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The impact of inheritances on the retirement behavior of older Europeans

Andreas Eder

Abstract

The aim of this paper is to study how wealth affects retirement behavior. I use data from the 2004-2012 Survey of Health Ageing and Retirement (SHARE) focusing on 10 European countries. Inheritances are used as an exogenous change in wealth to estimate the causal effect of wealth / inheritance receipt on retirement. I apply Binary choice models for a sample of persons working at 2004/05 to estimate the effect of inheritance receipt during 2005-2011 on the probability of retirement in 2011/12. By comparing data on expected retirement age at the beginning of the sample period with actual retirement age I am able to control for unobserved factors that might be correlated with wealth and affect retirement decisions. The main findings are: i) Inheritance receipt is quite common for individuals nearing retirement age (50+). About 20 % of the sample with age 50 and older lives in households receiving an inheritance between 2005 and 2011. ii) Inheritance receipt significantly increases the probability of retirement and the effect increases with the size of the inheritance. iii) In contrast to what life-cycle theory suggests I don´t find any evidence that expected and unexpected inheritances affect adjustments of planned retirement age differently. These results are important for assessing the effect of policies that induce changes in wealth, such as pension reforms, tax reforms or reforms of Social Security, on retirement behavior.

Keywords: inheritance, retirement, wealth, labor supply, expectations

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Contents

1. Introduction

The aim of this study is to analyze the effect of wealth, more precisely inheritance, on retirement behavior and labor force participation. Economic theory suggests that leisure is a normal good and higher lifetime wealth increases the consumption of lifetime leisure or equivalently higher lifetime wealth reduces lifetime labor supply. The results presented in this paper support this hypothesis. Further, understanding the effects of wealth shocks (and inheritance in particular) on labor supply is important because many policies and reforms potentially affect retirement behavior through the wealth effect: examples are reforms of Social Security, private pension regulations, labor market reforms and tax reforms. For instance sensibly designed wealth taxation (and inheritance and estate taxation in particular) needs to take into account behavioral responses to taxation to minimize efficiency costs.[1] If inheritances are associated with substantial labor disincentives a properly designed inheritance tax, reducing the amount received by the heir, can stimulate labor supply and working effort of heirs. Furthermore if inheritances reduce labor supply the labor earnings base and labor income tax revenues are negatively affected. Inheritance taxation, if stimulating labor supply, could lead to higher income tax revenues. In the light of the studies of Piketty (2011) for France, Schinke (2012) for Germany, Atkinson (2013) for the UK, Moreau (2013) for Switzerland and Ohlsson et al. (2013) for Sweden, the effect of inheritance on labor supply and on retirement in particular becomes even more important. Those authors find that the annual flow of inheritances as percentage of national income in the respective countries rose substantially since 1970 and continuous to increase in the coming decades.[2]

The assertion that inheritances depress work effort of heirs and increase consumption of leisure and other goods is relatively old. John Stuart Mill argued against an unlimited right to bequest to prevent the squandering of great fortunes by heirs who put no personal exertion into earning or developing them.[3] Andrew Carnegie opined that large inheritances deaden the talents and energies of the heir.[4] According to this statement Holtz-Eakin et al. (1993) labelled the hypothesis that inheritances lead to reductions in work effort and labor force participation the ´Carnegie conjecture´. As far as I know Holtz-Eakin et al. (1993) were the first who took research on the effect of inheritance on labor supply beyond anecdotal evidence. Their analysis is based on administrative data of estate tax and personal income tax returns for the US. They find that recipients of a large inheritance are more likely to exit the labor force. Other studies using administrative tax data, survey data or both followed, with a fast growing literature since 2010.[5] However, while most of these studies focus on labor

[1] Kopczuk (2013) reviews the empirical and theoretical literature on taxation of intergenerational transfers and wealth. His survey also contains a section focusing on the behavioral responses to transfer taxation, such as wealth accumulation, labor supply, entrepreneurship and tax avoidance.

[2] For example Piketty (2011) finds that in France the annual flow of inheritance was less than 5 % of national income in 1950, reached about 15 % of national income in 2010 and continuous to increase until 2050, probably reaching 20-25 % of national income.

[3] Ekelund, R. B., and D. M. Walker (1996): "J. S. Mill on the income tax exemption and inheritance taxes: The evidence reconsidered," History of Political Economy, 28, p. 575.

[4] Carnegie, A. (1891): "The Advantages of Poverty," in E. C. Kirkland, The Gospel of Wealth and Other Timely Essays, Cambridge (MA): The Belknap Press of Harvard University Press, 1962.

[5] Joulfaian and Wilhelm (1994), Brown et al. (2010), Elinder et al. (2012), Bø et al. (2012), Peters and Schwarz (2013), Sila and Sousa (2014)

supply measures such as hours worked and labor force participation only Brown et al. (2010) examined the effect of inheritances on retirement decisions. Brown et al. (2010) used data for the US from the Health and Retirement Study (HRS).

As far as I know, I am the first exploring the effect of inheritance receipt on retirement decisions in Europe by using data from the 2004-2012 Survey of Health Ageing and Retirement in Europe (SHARE). The analysis focuses on 10 European countries: Austria, Belgium, Switzerland, Germany, Denmark, Spain, France, Italy, Netherlands and Sweden. There are several reasons why the response to inherited wealth in those countries is potentially different to the US. Those reasons are institutional differences, such as inheritance or estate law and labor income taxation. First, in general the US law provides much more testamentary freedom than the law in European countries. While decedents in the US can easily disinherit their children, disinheriting children in most European countries is partly forbidden (e.g. in Belgium, Germany, France, Netherlands and Sweden).[6] The difference in testamentary freedom between the US and Europe suggests that inheritances are more likely to be anticipated in Europe, since children can expect to inherit at least the statutory share of the estate. This makes adjustments of planned retirement age prior to inheritance receipt more likely. For that reason estimated effects of inheritance receipt on retirement in Europe could be smaller than in the US. Second, labor income taxes in the US are smaller than in most European countries. Therefore opportunity costs from labor force withdrawal (= labor income after taxes) are potentially smaller in Europe than in the US. This would suggest that estimated effects of inheritance receipt on retirement in Europe may be larger than in the US, since high labor income taxation could amplify the effect of inheritance receipt on retirement in Europe. If retirement decisions are more strongly affected by inheritances in Europe than in the US is a priori unclear but the discussion above suggests that different behavioral responses are not implausible.

None of the studies, except of Brown et al. (2010), examining the effect of inheritances on labor supply is able to distinguish between expected and unexpected inheritances. Life-cycle theory suggests that anticipated inheritances lead to labor supply adjustments prior to inheritance receipt. Therefore it is likely that previous studies underestimate the effect of wealth and inheritance on labor supply. Due to self-reported inheritance expectations at the beginning of the sample period I can make this important distinction between expected and unexpected inheritances. A further advantage is that the SHARE is restricted to individuals nearing retirement age (age 50 and older) with about 20 % of the sample receiving an inheritance in the period investigated (2004-2012).[7] The SHARE also allows the use of a rich set of covariates which might affect retirement decisions. In this study I examine the effect of inheritance receipt on the probability of retirement and the probability of retiring earlier than previously planned (prior to inheritance receipt). One major problem in estimating the effect of wealth (and inheritance in particular) on labor supply is

[6] Children of decedents in most European countries are entitled to a minimum share of the estate as legally prescribed. Beckert (2007) provides a detailed discussion of the development of inheritance law in France, Germany and the US. A detailed description of the inheritance law in 45 European countries is available in Süß (2007).

[7] Evidence suggests that many individuals receive inheritances when nearing retirement age. For example Brown et al. (2010) find that among older households in the 2004 Survey of Consumer Finances who report ever having received an inheritance, more than half received one at ages 50-65.

that wealth (inheritance receipt) is likely to be correlated with unobservable characteristics that affect labor supply (retirement decisions), such as taste for leisure or risk aversion. By comparing actual retirement age after inheritance receipt with planned retirement age prior to inheritance receipt I am able to control for time invariant unobserved characteristics.

I find that inheritance receipt increases the probability of retiring and the effect is strongest for large inheritances. Expected reductions of future pension benefits are associated with a significant decrease in the probability of retirement. Further individuals receiving an inheritance tend to adjust their planned retirement age downward: inheritance receipt is associated with a significant increase in the probability of retiring earlier than previously planned (prior to inheritance receipt). Interestingly I don´t find any evidence that the response to unexpected and expected inheritances is different. This finding contradicts the predictions of a simple life-cycle model with endogenous retirement choice: that is the receipt of an unexpected inheritance should cause a downward revision of planned retirement age and the receipt of an anticipated inheritance should not affect retirement plans at all.

The paper proceeds as follows: Section 2 briefly reviews related literature. Section 3 presents a simple life-cycle model with endogenous retirement choice as theoretical framework. Section 4 and section 5 provide a description of the data and a discussion of methodology issues. Results and sensitivity analysis are presented in section 6, and section 7 concludes with some final remarks.

2. Previous Literature

Obtaining reliable estimates of the causal effect of wealth on labor supply in general and on retirement in particular is not easy. The reason for this is that labor supply decisions are likely to affect wealth accumulation. For example high wealth could be a result of plans to retire early or of plans to reduce working hours when becoming older. Therefore studies estimating the effect of wealth on labor supply commonly face the challenge of finding plausible exogenous variations in wealth in order to produce credible estimates of the causal effect of wealth on labor supply. Several sources of wealth variation, considered as exogenous, were used in previous studies: Policy changes that affect Social Security wealth as for example in Krueger and Pischke (1992), or changes in wealth due to unexpected stock market fluctuations, see e.g. Coile and Levine (2006), Goda et al. (2011) and McFall (2011). Others such as Imbens et al. (2001), Kuhn et al. (2011) or Cesarini et al. (2013) used lottery winnings. Overall previous studies found mixed results. Cesarini et al. (2013) conclude: "Unfortunately, despite a large empirical literature, there remains little consensus on the magnitude of the effect of wealth on individual and household labor supply."[8]

I will now focus on studies most closely related to mine, which use inheritances as exogenous variation in wealth. As far as I know Holtz-Eakin et al. (1993) were the first who investigated the effect of inheritance on labor supply. By using tax-return-generated data from

[8] Cesarini, D., E. Lindqvist, M. J. Notowidigdo, and R. Östling (2013): "The effect of wealth on household labor supply: Evidence from Swedish lotteries," Unpublished paper. Available online: http://eml.berkeley.edu/users/cle/e250a_f13/CLNO.pdf [Accessed 7 May 2014]

the 1980s for the US they find that inheritance receipt decreases the probability of being in the labor force. The magnitude of the effect is quite large, for example an increase of 350000 $ of inherited wealth in 1982 or 1983 decreases the probability of being in the labor force in 1985 by 12 % points. Those results are obtained by estimating logistic regressions with labor force participation as dependent variable. The sample includes 1632 inheritance recipients with age 19 to 58 and 358 recipients receive inheritances larger than 150000 $. Holtz-Eakin et al. (1993) only include a few control variables and don´t control for unobserved characteristics.

Joulfaian and Wilhelm (1994) use data from the Michigan Panel Study of Income Dynamics (PSID) and administrative data on estate tax returns and income tax returns. The PSID sample includes 439 heirs receiving on average 64906 $ of inherited wealth. The Estate-Income Tax Match data covers individuals receiving relatively large inheritances, with an average amount of 344380 $. Joulfaian and Wilhelm (1994) find statistically significant but small effects of inheritance receipt on hours worked and earnings and somewhat larger participation effects. They also examine the effect of inheritance receipt on retirement and mostly find insignificant effects. In one specification inheritance receipt significantly decreases the probability of retiring. Those inconclusive results about the effect of inheritances on retirement behavior are based on small samples of maximal 770 individuals. Joulfaian (2006) focuses on the effect of inheritance receipt on saving decisions but he also finds that large inheritances depress labor force participation.

