position. Thus, in Table 9 we report the median and 75th percentiles of the ratio of the present value of bequests to total wealth (financial plus real). We do this by country and age group. We note that in most countries there are less than 100 observations in the last age group (aged 81 or more), and thus we omit the results from this group. In the table, ratios in excess of unity imply that present value of intended bequests unambiguously exceeds current wealth, indicating an intention to save in old age. Whether this intention reflects (a change in) preferences towards bequests or poor health is an open issue. Börsch-Supan and Stahl (1991) were the first to address this issue looking at German data, by pointing out that elderly people may

find it hard to consume their annuity income because of poor health – the SHARE data however highlight Germany is one of those countries where some dissaving is present.

The last column of Table 9 reports median and 75th percentile of the ratio of real net worth to total net worth. In all countries the median ratio exceeds .5, and in all but in the US, Sweden, Denmark, Germany, the Netherlands and Switzerland the 75th percentile is greater or equal to .95, confirming the key role played by housing wealth in households total wealth (the elderly are often house rich but cash poor). When housing wealth is dominant, and equity withdrawal is difficult, we may expect bequests to be a large fraction of current wealth. Indeed, in those countries (the US, Germany, the Netherlands and Switzerland) where the median ratio is relatively low, expected bequests of individuals past retirement age are also low at the median. However, relatively low bequests are also found in France, where real wealth has a dominant role, whilst high expected bequests are reported in Sweden and Denmark (especially for older cohorts), where housing wealth is relatively less important.

In Table 10 we report the medians of two annual saving rates for couples, namely the average saving rate gross of bequests given to descendants at the death of the first partner partner (Sav1, or unadjusted saving rate) and the one net of those bequests (Sav2, or adjusted saving rate). We report these rates for those aged 60 and above, since in earlier ages households are more likely to be still accumulate wealth and thus calculating an average saving rate over their remaining lifetime makes little sense. One notices that saving rates gross of bequests given to descendants are always negative. Relatively high dissaving rates (5% or more) are found in the 74-80 age class in the US, Netherlands, France, and Switzerland, and, to a lesser extent (2%-5%), in Denmark, Belgium, Austria, Greece and Italy. The lowest dissaving is found in England (1%). Taking into account the bequests given to descendants makes a substantial difference for all countries (except for Sweden), close to 1.5% on average

Table 10 also shows the average annual saving rate for singles, i.e. Sav1 (Sav2 is equal to Sav1 in the case of singles). We observe very high dissaving for those aged 74-80 (10% or more) for the Germany, Netherlands, Austria, Italy and Spain, while lower dissaving occurs again in Belgium and England. The lowest dissaving occurs in Denmark.

In addition, we performed analogous computations with expected bequests received and in Table 11 the results for couples are shown. Median expected bequests are almost always zero for all age groups in all countries; thus, we show the 75th percentile of the distribution. We notice that the

age group for which the magnitudes are most economically relevant is the youngest one, and within that group the amounts vary widely (from almost nothing in Germany, Austria and Italy to roughly 88,000 in the US). In general the magnitudes are quite smaller than those for bequests given.

Another key issue that may explain difference in saving behaviour is the role played by inter-vivos transfers. So far, we have treated future transfers to children or grandchildren (or even parents) as consumption, and ignored future receipts of financial transfers from children, friends and relatives. Thus for some households our projected wealth decumulation patterns may be overestimated due to financial transfers given, at least in those countries where the amounts are relatively large. An interesting topic for future research is to relate the relative role played by bequests and inter-vivos transfers to tax and inheritance legislation.

Finally, a question that one could address is whether bequeathing patterns are determined by family traditions (as argued in Cox and Stark, 2005). We have seen in Table 5 that the expectation to receive a bequest has, in a number of countries, a positive effect on the expected value of bequests left to one's heirs. An interesting question to address is whether the amount of total wealth received over the course of the life cycle has a similar effect, and whether it makes a difference whether such receipts were in terms of real or financial wealth.

4. Conclusions

In this paper we have documented to what extent households in the US and twelve European countries plan to use their wealth to sustain their consumption in old age, and to what extent they use it to help their children (mostly through bequests, but also by making financial transfers).

Our approach permits us to calculate the amount households plan to bequeath by exploiting the information given by questions on the amount of bequests they plan to leave. This calculation is achieved by using quasi-maximum likelihood methods to estimate a multivariate model of fractional variables, and the knowledge of the thresholds of the amounts of expected bequests allows us to identify the level of expected bequests.

Our results indicate that real wealth plays a major role in determining expected bequests, particularly in those countries where (second) mortgage markets are poorly developed. On the other hand, financial wealth plays a role mostly for the rich (highest quartile) and typically less than real wealth. In all countries most households plan to consume a non-negligible fraction of their wealth.

However, past a certain age threshold a fourth of all European respondents expect to bequeath more than half to nearly all of their wealth. We also found that, when examining saving behaviour, it is important to account for bequests given to descendants when the first partner in a couple passes away.

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APPENDIX A – QUESTIONS

1. HRS

In the RAND HRS files the following three questions on inheritances are found:

1. Including property and other valuables that you might own, what are the chances that you [and your (husband/wife/partner)] will leave an inheritance totalling $10,000 or more?
2. What are the chances that you (and your (husband/wife/partner)) will leave an inheritance totalling $150,000 or more?
3. What are the chances that you (and your (husband/wife/partner)) will leave any inheritance?