Brown et al. (2010) are the first focusing on the effect of inheritance receipt on retirement decisions. This study is most closely related to my paper: the methodology applied in my analysis is for the most part adopted from Brown et al. (2010). Brown et al. (2010) make use of data from the 1992-2002 Health and Retirement Study (HRS), which covers individuals aged 50 and older in the US. They follow individuals working before inheritance receipt and observe whether they retire within a two-year and eight-year period. They find consistent results: inheritance receipt increases the probability of retirement and the effect increases with the size of the inheritance. For example, increasing inherited wealth by 100000 $ increases the probability of retiring by 3.82 % over an eight-year period. Brown et al. (2010) are the first who are able to differentiate to some degree, though not perfectly, between expected and unexpected inheritances. Their results are consistent with life-cycle theory suggesting larger effects of unexpected inheritances.

Elinder et al. (2012) examine the effect of inheritance on labor and capital income. Their analysis is based on administrative tax data from Sweden. 372 direct heirs inheriting in 2004, on average 50 years old, are followed during the years 2000-2008. Estimates from fixed effects models controlling for time invariant unobserved characteristics suggest that taxable labor income of heirs decrease after the year of inheritance receipt (2005-2008). The effect is considerable in each of the four years following the transfer and stronger for old heirs than for young heirs.

B*ø* et al. (2012) use register data for the whole Norwegian population resulting in a sample of 171425 heirs having inherited in the years 2000-2004 and 1576288 non-heirs. They apply the propensity score matching method to compare persons who are similar in most respects except of inheritance receipt. B*ø* et al. (2012) find substantial negative effects of inheritances larger than an average person´s annual income on labor earnings in the years after inheritance receipt. They also find that the propensity to retire early after inheritance receipt increases and is strongest four years after inheriting.

Peter and Schwarz (2013) using data from the German Socio-Economic Panel (G-SOEP) find that large inheritances decrease yearly working hours after inheritance receipt.

Sila and Sousa (2014) examine the effect of windfall gains including inheritances, gifts and lottery winnings, on working hours. They use data from the European Community Household Panel Longitudinal Users´ Database covering 15 EU countries. Their analysis suggests that large windfall gains have a negative effect on working hours, but the effect is small. Adjustments on the extensive margin of labor supply (labor force exit) are more likely.

Overall the existing literature suggests that there is a negative effect of inheritance on labor supply. Some studies report that the effect is quite substantial others only find small effects. Most studies don´t differentiate between expected and unexpected inheritances. Since most inheritances, as shown in section 4 and in Brown et al. (2010), are partly expected (not fully exogenous) labor supply adjustments may took place prior to the period of investigation. If this is the case it is likely that the effect of inheritance on labor supply is underestimated in those studies. The literature further suggests that controlling for unobserved heterogeneity is important. Previous analysis is based either on administrative tax data or survey data. While survey data is perhaps more noisy than administrative data (recall bias, measurement error), it provides a richer set of covariates. Studies using administrative data are typically based on a larger number of observed inheritances than analyses using survey data. While most studies focus on labor supply measures, such as hours worked, labor earnings or labor force participation, only Brown et al. (2010) have examined the effect of inheritance on retirement.[9]

3. Theoretical Framework

In this section I present a simple life-cycle model to analyze the effect of inheritance receipt on planned retirement age. The theoretical framework is closely related to those presented in Ooijen et al. (2010). The main difference is that I choose a discrete time model and introduce the receipt of an inheritance. The focus of this analysis is on the different effects of anticipated and unanticipated inheritances on planned retirement age.

3.1. The model and its assumptions

Consider an individual that lives T periods without uncertainty about the time of death. The individual´s lifetime utility is given by:

$$U_i\left(R, c|_1^T\right)=\sum_{t=1}^{R-1}\beta^{t-1}u(c_t)+\sum_{t=R}^{T}\beta^{t-1}[u(c_t)+a_i],\ u(.)'>0\ \text{ and } u(.)''<0$$

[9] As yet not mentioned some studies focus on the effect of inheritance receipt on labor supply of entrepreneurs, entrepreneurship and survival of existing businesses. For example Faria and Wu (2012) study the effect of inheritance receipt on hours worked of entrepreneurs in the UK and find a concave effect. For the effect on entrepreneurship and survival of existing businesses see e.g. Holtz-Eakin et al. (1994a) and Holtz-Eakin et al. (1994b).

c_t is consumption in period t. β is the intertemporal discount rate. R is the retirement age and a_i is the individual specific utility from retirement leisure, which can be any positive real number. Note that a_i is constant for each period from retirement age until death. a_i may be interpreted as taste for leisure. The initial wealth of the individual is zero and in each period t< R the individual receives an exogenous labor income w. There is no uncertainty about future wages and prices. In period p < R the individual receives an inheritance which is either i) fully anticipated or ii) totally unexpected. Fully anticipated means that the size and the point in time of inheritance receipt are known at t=1. A totally unexpected inheritance constitutes a surprise to the heir in the sense that he or she doesn´t expect an inheritance at all at any period of life. Individuals can save or borrow at an exogenous interest rate r subject to the constrained that debts are repaid at the end of his or her life.

3.2. Fully anticipated inheritances

Individuals choose the optimal consumption path $c_1,\ldots,c_t$ and the optimal retirement age R such that lifetime utility is maximized subject to the constraint that the present value of lifetime consumption equals the present value of lifetime labor earnings plus inheritance I, if fully anticipated. Therefore the lifetime budget constraint is given by:

$$\sum_{t=1}^{T} \frac{c_t}{(1+r)^{t-1}} = \frac{I}{(1+r)^{p-1}} + \sum_{t=1}^{R-1} \frac{w}{(1+r)^{t-1}}$$

The Lagrangian for this problem is given by:

$$L = \sum_{t=1}^{R-1} \beta^{t-1} u(c_t) + \sum_{t=R}^{T} \beta^{t-1} [u(c_t)+a_i] + \lambda \left(\frac{I}{(1+r)^{p-1}} + \sum_{t=1}^{R-1} \frac{w}{(1+r)^{t-1}} - \sum_{t=1}^{T} \frac{c_t}{(1+r)^{t-1}} \right)$$

For simplicity assume that $u(c_t) = \ln(c_t)$, r=0 and $\beta=1/(1+r)$.[10] For this problem I obtain the following first order conditions:

$$\frac{\partial L}{\partial c_t} = 0 \Leftrightarrow \frac{1}{c_t} = \lambda \quad , \forall\ t=1,\ldots,T$$

$$\frac{\partial L}{\partial R} = 0 \Leftrightarrow \frac{a_i}{w} = \lambda$$

$$\frac{\partial L}{\partial \lambda} = 0 \Leftrightarrow I + (R-1)w - \sum_{t=1}^{T} c_t$$

[10] Using a CRRA utility function allowing for more general degrees of relative risk aversion doesn´t change the main results. Individuals with higher degrees of relative risk aversion consume less in each period and retire earlier compared to individuals who exhibit lower degrees of relative risk aversion.

The utility maximizing retirement age and consumption path is:

$$R^* = \frac{T}{a_i} - \frac{I}{w} + 1 \iff R^*\left(\overset{-}{I}, \overset{+}{w}, \overset{+}{T}, \overset{-}{a_i}\right) \quad \text{and} \quad c_t^* = \frac{w}{a_i} \quad \forall\, t=1,\ldots,T$$

An individual's optimal retirement age is a function of the inheritance received in period p, labor income, longevity and the utility from retirement leisure. The longer individuals live the higher is the optimal retirement age. Individuals having strong preferences for retirement leisure retire earlier. Since labor income can be considered as opportunity cost of retirement, high labor earnings increase the optimal retirement age. Inheritances depress the planned retirement age and this effect increases linearly with the size of the inheritance received. Note that, as usual in life-cycle models, individuals want to smooth consumption over their entire life time, which means that consumption is constant over time. Consumption increases with labor earnings and decreases with strong tastes for leisure. Individuals with strong tastes for leisure have lower consumption levels in each period and save more during their working life to finance a longer period of retirement, relative to individuals who derive less benefit from leisure. Note that in this framework consumption is not affected by inheritances. All the inheritance is used to consume more leisure by retiring earlier.[11] Since individuals operate in a perfect certain environment the planned retirement age does not change after inheritance receipt and is constant from period t=1 to t=R-1.

3.3. Totally unexpected inheritances

Now I consider the case where inheritance receipt constitutes a surprise to the heir. The heir doesn´t expect to receive any inheritance at each period t. At period p, when the unexpected inheritance is received, heirs adjust their retirement plans. The unforeseen increase in wealth decreases the optimal retirement age. The planned retirement age after inheritance receipt is lower than the planned retirement age before the unanticipated inheritance is received. The magnitude of the response increases with the size of the inheritance. The discontinuous change in the planned retirement age between period p-1 and p is shown below:

$$R_1 = \ldots = R_{p-1} > R_p = \ldots = R_{R-1}$$

The consumption path is not affected by the receipt of an unexpected inheritance since all the inheritance is used to consume more leisure by retiring earlier. Using inheritances to increase consumption levels is ruled out in this framework. Consumption levels are not affected by inheritance receipt, whether the inheritance is expected or unexpected. Partly expected and partly unexpected inheritances can be considered as intermediate cases of those two extremes analyzed above. If inheritances are partly expected or unexpected the planned retirement age is affected prior and after inheritance receipt. I have shown that inheritances depress the optimal retirement age, whether expected or unexpected. This leads to the first hypothesis.

[11] Joulfaian and Wilhelm (1994) find small effects on family consumption after an inheritance is received. Weil (1994) finds that inheritance receipt and expecting inheritances is associated with higher household consumption levels.

3.4. Hypotheses

Hypothesis 1: Inheritance receipt, whether anticipated or unanticipated, decreases the optimal retirement age and increases the probability of retirement.

It was also shown that fully anticipated inheritances don´t change the planned retirement age after inheritance receipt, whereas totally unexpected inheritances depress the planned retirement age. This leads to next hypothesis:

Hypothesis 2: The planned retirement age does not change after the receipt of a fully anticipated inheritance. It is constant from period t=1 to t=R-1. Fully anticipated inheritances have no effect on the probability of retiring earlier than previously planned (since the planned retirement age is constant from period t=1 onwards).

Hypothesis 3: The planned retirement age is adjusted downward after the receipt of an unexpected inheritance. There is a discontinuous change of the planned retirement age between period t=p-1 and t=p. Unexpected inheritances increase the probability of retiring earlier than previously planned (prior to inheritance receipt), since the planned retirement age decreases after inheritance receipt.

Hypothesis 2 and 3 imply that expected and unexpected inheritances affect adjustments of planned retirement age and the probability of retiring earlier than previously planned (prior to inheritance receipt) differently.

4. Data and descriptive statistics about inheritances

To explore the effect of inheritance receipt on retirement behavior I am using data from waves one, two and four (2004 – 2012) of the SHARE. The third wave is excluded because it focuses on people´s life histories and doesn´t contain information for most of the variables used in this analysis. SHARE is a cross-national panel data set that provides detailed information on respondents´ labor supply, health, finances, family networks and socio-economic status. The SHARE targets people aged 50 and older and their spouses/partners independent of age. Interviews are conducted in 19 European countries: Austria, Belgium, Switzerland, Germany, Denmark, Spain, France, Greece, Italy, Netherlands, Sweden, Israel, Czech Republic, Ireland, Poland, Estonia, Hungary Portugal and Slovenia.

The sample used in this paper is restricted to Austria, Belgium, Switzerland, Germany, Denmark, Spain, France, Italy, Netherlands and Sweden. All other countries are either dropped because they don´t participate in wave one and wave four or the interview period isn´t comparable (Israel) with those of other countries. The sample is further restricted to individuals who: i) were interviewed at least in wave one and wave four, ii) were working at wave one (employed or self-employed), iii) were at least 45 years old at wave one, and iv) do not live in split households. Spouses and partners are included in the sample. The reasons why these restrictions are imposed are the following: i) the use of data from wave one such as expected retirement age, expectations about inheritance receipt within the next ten years or net wealth is of major importance in this analysis, ii) the aim of this study is to explore the

impact of inheritance receipt between wave one and wave four on retirement in wave four. Therefore I start the sample with persons working at wave one and observe whether they retire by wave four, iv) split households are dropped to avoid computational complications. This selection results in a sample size of 3768 individuals.

Two specifications of retirement are tested in this analysis. The first specification is a dummy variable indicating if an individual is retired at wave four. The second specification compares the planned retirement age at wave one with the actual retirement age stated in wave four. The dummy of the second specification indicates if an individual retires earlier than previously planned. From now on this is referred to as retiring earlier than expected. Estimated regression models using ´retiring earlier than expected´ as outcome variable are based on smaller samples. The reason for this is that a number of individuals failed to report an expected retirement age in wave one. Due to missing values in various control variables, estimates of regression models using ´retired at wave four´ as outcome variable are based on a ´maximum sample´ size of 2100 individuals. Each individual contributes one observation to the sample. Estimated regression models using ´retiring earlier than expected´ as dependent variable are based on a ‘maximum sample´ size of 1663 individuals/observations.

I start with some descriptive statistics for the largest sample used in the regression analysis (2100 observations). The SHARE includes four questions about actual inheritance receipt in wave one and two, and three questions about inheritance receipt in wave four. These questions provide information on the year of inheritance receipt, the value of the inheritances and from who the inheritances were received. In wave four the question about the value of received inheritances was cancelled. Therefore information on the size of inheritances is only available for inheritances received between wave one and wave two. All these questions are not asked on the individual level. Instead these questions were answered by selected household members, who served as financial respondents. The questions about inheritance receipt always concern the financial respondent and his/her spouse or partner. It is not possible to identify the legal heir of the bequest, which is the financial respondent or his/her spouse, partner. However, it is possible to identify individuals who are in households that receive an inheritance.

Inheritance receipt is quite frequent in this sample: 20.05 % or 421 out of 2100 workers are living in households that receive an inheritance between wave one and wave four (2005-2011). The minimum value of the reported inheritances is by question design 5000 euros. About 80 % of inheritances come from parents or parents in law, 10 % from aunts or uncles and only 4 % from spouses or partners. Table 1 provides information related to the size of inheritances. Remember that the question about the value of received inheritances was cancelled in wave four and information on the size of inheritances is only available for inheritances received between wave one and two. Out of 421 recipients 164 received inheritances between wave one and wave two (2005, 2006 or 2007). Due to non-response I end up with 140 workers living in households for which the values of received inheritances are known. The size of inheritances reaches from 5000 to 6000000 Euros. As apparent in Table 1 the distribution of inheritance values is highly skewed. The Gini index for the value of received inheritances is 0.748, indicating that the distribution of inheritances is very unequal. Ten percent of inheritance recipients receive less than 6440 Euros and the top five percent receive inheritances in excess of 223381 Euros. The distribution of inheritances is even more unequal if inheritances are measured as percentage of household income.

Table 1: Value of Inheritances Received between Wave 1 and Wave 4 (2005-2011)

	Value	Value / Household Income	Value / Net Wealth
Minimum	5000	0.016	-58.4852
Mean	114136	5.243	0.0282
Maximum	6000000	361.010	22.8435
Gini Index	0.784	0.917	
5th percentile	5000	0.048	0.0012
10th percentile	6440	0.077	0.0073
25th percentile	11000	0.167	0.0297
50th percentile	30000	0.451	0.0829
75th percentile	66000	0.948	0.2311
90th percentile	107980	2.451	0.5250
95th percentile	223381	6.140	0.9403
Number of Obs.	140	140	140

Note: Values are reported in nominal Euros. Gross household income and net worth are partly based on imputed values. Series one of imputed values is used.

Table 2: How accurate are inheritance expectations?

Probability of inheritance receipt during 2004-2014	% of Sample	% Who received inheritance by 2012
0	0.486 (1014)	0.087 (88)
.01-.25	0.122 (254)	0.177 (45)
.26-.49	0.036 (76)	0.118 (9)
.50	0.099 (204)	0.284 (58)
.51-.75	0.064 (134)	0.366 (49)
.76-.99	0.110 (229)	0.380 (87)
1	0.083 (173)	0.462 (80)
All	1.000 (2084)	0.200 (416)

Note: Calculations are based on the ´maximum sample´. 16 workers fail to report expectations in wave one: N = 2084.
The number in parenthesis reports the absolute number of workers.

However, are inheritances large enough that they may affect retirement decisions of recipients? The mean inheritance is 114136 Euros, five years of gross household income or three percent of net wealth. Fifty percent of workers received inheritances larger than 30000 Euros, six month of gross household income or eight percent of net wealth. The largest ten percent of inheritances are more than half times net wealth or 2.5 years of gross household income.

Next I analyze how accurate inheritance expectations are and if they include some information about the probability of inheritance receipt. Two questions about inheritance expectations are asked in the SHARE. One asks for the chance of receiving any inheritance within the next ten years and the other asks for the chance of receiving an inheritance worth more than 50000 Euros. What follows is a comparison of inheritance expectations at wave one (2004 or 2005) with actual inheritance receipt. I compare the reported chance of receiving an inheritance within the next ten years (2004-2014) with actual inheritance receipt between 2004 and 2012. Table 2 and 3 provide information related to the accuracy of inheritance expectations. First I grouped the 2084 workers in the sample by the probability of inheritance receipt during 2004-2014 as reported at wave one; see column one in Table 2. Column two in Table 2 shows the fraction of the sample falling in these groups. Column three reports the fraction of each group that actually received an inheritance by 2012.

As shown by Table 2 the fraction of inheritance recipients increases monotonically with the probability of inheritance receipt from group `0.26-0.49` upwards. Inheritance expectations seem to be correlated with actual inheritance receipt. The higher the self-reported chance of receiving an inheritance within the next ten years the higher is the likelihood of receiving an inheritance within the next eight years. However, 54 % of individuals who were certain to receive an inheritance during 2004-2014 didn´t receive an inheritance by 2012. 8.7 % of workers who reported that there was no chance to receive an inheritance actually received one. This concerns 88 individuals.

Table 3 provides a similar picture about the accuracy of inheritance expectations. Column one indicates the self-reported probability at wave one of receiving an inheritance larger than 50000 Euros. The variable is broken down in seven categories. Column two shows the fraction of the sample falling in these categories. Column three, four and five report the fraction of each group that actually received an inheritance i) worth more than 50000 Euros, ii) worth less than 50000 Euros and iii) with unknown value. Column six reports the fraction of each group that received any inheritance, regardless of size. As in Table 2 inheritance expectations are correlated with actual inheritance receipt, though the correlation is maybe weaker.

The share of workers certainly receiving an inheritance larger than 50000 euros is 1 % for workers reporting no chance of receiving an inheritance larger than 50000 Euros, 5.4 % for workers reporting a chance of one half and 13.2 % for workers reporting a chance of 100%. However, in each group for at least one half of workers who received an inheritance the value of the inheritance is unknown. This restricts the number of comparisons to a small subgroup. Let´s consider the group of workers who said that they were certain to receive an inheritance: 50 % of workers in this group actually received an inheritance. For more than one half we do not know the value of this inheritance. Consequently we don´t know if they received an amount more or less than they expected. This fact partly explains why the fraction

of workers who said that they were certain to receive a large inheritance and certainly received one is rather small, 13.2 %. Nevertheless 50 % of workers certainly expecting a large inheritance during 2004 and 2014 do not receive any inheritance by 2012 and 9 % receive less than they expected.

Table 3: How accurate are expectations about large inheritances?

Probability of receiving inheritance larger than 50000 Euros during 2004-2014	% of Sample	% Who received inheritance larger than 50000 Euros by 2012	% Who received inheritance smaller than 50000 Euros by 2012	% Who received inheritance with unknown value by 2012	% Who received any inheritance by 2012
0	0.713 (1476)	0.011 (16)	0.039 (57)	0.093 (137)	0.142 (210)
.01-.25	0.092 (190)	0.005 (1)	0.053 (10)	0.195 (37)	0.253 (48)
.26-.49	0.023 (47)	0.021 (1)	0.043 (2)	0.149 (7)	0.213 (10)
.50	0.053 (110)	0.073 (8)	0.027 (3)	0.245 (27)	0.345 (38)
.51-.75	0.027 (56)	0.054 (3)	0.107 (6)	0.268 (15)	0.429 (24)
.76-.99	0.055 (113)	0.062 (7)	0.044 (5)	0.265 (30)	0.372 (42)
1	0.037 (76)	0.132 (10)	0.092 (7)	0.276 (21)	0.500 (38)
All	1.000 (2068)	0.022 (46)	0.044 (90)	0.132 (274)	0.198 (410)

Note: Calculations are based on the ´maximum sample´. 32 workers fail to report expectations in wave one: N = 2068.The number in parenthesis reports the absolute number of workers.

Overall individual inheritance expectations are correlated with inheritance receipt: The higher the self-reported chance of receiving an inheritance at the beginning of the period the higher is the likelihood of receiving an inheritance. However, inheritance expectations are somewhat inaccurate since one half of workers certainly expecting an inheritance between 2004/05-2014/15 did not receive one by 2012. Remember about 20 % of the sample or 421 workers are living in households receiving an inheritance. 88 workers or 4 % of the sample receive truly unexpected inheritances. Only less than 4 % of the sample or 80 workers receive inheritances which are fully anticipated. The majority of recipients report a probability of inheritance receipt between 0 % and 100 %. Most inheritances are not fully anticipated and may be considered as wealth shock that can be used to identify the effect of wealth on retirement. The fact that most inheritances are partly anticipated could bias the estimated effect of inheritances on retirement downward since retirement expectations or retirement plans are may adjusted prior to inheritance receipt. Unexpected inheritances can be used to get rid of the downward bias rooted in adjustments of retirement expectations prior to inheritance

receipt. However, the number of truly unexpected inheritances is small and only for a subgroup of them the value is known.

5. Empirical Strategy and Model Specification

The procedure used in this paper is closely related to that of Brown et al. (2010), who use data from the Health and Retirement Study (HRS). The development of SHARE closely follows the HRS, which is one reason why the methodology proposed by Brown et al. (2010) is applied.

The aim of the study is to identify the effect of wealth on labor force exit and retirement, which can be considered as labor supply responses on the extensive margin. It often seems to be the case that wealth is negatively correlated with retirement age (see e.g. Dwyer and Mitchell (1999) or Ooijen et al. (2010)). However, it is difficult to estimate the causal effect of wealth on labor supply in general and on retirement in particular. The reason for this is that retirement plans are likely to affect wealth accumulation. High wealth could be a result of plans to retire early. A bunch of authors tried to overcome this endogeneity problem by using exogenous variations in wealth. Variations in lottery winnings, stock market wealth and social security benefits were considered as exogenous wealth shocks. To investigate the effect of wealth on retirement I use inheritances. Inheritances are likely to be exogenous because the death of a person is causing the receipt of an inheritance. Although imaginable, it seems unlikely that retirement behavior has an impact on the death of other individuals and on the death of a parent in particular.[12]

It is also important to distinguish between expected and unexpected inheritances, particularly if the outcome variable includes information on retirement expectations. If inheritances are fully anticipated households and individuals may adjust their retirement expectations prior to receiving an expected inheritance. Consequently no effect of inheritance receipt on retirement plans would be observed. The effect of inherited wealth on retirement would be underestimated. As shown in the previous chapter the majority of inheritances are not fully anticipated. Most individuals report a chance of inheritance receipt smaller than 100 %, but only few report probabilities of inheritance receipt equal to zero. Therefore applying measures of inheritance receipt that do not differentiate between expected and unexpected inheritances suggests that the effect of inheritances on retirement is underestimated.

To get reliable estimates of the wealth effect on retirement, variations in wealth should be ideally exogenous, in a sense that they are not affected by retirement decisions and they constitute a surprise for the person concerned.