In the original HRS there appears also a question, asked after (2), that reads:

2a. What are the chances that you (and your (husband/wife/partner)) will leave an inheritance totalling $500,000 or more?

First the respondent is asked (1), then if he gives a positive answer (2), and if she answers positively (2) she is asked (2a). If she answers zero to (1) then she is asked (3)

2. ELSA

In ELSA the three questions are essentially identical to the ones in the HRS with the exception of the amounts:

1. Including property and other valuables that you (and your husband/wife/partner) might own, what are the chances that you (and your husband/wife/partner) will leave an inheritance totalling £50,000 or more?
2. What are the chances that you and your husband/wife/partner will leave an inheritance totalling £150,000 or more?
3. What are the chances that you and your husband/wife/partner will leave any inheritance?

As in the HRS, first the respondent is asked (1), then if she answers positively she's asked (2), otherwise she's asked (3).

3. SHARE

In SHARE the same three questions as in HRS and SHARE are again asked. For countries that do not use the euro (Denmark and Sweden), the thresholds are set to similar, round figures in the local currency.

The questions that refer to the probability of leaving an inheritance are as follows:

1. Including property and other valuables, what are the chances that you or your husband/wife/partner will leave an inheritance totalling 50,000 euro or more?

2. Including property and other valuables, what are the chances that you or your husband/wife/partner will leave any inheritance?.
3. Including property and other valuables, what are the chances that you or your husband/wife/partner will leave an inheritance totalling 150,000 euro or more?

If the respondent gives a zero answer to (1) she is then asked (2), while only if she gives a positive value as an answer to (1) is she asked (3).

Table 1. Distribution of Replies – Expected Bequests Given

Case	SHARE	HRS	ELSA
p1=1 & p2=1 & 0<p3<1	0.057	0.117	0.123
p1=1 & p2=1 & p3=0	0.064	0.053	0.049
p1=1 & 0<p2<1 & p3=0	0.143	0.149	0.087
p1=1 & 0<p2<1 & 0<p3<1 & p2>p3	0.108	0.214	0.140
p1=1 & 0<p2<1 & 0<p3<1 & p2=p3	0.080	0.092	0.127
p1=1 & p2=1 & p3=1	0.195	0.222	0.286
0<p1<1 & p2=0 & p3=0	0.148	0.046	0.084
p1=1 & p2=0 & p3=0	0.073	0.009	0.029
p1=0 & p2=0 & p3=0	0.133	0.096	0.077

Notes:
P1: probability of leaving a positive bequest
P2: probability of leaving a bequest above the first threshold value
P3: probability of leaving above the second threshold value

Table 2. Distribution of Replies – Expected Inheritance Received

Case	SHARE	ELSA
p1=1 & p2=1	0.016	0.033
p1=1 & 0<p2<1	0.006	0.006
0<p1<1 & 0<p2<1	0.101	0.212
0<p1<1 & p2=0	0.105	0.071
p1=1 & p2=0	0.014	0.006
p1=0 & p2=0	0.757	0.672

Notes:
P1: probability of receiving a positive inheritance
P2: probability of receiving an inheritance above the first threshold value

Table 3 Inheritance law provisions for amount bequeathed to the surviving spouse and descendants

Countries	Legal base	Beneficiaries	Statutory reserve	Intestacy
Austria	Allgemeines Bürgerliches Gesetzbuch	children	1/2 of the share under intestacy	2/3 if there is a surviving spouse, 1 otherwise.
		spouse	1/2 of the share under intestacy	1/3 if there are descendants, 2/3 otherwise (the other third goes to the ascendants).
Belgium	Code Civil	descendants	1/2 if one, 2/3 if two, 3/4 if three or more	Nude property of the estate.
		spouse	Usufruct in 1/2 of the property of the estate, which might be over the children's reserved share. Note that under some conditions the surviving spouse may be disinherited.	Usufruct of the property of the estate.
Denmark	Arveloven	descendants	1/2 of the share under intestacy	2/3 if there is a surviving spouse, 1 otherwise.
		spouse	1/2 of the share under intestacy	1/3 if there are descendants, 1 otherwise.
France	Code Civil	descendants	1/2 if one, 2/3 if two, 3/4 if three or more.	Either 3/4 of the property or nude property of the whole estate
		spouse	Only if there are neither descendants nor ascendants: 1/4.	If there are descendants: either 1/4 of the property or usufruct of the whole estate. If there are no descendants but only ascendants: 1/2 of the property.
Germany	Bürgerliches Gesetzbuch	descendants	1/2 of the share under intestacy (*Pflichtteil*). This is not a share of the estate but a money compensation in lieu of inheritance.	3/4 (under separate and community property) or 1/2 (under *zugewinngemeinschaft*)
		spouse	1/2 of the share under intestacy (*Pflichtteil*). This is not a share of the estate but a money compensation in lieu of inheritance.	Under separate and community property: 1/4 if there are relatives in the first *erbklassen* or order (descendants), 1/2 if there are only relatives in the second order (parents, siblings and their descendants), 1 otherwise. Under *zugewinngemeinschaft*: 1/2, 3/4 and 1 respectively.
Greece	Αστικος Κωδικας	descendants	1/2 of the share under intestacy	3/4 if there is a spouse, 1 otherwise
		spouse	1/4 if there are descendants, 1/2 if there are no descendants but only the parents.	1/4 if there are descendants, 1/2 if there are no descendants but only the parents, 1 otherwise.