Another econometric problem arises when estimating the effect of wealth on retirement: Numerous unobservable characteristics, such as taste for leisure or risk aversion, affect retirement decisions and might be correlated with wealth in general and inheritance receipt in particular (e.g. inheritance recipients may have weak tastes for leisure and retire later). Finding good proxies for these unobservables is difficult and other procedures to control for unobserved characteristics might be preferred. I follow the methodology used by

[12] About 80 % of inheritances come from parents or parents in law.

Brown et al. (2010) and utilize expectations about retirement and inheritances to control for unobserved characteristics. A discussion of this procedure follows later in this section.

As mentioned in the previous section our sample only includes individuals working at wave one (2004 or 2005). This is because I want to test whether the receipt of an inheritance between wave one and four increases the probability of retirement at wave four (2011 or 2012). The time horizon between wave one and four is sufficiently long to allow for adjustments at the extensive margin of labor supply. Two definitions of retirement are tested, both having a binary representation. The first measure reports if individuals are retired at wave four. The second measure compares retirement expectations at wave one with actual retirement age and indicates whether an individual retires earlier than expected.

Since we are confronted with nominal dependent variables, binary response models are an appropriate choice. Suppose that the underlying latent variable in our model is the utility difference of retiring and not retiring, denoted as y_i^*. It is assumed that y_i^* can be expressed as a linear, additive function of observed characteristics X_i (such as age, education, marital status, having grandchildren, health, income …) and unobserved characteristics ε_i (such as taste for leisure, risk aversion …):

$$y_i^* = X_i\beta + \varepsilon_i$$

Here the subscript i indicates each individual in our sample. X_i is a $1\times k$ vector with the observed characteristics of individual i and β is a $k\times 1$ vector. It is further assumed that if $y_i^* > 0$, that is the benefits of retiring exceed the costs of retiring, individuals retire (retire= 1). If $y_i^* \leq 0$ individuals keep on working (retire = 0). As shown in Verbeek (2004) the probability of retirement can be written as:

$$\Pr(\text{retire}_i=1|X_i) = \Pr(y_i^*>0) = \Pr(X_i\beta+\varepsilon_i>0) = \Pr(-\varepsilon_i \leq X_i\beta) = F(X_i\beta)$$

F(.) is the cumulative distribution function (cdf) of $-\varepsilon_i$. If the distribution of $-\varepsilon_i$ is symmetric F(.) is also the cdf of ε_i. Assuming any symmetric distribution for ε_i is somewhat arbitrary but two cdfs are commonly assumed throughout the economic and sociological literature: The standard normal cdf, which results in the Probit-model and the standard logistic cdf leading to the Logit-model. Since Logit- and Probit-specifications give essentially the same results in this analysis I report the results from the Logit-specifications in the main tables. If necessary I will point out differences in results between Logit- and Probit-models. What follows is a discussion of the models using i) ´retired at wave four´ and ii) ´retiring earlier than expected´ as outcome variables.

5.1. Specification 1: Inheritance Receipt and Retirement

I estimate the following model using ´retired at wave four´ as dependent variable:

$$(1) \qquad \Pr(\text{retire}_{i,\text{wave four}}=1|X_i) = F(\beta_0+\beta_1 \text{INHERITANCE}_i+\beta_2 X_i)$$

Where F(.) is either the standard logistic cdf in the Logit-model or the standard normal cdf in the Probit-model.

As measure for retirement I constructed the variable ´retired at wave four´ or ´$retire_{i,wave\ four}$´. It is a dummy equal to one if the individual is retired at wave four and is equal to zero if the individual´s self-reported employment status is employed or self-employed, unemployed, permanently sick or disabled, house maker or ´other´. A second measure of retirement called ´exit´ is applied to test the sensitivity of the results: ´exit´ is a dummy equal to one if individual´s employment status is retired or house maker and zero if employed, self-employed, unemployed or permanently sick or disabled. Individuals with ´other´ employment status are labelled as missing and are excluded. 43.4 % in the ´maximum sample´ are retired at wave four and 46.1 % are out of the labor force.

Three measures of inheritance receipt are tested in specification 1: i) INHERITANCE is either a dummy equal to one if an individual lives in a household receiving an inheritance between wave one and wave four, ii) the inverse hyperbolic sine transformation of the euro value of the inheritance or, iii) the inverse hyperbolic sine transformation of the inheritance value divided by household income at wave one. The inverse hyperbolic sine transformation is very similar to a log transformation and is applied to reduce the impact of extreme values on the results. If y represents the variable of interest the transformation can be expressed as: $\text{ihs}(y) = \ln\left(y + \sqrt{y^2 + 1}\right)$. Except for very small values of y, the ihs(y) is approximately equal to ln(2y). Summary statistics for those measures of inheritance receipt are reported at the lower end of Table 5. The measures are labeled as i) inh_flag, ii) inh_value_t and iii) inh.value_hhincome_t. The non-transformed values of ii) and iii) are denoted without _t at the ending. Since inheritance receipt is measured on the household level the estimated standard errors are clustered on the household identifier. The reason for this is to account for serial correlation in the error term for members of the same household.

One advantage of using survey data is the rich set of available controls. X_i is a vector of controls, which in prior studies were found to effect retirement behavior.[13] X_i includes various measures controlling for individual characteristics, family environment, professional environment, health, pension entitlements, income, wealth, expectations and country specific effects. Descriptive statistics of all control variables, dependent variables and independent variables used in specification 1 are provided in Table 4 and 5. Estimates of specification 1 are based on a maximum of 2100 observations, where each individual contributes one observation to the sample.

Individual characteristics include age dummies, a dummy equal to one for being female and the years of schooling. About 75 % of individuals are aged 56 to 65 at wave four, 48 % are female and the average years of schooling is 12.6 years.

Previous studies found that non-married individuals tend to retire later than married. But also health and employment status of the spouse or partner were found to affect retirement behavior, see e.g. Johnson (2004) or Debrand and Sirven (2009). Therefore I do not only include a dummy for having a spouse/partner but also dummy variables for the age of the spouse / partner. About 19 % in the ´maximum sample´ are not living with a partner or spouse. The other 81 % are living with a partner most frequently aged between 56 and 65 at wave four. Beside older studies two recent studies found that grandparenthood effects retirement behavior: Hochman and Lewin-Epstein (2013) and Bavel and Winter (2013). A

[13] See for example Debrand and Sirven (2009), and Straka (2010) studying the determinants of retirement decisions.

dummy equal to one if individuals have grandchildren is included in the model. About 64 % in the ´maximum sample´ have at least one grandchild. As in Brown et al. (2010) I also control for the effect that the death of a parent might have on retirement behavior. Fevang et al. (2008) find that "having a lone parent in the terminal phase of life significantly affect the offspring´s labor market activity. […] After the parent´s demise, earnings tend to rise for those still in employment while the employment propensity continues to decline."[14] About 30 % in the ´maximum sample´ experienced the death of a parent since wave one (see variable parent_died). Further controls are household size (hhsize) and a dummy for having children (children).

The professional environment is described by sector employment dummies (private, public or self-employed (self_emp)), a measure of job-satisfaction and a measure of the desire to retire as early as possible from the current job, all measured at wave one. At wave one about 45 % of the sample is employed in the private sector, 40 % in the public sector and 15 % are self-employed. Public sector employees are civil-servants and other employees employed in the public sector. The dummy job_not_satisfied is equal to one if individuals at wave one report that they strongly agree or agree that all things considered they are satisfied with their job. The dummy want_retire reflects the desire to retire as early as possible from the current job. It is coded with one if individuals answer the question ´Thinking about your present job, would you like to retire as early as you can from this job?´ with yes. Straka (2010) and Siegrist et al. (2007) find that this variable is correlated with various measures of job quality, especially job_not_satisfied. It may also incorporate some information about leisure preferences, risk aversion or other unobservables. Therefore it might be considered as a proxy for unobserved characteristics. 42 % of the sample report that they would like to retire as early as possible from their current job.

About 14 % of individuals in the sample working at wave one report that they have no pension entitlements (pension_no). 61 % have public and/or private old age pension entitlements (pension_regular) and 25 % report to be entitled to receive early retirement, pre-retirement, sickness, invalidity or incapacity pension (pension_early).

Diverse studies investigate the effect of health on labor supply in general and on retirement in particular. Dscheryvere (2005) surveys the literature about the effect of health on labor supply. To control for health at wave one and the change in health during 2004/05 – 2011/12 I make use of the question ´Would you say your health is …? ´. The possible answers are excellent, very good, good, fair and poor. Individuals are grouped into four categories: i) Individuals reporting excellent, very good, good and fair health at wave one and four are treated as having good health in both waves (health_good). A majority of 95.8 % falls in this category. ii) Individuals reporting poor health at wave one and wave four (health_poor). Only 0.4 % of the sample is in this group. iii) Individuals reporting excellent, very good, good or fair health at wave one and poor health at wave four, constitute the group of persons for which health worsened (health_worsened). 2.4 % of the sample is in this category. iv) Individuals reporting poor health at wave one and excellent, very good, good or fair health at wave four,

[14] Fevang, E., S. Kverndokk, and K. Røed (2008): "Informal care and labor supply," IZA Discussion Paper 3717.

Table 4: Summary Statistics Part One

Variable	Obs	Mean	Std. Dev.	Min	Max
Retirement behavior					
retire	2100	.4343	.4958	0	1
exit	2072	.4614	.4986	0	1
Individual Characteristics					
age51_55	2100	.0357	.1856	0	1
age56_60	2100	.3610	.4804	0	1
age61_65	2100	.4081	.4916	0	1
age66_70	2100	.1710	.3766	0	1
age70_above	2100	.0243	.1540	0	1
female	2100	.4776	.4996	0	1
years_school	2100	12.59	4.1430	0	25
Family Environment					
no_spouse	2100	.1905	.3928	0	1
age50_below_spouse	2100	.0224	.1480	0	1
age51_55_spouse	2100	.0719	.2584	0	1
age56_60_spouse	2100	.2567	.4369	0	1
age61_65_spouse	2100	.2857	.4519	0	1
age66_70_spouse	2100	.1252	.3311	0	1
age70_above_spouse	2100	.0476	.2130	0	1
hhsize	2100	2.09	.7720	1	8
parent_died	2100	.2957	.4565	0	1
children	2100	.9048	.2936	0	1
grandchildren	2100	.6395	.4803	0	1
Professional Environment					
private	2100	.4524	.4978	0	1
public	2100	.3948	.4889	0	1
self_emp	2100	.1529	.3599	0	1
job_not_satisfied	2100	.0605	.2384	0	1
want_retire	2093	.4200	.4937	0	1
Pension Entitlement					
pension_no	2100	.1348	.3416	0	1
pension_regular	2100	.6114	.4875	0	1
pension_early	2100	.2538	.4353	0	1

Note: Calculations are based on the ´maximum sample´; N = 2100.

Table 5: Summary Statistics Part Two

Variable	Obs	Mean	Std. Dev.	Min	Max
Health Status					
health_good	2100	.9586	.1993	0	1
health_poor	2100	.0043	.0653	0	1
health_improved	2100	.0129	.1127	0	1
health_worsened	2100	.0243	.1540	0	1
Income and Wealth					
hh_income	2100	72272	69726.25	0	894729
hh_income_t	2100	11.56	.8822	0	14.39742
hh_wealth	2100	472088	1070401	-1878178	15000000
hh_wealth_t	2100	11.93	4.8897	-15.1393	17.218
Expectations					
reduce_benefits	2100	48.65	35.0639	0	100
raise_retage	2100	45.86	36.1097	0	100
live_75	2100	71.77	23.0485	0	100
Country Dummies					
austria	2100	.0424	.2015	0	1
belgium	2100	.1781	.3827	0	1
denmark	2100	.1590	.3658	0	1
france	2100	.1357	.3426	0	1
germany	2100	.1119	.3153	0	1
italy	2100	.0810	.2728	0	1
netherlands	2100	.1490	.3562	0	1
spain	2100	.0543	.2266	0	1
sweden	2100	.0143	.1187	0	1
switzerland	2100	.0743	.2623	0	1
Inheritances received since wave one					
inh_flag	2100	.2005	.4005	0	1
inh_value	1819	8785	151401	0	6000000
inh_value_t	1819	.8493	2.9624	0	16.3004
inh_value_hhincome	1818	.4037	9.4230	0	361.0108
inh_value_hhincome_t	1818	.0570	.3416	0	6.5821

Note: Calculations are based on the ´maximum sample´; N = 2100. Household income and net worth contain imputed values. Series one of imputed values is used.

build the group with improved health status (health_improved). 1.3 % of the sample is in this category.

To control for a person´s financial situation I include household net wealth and a quadratic in annual household gross income, both measured at wave one. The distribution of wealth and household income is heavily skewed and shows a long tail at the right. To reduce the weight of outliers, euro values of household income and household net wealth are transformed according to the inverse hyperbolic sine transformation, as explained above. The transformed values are denoted as hh_income_t and hh_wealth_t. Note that about 60 % of household income and 70 % of household net worth values are indicated as being imputed. The inclusion of these values in the analysis is preferred over the use of only pure values or the overall exclusion of these variables. First the calculation of household income and net wealth is based on a variety of questions. If individuals don´t answer all questions but some, still important information can be included in the imputed values. Furthermore if a value is indicated as imputed in wave one but available at wave two the imputation procedure allows to proxy the value of wave one by using information from wave two. It is beyond the scope of this paper to explain the imputation procedure for household income and household net worth in detail.[15] Overall the inclusion of these imputed values reduces the loss of valuable information and is necessary to obtain an acceptable sample size. Imputations in the SHARE are based on the methodology of multiple imputations. For each missing value five imputed values are available, leading to five different data sets. Since no single data set is in any way preferable to the other data sets, all are used in this analysis and results are reported for every single series (series 1, 2, 3, 4, 5). Descriptive statistics of household income and net wealth including imputed values of series 2, 3, 4 and 5 are available in Appendix 1.[16]

The SHARE provides information on individual expectations about future pension reforms. These expectations might influence retirement behavior as documented in Debrand and Sirven (2009). Individuals are asked to report the chance that i) government will reduce their pension before they retire, and ii) government will raise their retirement age before they retire. These expectations are reported on the interval from 0 to 100 (0 for no chance and 100 for being sure). On average the self-reported probability that government will reduce pensions is 49 %, see variable reduce_benefits. The self-reported average probability that government will raise the retirement age is 46 %, see variable raise_retage. Economic Theory suggests and several studies find that subjective survival expectations effect retirement decisions, see e.g. O´Donnell et al. (2008) and McGarry (2004). Therefore I utilize the question about the ´chance that you will live to age 75 or more´ to control for different life expectancies. The average self-reported chance to live until 75 or more is 72 %, see variable live_75.

In order to control for different institutional features across countries, country dummies are included in the regression models. These dummies account for country specific effects reflecting differences in pension systems, health systems, unemployment rates, employment protection legislations and so on.

[15] For a detailed discussion of the imputation procedure in the SHARE see Dimitris Christelis (2011).

[16] Descriptive statistics for inheritance values divided by various series of household income are also provided in Appendix 1.

5.2 Specification 2: Using Data on Retirement and Inheritance Expectations

In specification 2 the dependent variable indicates whether an individual retires earlier than expected. Expected retirement age reported at wave one is compared with the actual retirement age stated in wave four.

$$(2) \qquad \Pr\left(\text{retire\_early}_{\text{i,wave four}} = 1|X_i\right) = F(\beta_0 + \beta_1 \text{INHERITANCE}_i + \beta_2 X_i)$$

As argued in Brown et al. (2010) this allows me to control for unobserved characteristics that affect retirement behavior and might be correlated with inheritance receipt.[17] One necessary condition to make this approach work is that individuals incorporate the unobserved information, such as taste for leisure or risk aversion, into their retirement plans. A second premise is that those unobserved factors are constant during the sample period (2004-2012).
If those conditions are fulfilled I can test whether the receipt of an inheritance affects the gap between the expected and actual retirement age (or the downward adjustment of the planned retirement age) while controlling for unobserved factors.

The dependent variable used in specification 2 is called retire_early. For retired individuals at wave four, retire_early is equal to one if the expected retirement age is larger than the actual retirement age or the age at wave four. It is coded with zero if individuals retire on time or the actual retirement age is larger than the expected retirement age. For non-retired individuals retire_early is coded with zero.

Beside the measures of inheritance receipt used in specification 1 I also test new measures of inheritance receipt that try to differentiate between expected and unexpected inheritances. Two problems arise when using measures based on inheritance expectations: First inheritance expectations are asked on the individual level, while the measure of inheritance receipt is on the household level. Consider a couple living together in a household. The woman reports a probability of inheritance receipt of one and the man reports a probability of inheritance receipt of zero at wave one. Suppose the inheritance was received by the woman who is the legal heir. We only know that the household received an inheritance between wave one and wave four. Should the inheritance be treated as unexpected for the man and as fully anticipated for the women? Where the latter definitely can be answered with yes the former is much more unclear. If the man anticipated that his wife will receive an inheritance, the inheritance is certainly not unexpected. Second, perhaps more important, the number of unexpected inheritances is small and only for a subgroup of them the value is known. Therefore it is difficult to obtain reliable estimates and results should be treated with caution.

The controls included in specification 2 are essentially the same as in specification 1. Summary statistics for all variables used in specification 2 are available in Appendix 2. Those are provided for the smallest sample applied on specification 2. The new measures of inheritance receipt, solely used in specification 2, are discussed in more detail in the next section.

[17] Brown, J. R., C. C. Coile, and S. J. Weisbenner (2010): "The effect of inheritance receipt on retirement," Review of Economics and Statistics, 92, p. 429.

6. Regression Results

6.1. Specification 1

Estimation results of Logit-models of specification 1 are shown in Table 6. Coefficients, standard errors (in parenthesis) and marginal effects evaluated at the sample means (in brackets) are reported.[18] Note that Table 6 concentrates on a selection of independent variables, and the effects of many other controls are not reported in this table.

The models presented in the first three columns of Table 6 don´t include the variable want_retire, whereas model (4), (5) and (6) do. The variable want_retire is not of particular interest for itself but it is a strong predictor for being retired at wave four. Remember that want_retire is based on the question if individuals want to retire as early as they can from their current job. Therefore want_retire might incorporate some information about unobserved characteristics, e.g. job quality, taste for leisure or risk aversion and can be considered as a proxy for unobserved characteristics. The effect of the proxy on retirement is significant at the 1 % level in model (4), (5) and (6). A discrete change from answering the question with no to answering the question with yes would increase the probability of retirement by 20 %, holding all other variables constant at their means.

First I discuss the effect of inheritance receipt on retirement in model (1) (2) and (3). Receiving an inheritance increases the probability of retirement by 6.9 %, holding all other variables constant at their means. This effect is statistically significant at the 10 % level. Also the size of the inheritance relative to household income significantly (10% level) increases the retirement probability. The effect of the (ihs-transformed) inheritance value on retirement is positive, but it is not statistically significant. However the magnitude of the effect is similar to model (5), where the inheritance value is statistically significant at the 5 % level.

Next I turn to model (4), (5) and (6). The inheritance dummy and the inheritance value coefficients are positive and statistically significant at the 5 % level. The estimated coefficient of the (ihs-transformed) inheritance value scaled by household income is positive and significant at the 10 % level. The magnitudes of the coefficients are generally similar to those in model (1), (2) and (3). However, they are somewhat larger in model (4), (5) and (6). The receipt of an inheritance increases the retirement probability of an (hypothetical) average individual by 7.6 %. Increasing the ihs-transformed inheritance value by one unit increases the probability of retirement by 1.0 % point. The interpretation of this marginal effect is not very intuitive therefore I derive the approximated marginal effect (evaluated at the sample mean) of a 100000 euro increase on the probability of retirement. Increasing the average inheritance of 114910 by 100000 euro increases the probability of retirement by 0.9 %. Similar calculations lead to the marginal effect (evaluated at sample mean) of an increase in the inheritance value equal to household income. Increasing the average inheritance scaled by household income from 5.24 to 6.24 increases the probability of retirement by 1.6 % points.

[18] When calculating the marginal effects of a variable, all other variables are held constant at their means. As far it concerns non-linear functions in Xβ (inverse hyperbolic sine transformation of household income, household net wealth, inheritance value, inheritance value divided by household income, and a quadratic in ihs(hh_income)) I plug the averages into the non-linear functions, rather than average the non-linear functions.

Table 6: Estimation Results for Specification 1 (Logit-models)

Independent Variable	Dependent Variable: retire					
	Specification 1.1: ignoring unobserved heterogeneity			Specification 1.2: trying a proxy for unobserved characteristics		
	(1)	(2)	(3)	(4)	(5)	(6)
parent_died	-0.273**	-0.309**	-0.302**	-0.279**	-0.315**	-0.295**
	(0.132)	(0.146)	(0.145)	(0.136)	(0.151)	(0.149)
	[-0.066]	[-0.077]	[-0.073]	[-0.068]	[-0.079]	[-0.072]
job_not_satisfied	0.365	0.276	0.286			
	(0.237)	(0.251)	(0.252)			
	[0.089]	[0.069]	[0.069]			
health_poor	-0.438	-0.232	-0.236	-0.565	-0.269	-0.266
	(0.598)	(0.648)	(0.649)	(0.593)	(0.614)	(0.616)
	[-0.106]	[-0.058]	[-0.057]	[-0.137]	[-0.067]	[-0.064]
health_improved	-0.129	-0.000	0.040	-0.299	-0.257	-0.206
	(0.467)	(0.508)	(0.505)	(0.475)	(0.511)	(0.507)
	[-0.031]	[-0.000]	[0.010]	[-0.072]	[-0.064]	[-0.050]
health_ worsened	0.775**	0.888**	0.876**	0.753**	0.820**	0.806**
	(0.385)	(0.416)	(0.412)	(0.381)	(0.408)	(0.405)
	[0.189]	[0.222]	[0.212]	[0.182]	[0.205]	[0.195]
reduce_benefits	-0.006***	-0.005**	-0.006**	-0.006***	-0.006**	-0.006**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]
raise_retage	-0.006***	-0.005**	-0.005**	-0.006***	-0.006***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	[-0.001]	[-0.001]	[-0.001]	[-0.002]	[-0.001]	[-0.001]
inh_flag	0.283*			0.313**		
	(0.151)			(0.156)		
	[0.069]			[0.076]		
inh_value_t		0.032			0.039**	
		(0.020)			(0.020)	
		[0.008]			[0.010]	
inh_value_ hhincome_t			0.336*			0.344*
			(0.174)			(0.177)
			[0.081]			[0.083]
want_retire				0.799***	0.864***	0.853***
				(0.131)	(0.141)	(0.141)
				[0.193]	[0.216]	[0.207]
Log likelihood	-907.85	-793.49	-792.93	-887.27	-772.15	-772.13
Pseudo R^2	0.3684	0.3635	0.3636	0.3810	0.3786	0.3784
% correctly predicted	79.90	79.55	79.70	80.47	80.25	80.24
Number of obs.	2100	1819	1818	2094	1813	1812
Mean outcome variable	0.4343	0.4376	0.4378	0.4346	0.4379	0.4382

Note: Coefficient estimates from a logit model are reported with standard errors in parentheses. Marginal effects (evaluated at the sample means) are shown in brackets. Marginal effects for factor levels are the discrete change from the base level. All regressions include controls for gender, age, years of schooling, marital status, age of spouse/partner, household size, children, grandchildren, sector employment, pension entitlements, household income, household wealth and countries. Household income and net wealth include imputed values, which are based on series one. inh_flag measures inheritances received between wave one and wave four (2005-2011), whereas inh_value_t and inh_value_hhincome_t only include inheritances received between wave one and wave two (2005-2007). * Significance at 10 % level, ** at 5% level, *** at 1 % level.