continues

Table 3 Inheritance law provisions for amount bequeathed to the surviving spouse and descendants-continued

Countries	Legal base	Beneficiaries	Statutory reserve	Intestacy
Italy	Codice Civile	descendants	with spouse: 1/3 if one, 1/2 if more than one	with spouse: 1/2 if one, 2/3 if more than one
			with no spouse: 1/2 if one, 2/3 if more than one	with no spouse: 1
		spouse	1/2 if there are no descendants, 1/3 if there is one child, 1/4 if more than one	1/2 if there is one descendant, 1/3 if more than one. If there are no descendants but only ascendants or siblings, the spouse obtains 2/3.
Netherlands	Burgerlijk Wetboek, Boek 4	descendants	The spouse receives the whole estate and the children receive their share in the form of a non-payable claim (1/2 of the property of the estate)	The surviving spouse is in the same position as the children and they take equal shares.
Spain	Código Civil	descendants	2/3	The children inherit the whole estate but the surviving spouse obtains the usufruct of 1/3 of the property.
		spouse	Usufruct of 1/3 of the property of the estate if there are descendants, 1/2 if there are no descendants but only ascendants, 2/3 if there are only other relatives.	Usufruct in 1/3 of the property of the estate if there are descendants, 1/2 if there are no descendants but only ascendants, 2/3 if there are only other relatives.
Sweden	Ärvdabalk (1958:637)	descendants	1/2 of the share under intestacy. Note that the surviving spouse is not entitled to a forced share.	The surviving spouse obtains all assets. At the death of the surviving spouse, children obtain half of the property. If there is no surviving spouse, the whole estate goes to the descendants.
Switzerland	Schweizerisches Zivilgesetzbuch	descendants	3/4 of the share under intestacy (1 with no spouse, 1/2 otherwise)	1/2 if there is a spouse, 1 otherwise
		spouse	1/2 of the share under intestacy (1/2 if there are descendants, 3/4 if there are no descendants)	1/2 if there are descendants, 3/4 if there are no descendants but

Table 4 – Descriptive statistics – estimation sample

Variable	USA	Sweden	Denmark	Germany	Netherlands	Belgium	France
Aged 60 and less	0.47	0.37	0.41	0.34	0.41	0.35	0.37
Aged 61-75	0.33	0.35	0.36	0.44	0.37	0.41	0.38
Aged 75 and above	0.19	0.27	0.23	0.21	0.22	0.24	0.26
At least one child	0.89	0.89	0.88	0.82	0.87	0.88	0.89
At least one grandchild	0.70	0.71	0.72	0.65	0.64	0.71	0.67
Retired	0.40	0.54	0.52	0.50	0.28	0.44	0.49
Self-employed	0.06	0.03	0.01	0.02	0.02	0.02	0.02
Dependent worker	0.37	0.36	0.36	0.26	0.25	0.19	0.26
Homeowner	0.77	0.69	0.69	0.51	0.55	0.80	0.72
High school graduate	0.61	0.26	0.38	0.53	0.20	0.24	0.26
Post-secondary degree	0.20	0.20	0.33	0.21	0.16	0.22	0.17
Self-reported fair of bad health	0.27	0.14	0.26	0.40	0.28	0.28	0.35
Partner self-reported fair of bad health	0.24	0.14	0.25	0.53	0.30	0.28	0.36
Number of ADL's	0.29	0.22	0.19	0.18	0.20	0.23	0.19
Partner number of ADL's	0.22	0.26	0.21	0.78	0.77	0.34	0.35
Provides help to relatives and friends	0.52	0.55	0.48	0.33	0.44	0.48	0.49
Engages in some voluntary activity	0.34	0.28	0.26	0.18	0.35	0.26	0.25
Recall score	5.63	3.81	4.18	3.61	3.72	3.22	3.09
Probability to receive a bequest	0.17	0.21	0.19	0.12	0.15	0.19	0.15
Net Worth (Median, ppp-adjusted dollars)	162,943	89,635	101,247	93,383	139,133	199,631	183,551
Net Financial Assets (Median, ppp-adjusted dollars)	30,000	15,348	13,009	14,680	15,178	15,496	8,376
Real Assets (Median, ppp-adjusted dollars)	135,000	81,858	113,466	64,998	153,806	159,963	164,491
Food Consumption (Yearly median, ppp-adjusted dollars)	3,640	3,066	3,403	4,198	3,764	4,933	4,966
Number of couples	6,484	1,861	1,108	1,736	1,754	2,310	1,968
Number of singles	6,771	678	524	590	530	883	860

continues

Table 4 – Descriptive statistics – estimation sample – continued

Variable	Switzerland	Austria	Italy	Spain	Greece	England
Aged 60 and less	0.41	0.35	0.33	0.33	0.31	0.31
Aged 61-75	0.40	0.43	0.45	0.43	0.47	0.43
Aged 75 and above	0.19	0.22	0.22	0.24	0.21	0.26
At least one child	0.86	0.83	0.86	0.87	0.88	0.82
At least one grandchild	0.53	0.69	0.59	0.67	0.57	0.69
Retired	0.42	0.60	0.47	0.27	0.37	0.56
Self-employed	0.05	0.03	0.05	0.03	0.02	0.03
Dependent worker	0.34	0.16	0.14	0.17	0.19	0.20
Homeowner	0.55	0.56	0.75	0.88	0.84	0.74
High school graduate	0.37	0.46	0.19	0.07	0.23	0.17
Post-secondary degree	0.07	0.19	0.06	0.08	0.10	0.08
Self-reported fair of bad health	0.16	0.29	0.43	0.44	0.32	0.31
Partner self-reported fair of bad health	0.21	0.33	0.44	0.42	0.26	0.27
Number of ADL's	0.10	0.16	0.23	0.25	0.19	1.25
Partner number of ADL's	0.45	0.79	0.46	0.46	0.20	0.91
Provides help to relatives and friends	0.36	0.40	0.48	0.21	0.27	0.14
Engages in some voluntary activity	0.25	0.14	0.24	0.08	0.06	0.13
Recall score	4.14	3.48	2.57	2.26	3.19	5.50
Probability to receive a bequest	0.20	0.08	0.09	0.11	0.10	0.14
Net Worth (Median, ppp-adjusted dollars)	193,083	108,105	149,616	146,800	114,773	247,087
Net Financial Assets (Median, ppp-adjusted dollars)	38,580	4,860	3,375	2,278	2,482	18,088
Real Assets (Median, ppp-adjusted dollars)	192,095	88,557	146,241	145,427	110,988	217,523
Food Consumption (Yearly median, ppp-adjusted dollars)	4,892	3,888	5,400	5,857	4,467	3,585
Number of couples	616	1,226	1,463	1,381	1,828	2,716
Number of singles	281	686	457	494	846	2,484

Table 5a – Estimation results for couples in the US, Sweden, Denmark, and Germany

Variable	USA			SWEDEN			DENMARK			GERMANY		
	coeff	std. err		coeff	std. err		coeff	std. err		coeff	std. err	
Age 61-75	0.080	0.073		-0.088	0.074		0.070	0.114		0.185	0.117	
Age 75+	0.157	0.111		0.086	0.103		0.080	0.184		0.245	0.176	
Female	-0.342	0.104	***	0.017	0.070		-0.042	0.148		-0.060	0.123	
Has one child	0.254	0.172		-0.051	0.151		0.242	0.249		0.047	0.159	
Has two or more children	-0.139	0.147		-0.175	0.146		-0.034	0.223		0.022	0.156	
Has grandchildren	-0.043	0.082		-0.010	0.072		0.101	0.111		0.218	0.101	**
2nd quartile of food consumption	0.178	0.098	*	-0.181	0.135		0.012	0.247		0.336	0.162	**
3d quartile of food consumption	0.254	0.098	***	-0.118	0.127		-0.039	0.248		0.212	0.159	
4thd quartile of food consumption	0.394	0.091	***	-0.084	0.127		-0.102	0.240		0.399	0.158	**
2nd quartile of net financial assets	0.286	0.082	***	0.085	0.086		0.054	0.139		0.079	0.128	
3d quartile of net financial assets	0.874	0.090	***	0.169	0.085	*	0.229	0.150		0.117	0.163	
4thd quartile of net financial assets	1.631	0.108	***	0.499	0.081	***	0.547	0.126	***	0.059	0.138	
2nd quartile of real assets	0.235	0.129	*	0.254	0.133	*	0.173	0.249		-0.085	0.154	
3d quartile of real assets	1.219	0.139	***	0.873	0.141	***	0.735	0.269	***	0.626	0.267	**
4thd quartile of real assets	2.079	0.149	***	1.501	0.159	***	1.151	0.280	***	1.336	0.293	***
Retired	-0.085	0.079		0.185	0.107	*	-0.103	0.156		-0.124	0.120	
Self-employed	0.100	0.132		0.114	0.203		-0.564	0.430		0.163	0.362	
Dependent worker	-0.272	0.085	***	-0.042	0.104		-0.464	0.148	***	0.138	0.117	
Homeowner	0.154	0.135		0.094	0.110		0.320	0.198		0.652	0.220	***
High school graduate	0.086	0.081		0.127	0.063	**	0.051	0.113		0.016	0.109	
Post-secondary degree	0.489	0.117	***	0.242	0.071	***	0.160	0.129		0.111	0.141	
Self-reported fair of bad health	-0.280	0.075	***	-0.058	0.089		-0.070	0.115		-0.184	0.098	*
Partner self-reported fair of bad health	-0.032	0.070		-0.092	0.119		-0.199	0.105	*	-0.115	0.105	
Number of ADL's	-0.155	0.045	***	-0.089	0.050	*	-0.012	0.117		-0.069	0.109	
Partner number of ADL's	-0.013	0.034		-0.038	0.041		0.077	0.071		0.009	0.055	
Recall score	0.063	0.021	***	0.009	0.015		0.017	0.024		0.023	0.025	
Provides help to relatives and friends	-0.090	0.060		0.035	0.060		-0.043	0.115		0.077	0.111	
Engages in some voluntary activity	0.042	0.064		0.027	0.062		0.055	0.103		0.215	0.117	*
Probability to receive a bequest	0.588	0.100	***	0.192	0.075	**	0.211	0.128	*	0.227	0.153	
σ	2.608	0.037	***	1.018	0.032	***	1.066	0.053	***	1.523	0.067	***
No. of observations	6,484			1,455			646			1,377		