Interestingly the death of a parent during 2004-2011/12 decreases the probability of retirement. The coefficient is statistically significant at the 5 % level in all models presented in Table 6. The magnitude of the effect is comparable to that of inheritance receipt. A decrease in health increases the probability of retirement relative to individuals with good health in wave one and wave four. The effect is throughout statistically significant at the 5 % level. Individuals affected by a deterioration of health have a 20 % higher retirement probability than individuals with good health in wave one and wave four. I also find that individual expectations about future pension reforms, reported at wave one, affect retirement behavior. Individuals being certain that their pensions will be reduced or that their retirement age will be raised have a lower retirement probability (relative to individuals which don´t believe that pension benefits are reduced or retirement age is increased). The respective coefficients are statistically significant at the 5 % level or better. If expectations about future pensions include some information about actual pensions this could be interpreted as the effect of pension wealth on retirement. The results suggest that lower pensions decrease the retirement probability or raise the retirement age.

Other factors, which are not reported in Table 6 and found to affect retirement behavior, are age, age of spouse/partner, marital status, household size, employment in the public sector, self-employment and household income. All coefficients of the country dummies are constantly statistically significant at the 1 % level suggesting that country specific effects are of major importance in explaining retirement behavior (see e.g. Debrand and Sirven (2009)). Living in a country other than Austria decreases the retirement probability relative to Austria.

Next I discuss the robustness of the results presented in Table 6. Using labor force exit[19] as dependent variable doesn´t alter the main results shown in Table 6. Overall the coefficients and marginal effects of the inheritance receipt measures actually increase. The ihs-transformed inheritance value becomes significant at the 10 % level in model (2) and the ihs-transformed inheritance value scaled by household income at wave one becomes significant at the 5 % level in model (3) and model (6). Regression results using labor force exit as dependent variable are available in Appendix 3.

In all regressions imputed values for missing observations of household income and net wealth are used. Whereas five different imputed values for each missing value are provided by the SHARE (series one to five). Table 6 reports results based on series one of imputed values. The coefficients of the inheritance dummy and inheritance value are quite robust to different imputations for missing values of household income and net wealth. All coefficients have the expected sign and are mostly statistically significant at the level reported in Table 6. The coefficients of inheritance value divided by household income are much more sensitive to various imputed missing values. In specification 1.1 and 1.2 the coefficients become insignificant for series 2 and 4 of imputed values and significant at the 5 % level for series 3 and 5 of imputed values. Overall the results are quite robust to the use of different imputed values for household income and household net worth. A table providing information on the robustness of the results to the use of different series of imputed values is available in Appendix 3, Table 15.

[19] Retired persons and house makers are considered as leaving the labor force. Employed, self-employed, unemployed and permanently sick or disabled are considered as part of the labor force.

Regression results for Probit-models are similar to those reported in Table 6. As it concerns specification 1.2 the coefficients of the inheritance dummy and the inheritance value are no longer significant at the 5 % level but at the 10 % level. Regression results for Probit-models are summarized in Appendix 3.

6.2. Specification 2

Estimates of specification 1, especially 1.1, potentially suffer from omitted variable bias. Unobservable factors such as taste for leisure, risk aversion or financial knowledge are correlated with retirement behavior and perhaps also with inheritance receipt. Suppose inheritance recipients have a stronger taste for leisure and better financial knowledge. Therefore they are more likely to retire early even in the absence of an inheritance. To rule out a spurious correlation between inheritance receipt an retirement (caused by unobserved factors that are correlated with inheritance receipt and retirement) I use the procedure suggested by Brown et al. (2010) as described in section 5.2.[20] I use retire_early as dependent variable to control for unobserved factors that might be correlated with both retirement behavior and inheritance receipt. This variable compares the reported planned retirement age at wave one with the actual retirement age stated in wave four. retire_early is equal to one if individuals actual retirement age is lower than the planned retirement age reported in wave one. At best expectations about retirement age already incorporate all the unobserved information, which is correlated with retirement and possibly with inheritance receipt.

Table 7 provides the estimation results for retire_early as dependent variable and the inheritance measures used in specification 1. In model (1) all inheritances received between wave one and wave four (2005-2011) are included or 318 inheritance recipients are in the sample with 1663 observations. Since inheritance values are only available for inheritances received between wave one and wave two, model (2), (3) and (4) only include inheritances received in that time span (2005-2007). Note that only 105 out of 1446 individuals are inheritance recipients in this sample.[21] As shown in model (1) the hypothesis that inheritance receipt during 2005-2011 has no effect on the probability of retiring earlier than expected cannot be rejected. However, model (2), only using inheritances received between 2005 and 2007, indicates that the receipt of an inheritance is associated with a 5.2 % increase in the probability of retiring earlier than expected. The effect is statistically significant at the 5 % level. Are inheritances received between 2007 and 2011 smaller in size than inheritances received between 2005 and 2007? Are inheritances received during 2007 and 2011 more likely to be anticipated? Where the former question cannot be answered the latter must be answered with no. Model (3) and (4) suggest that the size of the inheritance and the size of the inheritance relative to household income are important. The coefficients of those measures of inheritance receipt are statistically significant at the 5 % level. The magnitudes of the marginal effects are comparable to those in specification 1.1 but yet somewhat smaller.

[20] Brown, J. R., C. C. Coile, and S. J. Weisbenner (2010): "The effect of inheritance receipt on retirement," Review of Economics and Statistics, 92, p. 425-434.

[21] Summary statistics for all variables used in specification 2 are available for this sample (N=1446) in Appendix 2 – from now on this sample is called ´minimum sample´.

Table 7: Estimation Results for Specification 2 (Logit-models)

Dependent Variable: retire_early				
Independent Variable	(1)	(2)	(3)	(4)
inh_flag	-0.002	0.608**		
	(0.221)	(0.295)		
	[-0.000]	[0.052]		
inh_value_t			0.056**	
			(0.026)	
			[0.008]	
inh_value_hhincome_t				0.366**
				(0.181)
				[0.061]
Log likelihood	-554.14	-494.24	-494.13	-494.46
Pseudo R^2	0.1104	0.1214	0.1216	0.1208
% correctly predicted	87.79	86.93	86.93	87.06
Sensitivity	5.83	6.32	6.32	6.84
Number of observations	1663	1446	1446	1445
Mean of dependent variable	0.1239	0.1314	0.1314	0.1315

Note: Coefficient estimates from a logit model are reported with standard errors in parentheses. Marginal effects (evaluated at the sample means) are shown in brackets. Marginal effects for factor levels are the discrete change from the base level. All regressions include controls for gender, age, years of schooling, marital status, age of spouse/partner, household size, children, grandchildren, death of a parent, health, jobs satisfaction, sector employment, pension entitlements, household income, household wealth, life expectancy, expectations about future pension reforms and countries. Household income and net wealth include imputed values, which are based on series one. Model (1) includes inheritances received between wave one and wave four (2005-2011),whereas model (2), (3) and (4) are solely based on inheritances received between wave one and wave two (2005-2007). * Significance at 10 % level, ** at 5% level, *** at 1 % level.

The analysis further suggests that individuals experiencing a decrease in health during 2004-2011/12 are more likely to retire earlier than they previously planned. Individuals living in a larger household, living without a spouse/partner and self-employed tend to have a lower probability of retiring earlier than expected.

Next I make use of self-reported inheritance expectations at wave one to differentiate expected from unexpected inheritances. Individuals at wave one (2004/05) are asked to report the chance of receiving an inheritance within the next ten years. Reported chances take on values between 0 % and 100 %. Individuals which fully anticipate an inheritance may incorporate this information in their retirement expectations. If the information about the future inheritance is fully incorporated in the reported planned retirement age the receipt of an inheritance would have no effect on the probability of retiring earlier than expected, even if the inheritance affects retirement age. The expectations are correct and individuals would retire at their planned retirement age. Therefore pooled measures of expected and unexpected inheritances likely underestimate the effect of wealth or inheritances on retirement. As shown in Appendix 2 most inheritance recipients in the ´minimum sample´ report a chance of receiving an inheritance within the next ten years at wave one between 0 % and 100 % (about 57 % of recipients). 22 % in the ´minimum sample´ report a chance of 100 % and were certain to receive an inheritance within the next ten years. 21 % report that there is no chance of receiving an inheritance within the next ten years.

Since it is not obvious how to differentiate between expected and unexpected inheritances two definitions are applied. First inheritances are considered as unexpected if the reported chance of receiving an inheritance is zero. All inheritance recipients who reported a chance greater than zero are considered to receive an expected inheritance. Second inheritances are considered as unexpected if the reported chance of receiving an inheritance is smaller or equal to 50 %. Recipients reporting a chance greater than 50 % at wave one are considered as receiving an expected inheritance. For both definitions I test inheritance dummies and ihs-transformed inheritance values. Two inheritance measures are included in each regression, one measures expected and the other measures unexpected inheritances. This allows testing the equality of the coefficients of expected and unexpected inheritance measures. Summary statistics for the measures of expected and unexpected inheritances are available in Appendix 2. The life-cycle model in section 3 suggests that unexpected inheritances should have a stronger effect than expected inheritances on the probability of retiring earlier than expected. Note that due to the available data it is not possible to distinguish between expected and unexpected amounts of inheritances.

Table 8 reports the results using measures of expected and unexpected inheritances. The coefficients and marginal effects of unexpected inheritance measures are throughout larger than those of expected inheritance measures. However a Wald test indicates that the null hypothesis of equal coefficients of expected and unexpected inheritance measures cannot be rejected in all models. Furthermore when applying definition 1 of expected and unexpected inheritances only the coefficients of expected inheritance measures (dummy and value) are significant at the 10 % level. When applying definition 2 only coefficients of the unexpected inheritance measures are significant. The coefficient of the unexpected inheritance dummy is significant at the 10 % level and the coefficient of the unexpected inheritance value is significant at the 5 % level. The marginal effects of those unexpected inheritance measures (definition 2) are larger than the marginal effects of the pooled inheritance measures in Table 7. For instance the receipt of an unexpected inheritance is associated with a 6.3 % higher probability of retiring early. The corresponding marginal effect of the pooled measure in Table 7 is 5.2 % points (statistically significant at the 5 % level) and the corresponding marginal effect of an expected inheritance is 4.1 % points (but not statistically significant). For ease of interpretation I calculated the marginal effect of a 100000 euro increase (from 100000 to 200000 euro) of the unexpected and expected inheritance value respectively. Doubling the inheritance value increases the probability of retiring early by 1.5 % points if the inheritance is unexpected and by 0.8 % points if the inheritance is expected. However, the Wald test indicates that the null hypothesis of equal coefficients of expected and unexpected inheritance values cannot be rejected. The p-value for the test of significance of the difference between the two coefficients is 0.52.

There seems to be no systematic difference in the behavioral response to expected and unexpected inheritances. A possible explanation is that individuals are not as rational as assumed in the life cycle model presented in chapter 3. Individuals may fail to incorporate the anticipated inheritance in the calculation of their planned retirement age. In other words they may adjust their planned retirement age when the inheritance is actually received and not prior to the receipt, also when the inheritance is expected. If individuals are reluctant to adjust their retirement plans prior to inheritance receipt, even if the inheritance is expected, the

Table 8: Estimation Results for Specification 2 (Logit-models);
Expected vs. Unexpected Inheritances

Dependent variable: retire_early				
Independent variable	(1)	(2)	(3)	(4)
Definition 1: threshold 0				
inh_flag unexpected	0.692			
	(0.569)			
	[0.059]			
inh_flag expected	0.589*			
	(0.329)			
	[0.050]			
inh_value_t unexpected		0.064		
		(0.051)		
		[0.013]		
inh_value_t expected		0.054*		
		(0.029)		
		[0.011]		
Definition 2: threshold 50				
inh_flag unexpected (50)			0.744*	
			(0.407)	
			[0.063]	
inh_flag expected (50)			0.485	
			(0.418)	
			[0.041]	
inh_value_t unexpected (50)				0.073**
				(0.036)
				[0.015]
inh_value_t expected (50)				0.040
				(0.037)
				[0.008]
Log likelihood	-494.14	-494.03	-494.05	-493.83
Pseudo R^2	0.1214	0.1216	0.1215	0.1219
% correctly predicted	86.92	86.92	86.92	86.92
Sensitivity	6.32	6.32	6.32	6.32
Number of observations	1445	1445	1445	1445
Mean of dependent variable	0.1315	0.1315	0.1315	0.1315
Chi^2-test: Unexpected = Expected	0.026	0.031	0.202	0.407
Chi^2-test: p-value	0.87	0.86	0.65	0.52

Note: Coefficient estimates from a logit model are reported with standard errors in parentheses. Marginal effects (evaluated at the sample means) are shown in brackets. Marginal effects for factor levels are the discrete change from the base level. All regressions include controls for gender, age, years of schooling, marital status, age of spouse/partner, household size, children, grandchildren, death of a parent, health, jobs satisfaction, sector employment, pension entitlements, household income, household wealth, life expectancy, expectations about future pension reforms and countries. Household income and net wealth include imputed values, which are based on series one. The sample (N=1445) only includes inheritances received between wave one and wave two (2005-2007). * Significance at 10 % level, ** at 5% level, *** at 1 % level.

effects of unexpected and expected inheritances on the probability of retiring earlier than expected would be similar.