Table 5b – Estimation results for couples in the Netherlands, Belgium, France, and Switzerland

Variable	NETHERLANDS			BELGIUM			FRANCE			SWITZERLAND		
	coeff	std. err		coeff	std. err		coeff	std. err		coeff	std. err	
Age 61-75	1.126	0.632	*	0.159	0.137		-0.086	0.134		-0.028	0.217	
Age 75+	2.685	1.123	**	0.313	0.177	*	-0.335	0.196	*	-0.307	0.350	
Female	0.501	0.882		-0.142	0.155		0.200	0.179		0.243	0.280	
Has one child	1.120	1.177		0.184	0.213		0.475	0.246	*	-0.539	0.347	
Has two or more children	0.896	1.002		0.080	0.203		0.470	0.234	**	-0.280	0.299	
Has grandchildren	-0.165	0.609		0.092	0.130		-0.060	0.118		0.267	0.210	
2nd quartile of food consumption	-0.483	1.259		0.005	0.196		0.196	0.197		0.382	0.395	
3d quartile of food consumption	0.120	1.167		0.075	0.164		0.278	0.162	*	0.084	0.441	
4thd quartile of food consumption	0.115	1.150		0.029	0.155		0.334	0.180	*	0.394	0.408	
2nd quartile of net financial assets	1.850	1.168		0.171	0.152		0.123	0.134		-0.055	0.299	
3d quartile of net financial assets	3.095	1.024	***	0.377	0.153	**	0.258	0.142	*	-0.264	0.332	
4thd quartile of net financial assets	4.620	1.077	***	0.631	0.169	***	0.484	0.159	***	0.063	0.295	
2nd quartile of real assets	3.238	1.166	***	0.466	0.228	**	0.020	0.245		0.171	0.250	
3d quartile of real assets	6.530	1.622	***	1.379	0.244	***	0.620	0.274	**	0.858	0.399	**
4thd quartile of real assets	9.580	1.698	***	1.667	0.254	***	0.751	0.283	***	1.556	0.422	***
Retired	-1.024	0.761		0.061	0.127		0.241	0.133	*	0.363	0.294	
Self-employed	-0.432	1.435		-0.051	0.379		0.373	0.464		-0.254	0.379	
Dependent worker	-0.370	0.620		-0.044	0.143		-0.225	0.134	*	0.007	0.233	
Homeowner	10.442	1.157	***	0.342	0.226		0.464	0.223	**	0.316	0.323	
High school graduate	-0.156	0.622		0.055	0.119		0.147	0.118		0.357	0.184	*
Post-secondary degree	-0.904	0.733		0.353	0.143	**	0.244	0.159		0.472	0.346	
Self-reported fair of bad health	-0.755	0.607		-0.029	0.128		-0.116	0.114		-0.077	0.256	
Partner self-reported fair of bad health	0.878	0.637		-0.021	0.130		-0.174	0.125		-0.302	0.322	
Number of ADL's	0.067	0.563		-0.012	0.081		-0.020	0.107		0.066	0.229	
Partner number of ADL's	-0.158	0.298		-0.001	0.086		-0.049	0.083		0.109	0.164	
Recall score	0.135	0.130		0.034	0.028		0.031	0.029		-0.018	0.047	
Provides help to relatives and friends	-0.628	0.506		0.045	0.109		0.031	0.146		-0.071	0.199	
Engages in some voluntary activity	0.521	0.549		-0.157	0.122		0.039	0.180		0.122	0.216	
Probability to receive a bequest	1.137	0.708		0.343	0.162	**	0.378	0.166	**	0.450	0.272	*
σ	7.747	0.527	***	2.000	0.084	***	1.634	0.075	***	1.674	0.117	***
No. of observations	1,404			1,617			1,211			424		

Table 5c – Estimation results for couples in Austria, Italy, Spain, Greece, and England