However, the results presented in Table 8 should be treated with caution for several reasons. First the results are based on few observations for expected and unexpected inheritances. When applying definition 1 of unexpected and expected inheritances only 22 unexpected and 83 expected inheritances are observed. Definition 2 differentiates between 47 unexpected and 58 expected inheritances. Second the measures of expected and unexpected inheritances might be noisy because: i) The distinctions between expected and unexpected inheritances by definition 1 and 2 are not perfectly precise. Further a differentiation between expected and unexpected amounts of inheritance values is not possible. ii) Self-reported chances of inheritance receipt may suffer from measurement error. Those inheritance expectations, as shown in Table 2, are more or less inaccurate but they are correlated with actual inheritance receipt. iii) Inheritance expectations are reported individually, whereas measures of inheritance receipt are on the household level.

The results for specification 2 presented in this chapter are quite robust to the use of different series of net wealth and household income and are very similar for Probit-models. Those results are summarized in Appendix 4.

7. Concluding remarks

In this paper I estimate the effect of inheritance receipt on retirement. By using data from the 2004-2012 SHARE for 10 European countries this is, as far as I know, the first paper providing estimates of the effect of inheritance receipt on retirement in Europe.[22] Since inheritances provide a useful variation in exogenous wealth, particularly if they are unanticipated, the results can also be considered as an estimate of the causal effect of wealth on retirement.

The main findings can be summarized as follows: i) Inheritance receipt is quite common for individuals nearing retirement age (age 50+). About 20 % of the sample lives in households receiving an inheritance between 2005 and 2011, with a median inheritance of 30000 Euros. ii) Inheritance receipt significantly increases the probability of retirement and the effect increases with the size of the inheritance. iii) Inheritance receipt is associated with a significant increase in the probability of retiring earlier than previously planned (prior to inheritance receipt). This indicates that individuals receiving an inheritance are more likely to adjust their planned retirement age downward. iv) In contrast to what life-cycle theory suggests I don´t find any evidence that expected and unexpected inheritances affect adjustments of planned retirement age differently. v) Furthermore I also find that individual expectations about future pension reforms affect retirement behavior. Individuals expecting the government to increase the retirement age and reduce pensions are less likely to retire.

While i), ii) and iii) is in line with the findings of Brown et al. (2010), iv) contradicts the results of Brown et al. (2010), who find that the effect of inheritance receipt on retirement is more than twice as large when the inheritance is unexpected. A possible explanation for

[22] Previous estimates of the effect of inheritance on retirement are provided by Joulfaian and Wilhelm (1994) and Brown et al. (2010), all for the US.

those divergent results is that Europeans are maybe more reluctant than US-citizens to adjust their planned retirement age prior to actual inheritance receipt, if the inheritance is (partly) anticipated. This would make the effect of expected and unexpected inheritances more similar.

Taken the findings of this paper and the previous literature[23] together, evidence suggests a negative effect of inheritance on labor supply. The effect is strongest for large inheritances. This finding might be of interest for policy makers designing tax policies, such as wealth taxation and wealth transfer taxation. Empirical evidence suggests that sensible designed wealth taxation, wealth transfer taxation and inheritance taxation in particular can stimulate labor supply and are likely to increase revenue from labor income taxes. The amount of inherited wealth in Europe is already substantial and some authors project an increase in the annual flow of inheritances relative to national income in the coming decades.[24] In times of fiscal consolidation inheritances constitute a substantial and growing tax base.

To evaluate the overall effect of inheritance taxation on labor supply, not only the behavioral response of the heir but also the behavioral response, if any, of the decedent has to be considered. A potential response of future decedents to inheritance taxation could be that they accumulate less wealth during their lifetime, work less and spend more money for consumption of goods and services. Beside the negative effect on wealth accumulation this would reduce the amount of inherited wealth received by heirs and may positively affect their labor supply. While Hines (2013) provides a theoretical analysis of the effect of estate taxes on aggregate labor supply (decedents´ and heirs´ labor supply) there exists, as far as I know, no empirical analysis studying the effect of inheritance taxation on labor supply of decedents. Examining the effect of inheritance taxation on labor supply of (potential) decedents is a topic for future research. Studying other behavioral responses to inheritance receipt, such as consumption of goods and services, saving behavior, entrepreneurship, survival and performance of family businesses, tax avoidance and tax evasion is also an interesting an important area for future research. Understanding those behavioral responses is helpful for designing optimal wealth (transfer) taxes that minimize efficiency costs of taxation and provides insights on the effect wealth on individual behavior.

The findings in this paper may be also of interest for policymakers trying to assess the effect of other wealth changes on retirement behavior, such as those resulting from pension reforms or Social Security reforms.

[23] The previous literature on the effect of inheritance on labor supply is surveyed in section 2 of this paper.

[24] See Piketty (2011) for France, Schinke (2012) for Germany, Atkinson (2013) for the UK, Moreau (2013) for Switzerland and Ohlsson et al. (2013) for Sweden.

References

Atkinson, A. B. (2013): "Wealth and Inheritance in Britain from 1896 to the Present," CASE Paper 178, Centre for Analysis of Social Exclusion (London School of Economics).

Bavel, J. V., and T. D. Winter (2013): "Becoming a grandparent and retirement in Europe," European Sociological Review, 29, 1295-1308.

Beckert, J. (2007): "Inherited Wealth," Princeton: Princeton University Press.

Brown, J. R., C. C. Coile, and S. J. Weisbenner (2010): "The effect of inheritance receipt on retirement," Review of Economics and Statistics, 92, 425-434.

Bø, E. E., E. Halvorsen, and T. O. Thoresen (2012): "Inheritance as a disincentive to labor effort," Unpublished paper, Statistics Norway Research Department. Available online: http://www.vcharite.univ-mrs.fr/ocs/index.php/LAGV11/LAGV11/paper/view/1004 [Accessed 7 May 2014]

Carnegie, A. (1891): "The Advantages of Poverty," in E. C. Kirkland, The Gospel of Wealth and Other Timely Essays, Cambridge (MA): The Belknap Press of Harvard University Press, 1962.

Cesarini, D., E. Lindqvist, M. J. Notowidigdo, and R. Östling (2013): "The effect of wealth on household labor supply: Evidence from Swedish lotteries," Unpublished paper. Available online: http://eml.berkeley.edu/users/cle/e250a_f13/CLNO.pdf [Accessed 7 May 2014]

Christelis, D. (2011): "Imputation of missing data in waves 1 and 2 of SHARE," SHARE Working Paper Series, 01-2011.

Coile, C. C., and P. B. Levine (2006): "Bulls, bears, and retirement behavior," Industrial and Labor Relations Review, 59, 408-429.

Debrand, T. and N. Sirven (2009): "Pathways to retirement in Europe: Individual determinants and the role of social protection," Questions d´économie de la Santé 148 (November), Institute for Research and Information in Health Economics.

Deschryvere, M. (2005): "Health and retirement decisions: an update of the literature," ENEPRI Research Report 6, European Network of Economic Policy Research Institutes.

Dwyer, D. S, and O. Mitchell (1999): "Health problems as determinants of retirement: Are self-rated measures endogenous?" Journal of Health Economics, 18, 173-193.

Ekelund, R. B., and D. M. Walker (1996): "J. S. Mill on the income tax exemption and inheritance taxes: The evidence reconsidered," History of Political Economy, 28, 559-581.

Elinder, M., O. Erixon, and H. Ohlsson (2012): "The impact of inheritances on heirs´ labor and capital income," The B.E. Journal of Economic Analysis & Policy, 12, Article 61.

Faria, J. R., and Z. Wu (2012): "From unemployed to entrepreneur: The role of the absolute bequest motive," Economic Letters, 114, 120-123.

Fevang, E., S. Kverndokk, and K. Røed (2008): "Informal care and labor supply," IZA Discussion Paper 3717.

Goda, G. S., J. B. Shoven, and S. N. Slavov (2011): "What explains changes in retirement plans during the great recession?" American Economic Review, 101, 29-34.

Hines, J. R. (2013): "Income and substitution effects of estate taxation," American Economic Review, 103, 484-488.

Hochman, O. and, N. Lewin-Epstein (2013): "Determinants of early retirement preferences in Europe: The role of grandparenthood," International Journal of Comparative Sociology, 54, 29-47.

Holtz-Eakin, D., D. Joulfaian, and H. S. Rosen (1993): "The Carnegie conjecture: Some empirical evidence," Quarterly Journal of Economics, 108, 413-435.

Holtz-Eakin, D., D. Joulfaian, and H. S. Rosen (1994a): "Entrepreneurial decisions and liquidity constraints," RAND Journal of Economics, 25, 334-347.

Holtz-Eakin, D., D. Joulfaian, and H. S. Rosen (1994b): "Sticking it out: Entrepreneurial survival and liquidity constraints," Journal of Political Economy, 102, 53-75.

Imbens, G. W., D. B. Rubin, and B. I. Sacerdote (2001): "Estimating the effect of unearned income on labor earnings, savings, and consumption: Evidence from a survey of lottery players," American Economic Review, 91, 778-794.

Johnson, R. W. (2004): "Do spouses coordinate their retirement decisions?" Issue in Brief 19 (July), Center of Retirement Research at Boston College.

Joulfaian, D. (2006): "Inheritance and saving," NBER Working Paper 12569, National Bureau of Economic Research.

Joulfaian, D., and M. O. Wilhelm (1994): "Inheritance and labor supply," Journal of Human Resources, 29, 1205-1234.

Kopczuk, W. (2013): "Taxation of intergenerational transfers and wealth," in A. J. Auerbach, R. Chetty, M. Feldstein and E. Saez, eds., Handbook of Public Economics, volume 5, Amsterdam: North Holland, chapter 6, 329-390.

Krueger, A. B., and J. S. Pischke (1992): "The effect of Social Security on labor supply: A cohort analysis of the notch generation," Journal of Labor Economics, 10, 412-437.

Kuhn, P., P. Kooreman, A. Soetevent, and A. Kapteyn (2011): "The effects of lottery prizes on winners and their neighbors: Evidence from Dutch postcode lottery," American Economic Review, 101, 2226-2247.

McFall, B. H. (2011): "Crash and wait? The impact of the great recession on the retirement plans older Americans," American Economic Review, 101, 40-44.

McGarry, K. (2004): "Health and retirement: Do changes in health affect retirement expectations?" Journal of Human Resources, 39, 624-648.

Moreau, E. (2013): "Inheritance Flows in Switzerland, 1911-2009," Master´s Thesis, University Lausanne.

O´Donnell, O., F. Teppa, and E. v. Doorslaer (2008): "Can subjective survival expectations explain retirement behavior?" DNB Working Paper 188, De Nederlandsche Bank.