Variable	AUSTRIA		ITALY		SPAIN		GREECE		ENGLAND	
	coeff	std. err	coeff	std. err	coeff	std. err	coeff	std. err	coeff	std. err
Age 61-75	-0.095	0.168	0.226	0.131 *	0.012	0.123	0.110	0.087	-0.071	0.071
Age 75+	-0.173	0.274	0.056	0.203	-0.014	0.169	-0.027	0.126	-0.015	0.117
Female	0.236	0.174	0.070	0.166	0.099	0.133	-0.090	0.114	-0.238	0.102 **
Has one child	-0.288	0.276	0.096	0.252	-0.029	0.219	0.414	0.167 **	0.116	0.093
Has two or more children	-0.074	0.275	0.207	0.242	0.023	0.206	0.541	0.153 ***	-0.044	0.090
Has grandchildren	0.120	0.167	-0.063	0.118	-0.042	0.116	-0.032	0.089	0.165	0.072 **
2nd quartile of food consumption	0.302	0.385	0.011	0.207	0.348	0.158 **	0.023	0.116	-0.183	0.183
3d quartile of food consumption	0.286	0.332	0.229	0.173	0.284	0.149 *	0.176	0.119	-0.154	0.181
4thd quartile of food consumption	0.324	0.339	0.327	0.186 *	0.410	0.164 **	0.071	0.112	-0.085	0.182
2nd quartile of net financial assets	-0.270	0.295	0.178	0.232	0.203	0.197	0.108	0.122	0.168	0.071 **
3d quartile of net financial assets	-0.210	0.290	0.116	0.215	0.078	0.200	0.144	0.127	0.348	0.079 ***
4thd quartile of net financial assets	-0.170	0.260	0.240	0.247	0.219	0.197	0.437	0.133 ***	0.609	0.083 ***
2nd quartile of real assets	-0.071	0.254	0.329	0.305	0.251	0.142 *	0.333	0.109 ***	-0.208	0.228
3d quartile of real assets	0.416	0.302	1.211	0.328 ***	0.685	0.156 ***	0.649	0.132 ***	0.718	0.228 ***
4thd quartile of real assets	0.861	0.326 ***	1.415	0.340 ***	0.903	0.175 ***	1.250	0.127 ***	0.971	0.232 ***
Retired	-0.014	0.172	0.008	0.123	-0.098	0.123	-0.047	0.088	0.070	0.073
Self-employed	-0.052	0.400	-0.194	0.268	-0.432	0.318	0.010	0.221	0.053	0.157
Dependent worker	0.112	0.228	-0.030	0.185	0.070	0.158	-0.114	0.094	-0.094	0.078
Homeowner	0.805	0.197 ***	0.273	0.308	-0.051	0.197	-0.005	0.118	0.982	0.234 ***
High school graduate	0.063	0.154	0.237	0.154	-0.016	0.199	0.189	0.084 **	-0.118	0.067 *
Post-secondary degree	-0.007	0.208	0.607	0.306 **	-0.191	0.203	0.412	0.128 ***	-0.018	0.099
Self-reported fair of bad health	-0.026	0.164	0.050	0.105	0.016	0.096	-0.014	0.086	0.004	0.069
Partner self-reported fair of bad	0.128	0.206	-0.061	0.120	-0.050	0.115	0.082	0.089	-0.003	0.063
Number of ADL's	-0.140	0.199	-0.047	0.075	-0.087	0.052 *	-0.124	0.103	-0.022	0.023
Partner number of ADL's	0.040	0.129	-0.059	0.043	0.017	0.061	-0.024	0.056	-0.028	0.022
Recall score	0.096	0.034 ***	0.016	0.028	0.066	0.029 **	0.008	0.020	0.035	0.016 **
Provides help to relatives and	-0.010	0.148	-0.004	0.127	0.122	0.123	0.075	0.114	-0.049	0.068
Engages in some voluntary activity	-0.018	0.234	0.022	0.172	0.277	0.210	0.061	0.204	0.077	0.081
Probability to receive a bequest	0.421	0.307	-0.215	0.228	0.232	0.192	0.121	0.160	0.302	0.086 ***
σ	1.672	0.104 ***	1.713	0.085 ***	1.517	0.063 ***	1.117	0.042 ***	1.513	0.044 ***
No. of observations	699		1,262		1,166		1,118		2,716	

Table 6. Median undiscounted predicted bequests given

Country	50-54	55-59	60-66	67-73	74-80
			Panel A: Couples		
U.S.A.	209,188	214,025	173,251	159,243	133,651
Sweden	101,797	99,834	94,709	87,992	88,051
Denmark	137,807	151,563	122,952	144,354	88,308
Germany	89,851	121,368	96,338	93,617	102,878
Netherlands	93,745	128,359	87,888	49,128	25,216
Belgium	201,805	230,448	166,088	163,572	115,995
France	130,692	137,577	99,022	97,067	86,881
Switzerland	80,896	199,701	149,499	67,962	77,244
Austria	118,677	68,552	88,728	91,055	89,670
Italy	90,013	104,641	164,232	105,465	113,911
Spain	200,028	178,465	152,375	161,409	131,428
Greece	129,653	126,589	116,109	110,634	83,256
England	390,875	394,037	335,637	281,895	294,290
			Panel B: Single Males		
U.S.A.	73,173	75,098	73,811	44,895	44,149
Sweden	73,160	72,787	37,351	59,131	86,833
Denmark	87,878	77,251	86,525	24,567	83,944
Germany	17,821	11,800	2,094	94,158	88,140
Netherlands	88,717	94,453	69,541	5,088	6,274
Belgium	56,989	78,579	141,651	89,152	148,056
France	97,541	95,250	93,602	61,237	61,392
Switzerland	15,797	77,318	68,287	47,961	111,791
Austria	26,111	3,881	76,944	98,659	1,708
Italy	102,156	129,522	47,825	105,409	19,359
Spain	89,952	76,864	922	140,709	128,775
Greece	109,177	114,048	111,603	65,553	110,025
England	163,925	219,638	251,636	141,723	135,194
			Panel C: Single Females		
U.S.A.	48,445	41,701	39,496	37,624	36,634
Sweden	41,544	64,524	63,267	34,145	25,458
Denmark	58,867	42,424	67,155	55,155	22,895
Germany	57,055	18,263	19,139	392	61
Netherlands	67,765	49,539	4,022	10	4,775
Belgium	40,279	89,405	90,299	87,460	91,375
France	74,223	91,044	38,512	74,815	30,777
Switzerland	19,407	23,486	43,671	47,603	20,559
Austria	35,342	13,497	30,441	7,151	7,990
Italy	21,675	104,776	102,009	28,627	32,055
Spain	117,985	115,369	6,138	5,110	47,204
Greece	108,779	108,413	98,143	71,980	58,152
England	175,493	221,444	201,590	176,934	125,911

Note: Amounts are in ppp-adjusted dollars.

Table 7. Median discounted predicted bequests given

Country	50-54	55-59	60-66	67-73	74-80
			Panel A: Couples		
U.S.A.	80,030	99,024	91,761	99,211	96,509
Sweden	40,641	45,271	50,466	54,152	61,596
Denmark	58,573	75,927	67,694	91,383	64,015
Germany	35,752	55,301	52,103	57,149	76,223
Netherlands	36,676	59,159	45,697	30,614	18,611
Belgium	80,341	105,189	86,248	101,907	82,178
France	51,941	60,738	52,448	59,380	60,286
Switzerland	31,979	91,415	76,672	42,236	55,268
Austria	50,372	32,110	49,002	59,059	65,630
Italy	35,266	47,291	84,018	64,511	81,306
Spain	77,505	80,547	80,804	100,782	92,874
Greece	58,308	63,939	70,023	74,183	63,368
England	168,151	183,818	181,165	176,403	216,255
			Panel B: Single Males		
U.S.A.	33,458	39,180	41,285	30,328	34,005
Sweden	33,109	35,959	22,241	39,503	66,333
Denmark	38,409	39,844	50,044	17,356	64,336
Germany	8,190	5,805	1,254	64,117	65,584
Netherlands	39,939	48,075	42,254	3,577	4,668
Belgium	26,426	41,616	83,912	61,568	116,035
France	45,746	48,150	53,851	43,499	47,052
Switzerland	7,153	41,562	41,795	34,463	88,249
Austria	12,558	2,110	46,553	69,657	1,332
Italy	46,041	65,628	28,935	72,417	14,774
Spain	41,318	41,318	869	101,082	101,656
Greece	52,331	62,168	70,788	47,268	87,144
England	78,160	109,016	144,891	95,471	105,272
			Panel C: Single Females		
U.S.A.	19,952	19,336	20,733	23,586	26,463
Sweden	16,178	29,140	35,029	22,188	19,048
Denmark	25,700	20,262	38,428	35,174	16,741
Germany	23,425	8,309	10,915	251	46
Netherlands	26,878	22,822	2,218	6	3,364
Belgium	15,642	39,121	47,309	53,339	66,658
France	29,259	39,756	21,586	43,665	22,012
Switzerland	8,226	11,087	24,068	30,619	15,549
Austria	14,494	6,235	16,948	4,699	6,123
Italy	8,793	44,924	54,274	16,895	24,053
Spain	45,010	51,335	3,118	3,445	33,724
Greece	46,454	55,390	57,303	48,737	45,498
England	74,470	103,483	107,175	114,193	92,142

Note: Amounts are in ppp-adjusted dollars.

Table 8. Median Decumulation, all families

Country	50-54	55-59	60-66	67-73	74-80
U.S.A.	106,266	119,821	121,855	132,218	98,494
Sweden	66,698	66,409	87,681	52,957	26,724
Denmark	85,474	84,406	96,610	45,487	21,983
Germany	60,816	85,242	72,004	50,189	25,599
Netherlands	137,040	129,601	108,456	38,694	21,354
Belgium	137,498	146,084	132,453	103,744	57,224
France	125,312	145,888	132,523	114,039	90,237
Switzerland	104,289	184,070	176,521	128,041	77,738
Austria	101,945	67,261	76,360	41,410	37,026
Italy	105,400	125,521	106,146	64,012	47,677
Spain	119,027	134,858	126,119	92,147	75,245
Greece	100,721	89,044	71,681	44,617	35,526
England	126,456	157,674	150,738	96,591	46,418

Note: Amounts are in ppp-adjusted dollars.

Table 9. Bequest and Real Wealth Ratios, 50th and 75th percentiles, all families

Country	Bequest Ratio					Real Wealth Ratio
	50-54	55-59	60-66	67-73	74-80	Total Sample
U.S.A.	0.324	0.329	0.292	0.301	0.334	0.635
	0.556	0.512	0.451	0.459	0.547	0.906
Sweden	0.336	0.392	0.364	0.422	0.619	0.660
	0.617	0.623	0.552	0.668	0.911	0.866
Denmark	0.373	0.362	0.404	0.537	0.651	0.691
	0.661	0.708	0.641	0.715	0.918	0.905
Germany	0.311	0.310	0.306	0.370	0.326	0.560
	0.580	0.587	0.556	0.641	0.772	0.894
Netherlands	0.189	0.253	0.183	0.080	0.052	0.587
	0.517	0.556	0.519	0.534	0.720	0.904
Belgium	0.301	0.364	0.391	0.456	0.549	0.834
	0.535	0.590	0.553	0.664	0.854	0.965
France	0.339	0.263	0.283	0.307	0.301	0.893
	0.609	0.497	0.502	0.579	0.723	0.977
Switzerland	0.209	0.264	0.221	0.249	0.355	0.583
	0.393	0.497	0.406	0.525	0.717	0.870
Austria	0.316	0.208	0.329	0.373	0.341	0.845
	0.600	0.589	0.596	0.725	0.819	0.978
Italy	0.262	0.323	0.397	0.454	0.496	0.956
	0.568	0.597	0.624	0.733	0.844	1.000
Spain	0.395	0.390	0.286	0.399	0.350	0.977
	0.817	0.857	0.754	0.937	1.018	0.997
Greece	0.336	0.426	0.473	0.574	0.606	0.972
	0.581	0.621	0.691	0.879	0.964	1.000
England	0.469	0.490	0.465	0.560	0.652	0.839
	0.602	0.622	0.610	0.736	0.869	0.950

Notes:

The bequest ratio is equal to the ratio of the present value of expected bequests to net worth. The real wealth ratio is equal to the ratio of net real assets (home minus housing debts, other real estate, own business, vehicles and excluding vehicles) to net real assets plus gross financial assets.

Table 10. Median compound saving rates

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	COUPLES						SINGLES		
	60-66		67-73		74-80		60-66	67-73	74-80
	Unadjusted saving rate	Adjusted saving rate	Unadjusted saving rate	Adjusted saving rate	Unadjusted saving rate	Adjusted saving rate	Unadjusted saving rate	Unadjusted saving rate	Unadjusted saving rate
U.S.A.	-0.028	-0.016	-0.042	-0.026	-0.063	-0.044	-0.026	-0.046	-0.067
Sweden	-0.020	-0.020	-0.028	-0.028	-0.017	-0.017	-0.013	-0.015	-0.016
Denmark	-0.021	-0.013	-0.012	0.000	-0.022	-0.007	-0.007	-0.013	-0.006
Germany	-0.020	-0.012	-0.018	-0.008	-0.020	-0.005	-0.085	-0.171	-0.317
Netherlands	-0.043	-0.031	-0.074	-0.059	-0.183	-0.162	-0.059	-0.280	-0.233
Belgium	-0.014	0.001	-0.019	0.003	-0.028	0.004	-0.007	-0.014	-0.011
France	-0.032	-0.014	-0.046	-0.026	-0.074	-0.048	-0.024	-0.032	-0.053
Switzerland	-0.044	-0.036	-0.066	-0.055	-0.075	-0.062	-0.036	-0.039	-0.036
Austria	-0.025	-0.018	-0.020	-0.010	-0.025	-0.011	-0.035	-0.106	-0.223
Italy	-0.010	0.001	-0.014	-0.001	-0.021	-0.001	-0.015	-0.041	-0.113
Spain	-0.010	0.007	-0.011	0.012	-0.028	0.007	-0.136	-0.118	-0.108
Greece	-0.012	-0.002	-0.010	0.004	-0.025	-0.004	-0.010	-0.013	-0.021
England	-0.007	0.005	-0.011	0.005	-0.009	0.014	-0.006	-0.005	-0.012

Table 12. 75th percentile of discounted expected bequests received

Country	50-54	55-59	60-66	67-73	74-80
U.S.A.	87,796	46,916	8,530	1,247	0
Sweden	12,388	709	64	0	0
Denmark	13,137	71	2	0	0
Germany	100	3	0	0	0
Netherlands	673	8	0	0	0
Belgium	59,244	53,446	172	0	0
France	23,973	10,931	1	0	0
Switzerland	24,378	19,960	109	0	0
Austria	3	0	0	0	0
Italy	1	2	0	0	0
Spain	131	6	0	0	0
Greece	7,438	6,045	0	0	0
England	33,266	23,401	1,285	0	0
		Panel B: Single Males			
U.S.A.	17,060	17,060	4,462	0	0
Sweden	30,569	515	0	0	0
Denmark	4,209	7,016	0	0	0
Germany	21,465	0	0	0	0
Netherlands	254	59	8,433	0	0
Belgium	54,380	5,070	1	0	0
France	18,883	34,906	0	0	0
Switzerland	4,428	10	0	0	0
Austria	1,407	0	0	0	0
Italy	9	0	0	0	0
Spain	328	23	0	0	0
Greece	51,705	3	533	4	0
England	19,770	649	658	0	0
		Panel C: Single Females			
U.S.A.	17,060	5,436	1,415	0	0
Sweden	731	309	0	0	0
Denmark	28,939	718	0	0	0
Germany	4,562	41	0	0	0
Netherlands	8,577	0	0	0	0
Belgium	11,037	24	1	0	0
France	17,994	106	0	0	0
Switzerland	9,884	0	0	0	0
Austria	35,338	0	0	0	0
Italy	0	0	0	0	0
Spain	5,888	1,469	0	0	0
Greece	13	0	0	0	0
England	28,869	5,227	131	0	0

Note: Amounts are in ppp-adjusted dollars.