Ohlsson, H., J. Roine, and D. Waldenström (2013): "Inherited wealth over the path of development: Sweden, 1810 -2010," Unpublished paper. Available online: http://piketty.pse.ens.fr/files/OhlssonRoineWaldenstrom2013.pdf [Accessed 7 May 2014]

Ooijen, R., M. Mastrogiacomo, and R. Euwals (2010): "Private wealth and planned early retirement: A panel data analysis for the Netherlands 1994-2009," CPB Discussion Paper 160, CPB Netherlands Bureau for Economic Policy Analysis.

Peters, H., and P. Schwarz (2013): "Bequests and labor supply in Germany," TranState Working Paper 173.

Piketty, T. (2011): "On the long-run evolution of inheritance: France 1820-2050," Quarterly Journal of Economics, 126, 1071-1131.

Schinke, C. (2012): "Inheritance in Germany 1911 to 2009: A Mortality Multiplier Approach," SOEP Paper 462, DIW-Berlin.

Siegrist, J., M. Wahrendorf, O. v.d. Knesebeck, H. Jürges, and A. Börsch-Supan: „Quality of work, well-being and intended early retirement of older employees – baseline results from the SHARE study," European Journal of Public Health, 17, 62-68.

Sila, U. and R. M. Sousa (2014): "Windfall gains and labor supply: evidence from the European household panel," IZA Journal of Labor Economics, 3, Article 1.

Straka, H. (2010): "Determinanten der Arbeitsmarktbeteiligung von EuropäerInnen über 50 – Eine Analyse mittels SHARE-Daten," Master´s Thesis, University of Vienna.

Süß, R. (2007): "Erbrecht in Europa," Bonn: zerb verlag.

Verbeek, M. (2004): "A guide to modern econometrics," Chichester: Wiley.

Weil, D. N. (1994): "The saving of the elderly in micro and macro data," Quarterly Journal of Economics, 109, 55-81.

Appendix 1: Descriptive statistics for household income and household net worth

Table 9: Summary statistics for household income, household net worth and inheritance value divided by household income for series 1-5 of household income and household net wealth

Variable	Obs.	Mean	Std. Dev.	Median	Min	Max
Household income						
hh_income series 1	2100	72272	69726	56184	0	894729
hh_income series 2	2100	72481	69291	56029	0	792561
hh_income series 3	2100	72254	68077	56327	0	790896
hh_income series 4	2100	72393	70694	55849	0	1132018
hh_income series 5	2100	72537	69013	55593	0	790886
Household net wealth						
hh_wealth series 1	2100	472088	1070401	235365	-1878178	15012129
hh_wealth series 2	2100	481460	1106489	236372	-1878178	15012930
hh_wealth series 3	2100	460811	1026043	237658	-1878178	15013268
hh_wealth series 4	2100	464579	1035942	233011	-1878178	15013644
hh_wealth series 5	2100	456198	1008837	233974	-1878178	15013218
Inheritance value / household income						
inh_value / hh_income series 1	140	5.2427	33.6920	0.4510	0.0160	361.0108
inh_value / hh_income series 2	140	2.7371	14.7914	0.4509	0.0157	166.4263
inh_value / hh_income series 3	140	4.6989	28.1694	0.4508	0.0160	286.5330
inh_value / hh_income series 4	140	2.6888	14.7594	0.4396	0.0160	166.2096
inh_value / hh_income series 5	140	10.9753	99.1528	0.4341	0.0161	1162.7906

Note: Calculations are based on the ´maximum sample´; N = 2100.

Appendix 2: Descriptive statistics for the ´minimum sample´ (N=1445)

Table 10: Summary statistics for inheritances in the ´minimum sample´

Variable	Obs.	Mean	Std. Dev.	Median	Min	Max
Number of inheritances	105					
inh_value	105	121984.5	589816.5	30845	5000	6000000
inh_value /hh_income series 1	105	6.500	38.753	0.494	0.016	361.011
inh_value /hh_income series 2	105	3.158	16.814	0.494	0.016	166.426
inh_value /hh_income series 3	105	5.779	32.355	0.494	0.016	286.533
inh_value /hh_income series 4	105	3.104	16.777	0.494	0.016	166.210
inh_value /hh_income series 5	105	14.143	114.413	0.433	0.016	1162.791
Def.1: Expected Inheritances	83					
def.1: inh_value_expected	83	137155.7	661858.0	30872.5	5000	6000000
Def.1: Unexpected Inheritances	22					
def.1: inh_value unexpected	22	64747.5	89473.4	25067.1	6169	400000
Def.2: Expected Inheritances	58			1	1	1
def.2: inh_value_expected	58	172807.4	789311.3	32201.1	5000	6000000
Def.2: Unexpected Inheritances	47					
def.2: inh_value unexpected	47	59266.8	85146.5	30000.0	5000	400000

Note: Calculations are based on the ´minimum sample´ (N = 1445). Only inheritances received between wave one and two are considered (2005-2007).

Table 11: How accurate are inheritance expectations?

Probability of inheritance receipt during 2004-2014	% of Sample	% Who received inheritance by 2012
0	0.470 (775)	0.087 (64)
.01-.25	0.130 (214)	0.177 (36)
.26-.49	0.040 (66)	0.118 (8)
.50	0.104 (171)	0.284 (42)
.51-.75	0.069 (113)	0.366 (43)
.76-.99	0.109 (179)	0.380 (69)
1	0.079 (130)	0.462 (56)
All	1.000 (1648)	0.193 (318)

Note: N = 1648. All inheritances received between wave 1 and wave 4 (2005-2011) are considered. 15 workers fail to report expectations at wave one. The number in parenthesis reports the absolute number of workers.

Table 12: Summary statistics for the ´minimum sample´:
All variables used in specification 2 are included

Variable	Mean	Std. Dev.	Min	Max
Retirement behavior				
retire_early	0.1315	0.3381	0	1
Individual Characteristics				
age51_55	0.0374	0.1897	0	1
age56_60	0.3785	0.4852	0	1
age61_65	0.4152	0.4929	0	1
age66_70	0.1474	0.3546	0	1
age70_above	0.0215	0.1449	0	1
female	0.4651	0.4989	0	
years_school	12.5291	4.1843	0	25.00
Family Environment				
no_spouse	0.1813	0.3854	0	1
age50_below_spouse	0.0215	0.1449	0	1
age51_55_spouse	0.0734	0.2608	0	1
age56_60_spouse	0.2651	0.4415	0	1
age61_65_spouse	0.2983	0.4577	0	1
age66_70_spouse	0.1135	0.3173	0	1
age70_above_spouse	0.0471	0.2118	0.	1
hhsize	2.1031	0.7707	1	8
parent_died	0.2692	0.4437	0	1
children	0.9017	0.2978	0	1
grandchildren	0.6339	0.4819	0.	1
Professional Environment				
private	0.4754	0.4996	0	1
public	0.3896	0.4878	0	1
self_emp	0.1349	0.3418	0	1
job_not_satisfied	0.0616	0.2405	0	1
Pension entitlements				
pension_no	0	0	0	0
pension_regular	0.7481	0.4343	0	1
pension_early	0.2519	0.4343	0	1

Variable	Mean	Std. Dev.	Min	Max
Health				
health_good	0.9716	0.1661	0	1
health_poor	0.0042	0.0643	0	1
health_improved	0	0	0	0
health_worsened	0.0242	0.1538	0	1
Income and Wealth				
hh_income series 1	70212	67175	0	791699
hh_income_t series1	11.5423	0.8769	0	14.2751
hh_worth series 1	466615	1052381	-1878178	14190137
hh_worth_t series 1	12.0135	4.5667	-15.1393	17.1612
Expectations				
reduce_benefits	48.5903	34.5882	0	100
raise_retage	46.0678	36.0400	0	100
live_75	71.5446	22.8000	0	100
Country				
austria	0.0540	0.2261	0	1
belgium	0.1737	0.3790	0	1
denmark	0.1356	0.3425	0	1
france	0.1405	0.3476	0	1
germany	0.1343	0.3410	0	1
italy	0.0934	0.2911	0	1
netherlands	0.1349	0.3418	0	1
spain	0.0519	0.2219	0	1
sweden	0.0000	0.0000	0	0
switzerland	0.0817	0.2739	0	1
Inheritance Measures				
inh_flag	0.0727	0.2597	0	1.
inh_value	8864	161427	0	6000000
inh_value_t	0.8048	2.8969	0	16.3004
inh_value / hh_income series1	0.4726	10.5399	0	361.0108
inh_value_hhincome_t	0.0572	0.3546	0	6.5821
def.1: inh_flag unexpected	0.0152	0.1225	0	1
def.1:inh_flag expected	0.0574	0.2328	0	1
def.1: inh_value unexpected	986	13391	0	400000
def.1: inh_value_t unexpected	0.1687	1.3648	0	13.5924
def.1: inh_value expected	7878	160919	0	6000000
def.1: inh_value_t expected	0.6361	2.5970	0	16.3004
def.2: inh_flag unexpected	0.0325	0.1775	0	1

def.2: inh_flag expected	0.0401	0.1964	0	1
def.2: inh_value unexpected	1928	18481	0	400000
def.2: inh_value_t unexpected	0.3572	1.9604	0	13.5924
def.2: inh_value expected	6936	160449	0	6000000
def.2: inh_value_t expected	0.4475	2.2065	0	16.3004

Note: Note: Calculations are based on the ´minimum sample´: N =1445. Household income and net worth contain imputed values. Series one of imputed values is used.

Appendix 3: Detailed regression results for specification 1

Table 13: Full Estimation Results for Specification 1 (Logit-models)

Dependent variable: exit (labor force exit)						
Independent variable	Specification 1.3: ignoring unobserved heterogeneity			Specification 1.4: trying a proxy for unobserved characteristics		
	(1)	(2)	(3)	(4)	(5)	(6)
age56_60	0.382	0.659	0.657	0.307	0.627	0.626
	(0.441)	(0.566)	(0.567)	(0.461)	(0.598)	(0.599)
	[0.095]	[0.163]	[0.150]	[0.076]	[0.154]	[0.143]
age61_65	2.533***	2.789***	2.793***	2.508***	2.841***	2.844***
	(0.446)	(0.572)	(0.573)	(0.465)	(0.605)	(0.605)
	[0.628]	[0.690]	[0.638]	[0.621]	[0.697]	[0.648]
age66_70	4.291***	4.609***	4.599***	4.380***	4.775***	4.759***
	(0.489)	(0.616)	(0.615)	(0.507)	(0.647)	(0.647)
	[1.063]	[1.141]	[1.051]	[1.084]	[1.172]	[1.084]
age70_above	4.510***	4.628***	4.572***	4.607***	4.772***	4.722***
	(0.661)	(0.746)	(0.744)	(0.675)	(0.773)	(0.772)
	[1.118]	[1.146]	[1.044]	[1.140]	[1.171]	[1.076]
female	0.085	0.145	0.145	0.142	0.207	0.204
	(0.129)	(0.137)	(0.137)	(0.130)	(0.139)	(0.139)
	[0.021]	[0.036]	[0.033]	[0.035]	[0.051]	[0.047]
years_school	-0.037**	-0.027	-0.029	-0.028	-0.016	-0.017
	(0.017)	(0.018)	(0.018)	(0.017)	(0.018)	(0.019)
	[-0.009]	[-0.007]	[-0.007]	[-0.007]	[-0.004]	[-0.004]
no_spouse	-0.917***	-0.894***	-0.886***	-0.851***	-0.817***	-0.809***
	(0.247)	(0.260)	(0.262)	(0.253)	(0.268)	(0.269)
	[-0.227]	[-0.221]	[-0.202]	[-0.211]	[-0.200]	[-0.184]
age50_below_	-0.804*	-0.728*	-0.731*	-0.848*	-0.765*	-0.766*
spouse	(0.422)	(0.440)	(0.442)	(0.435)	(0.451)	(0.451)
	[-0.199]	[-0.180]	[-0.167]	[-0.210]	[-0.188]	[-0.175]
age51_55_spouse	-0.597*	-0.488	-0.480	-0.557*	-0.436	-0.431
	(0.312)	(0.331)	(0.332)	(0.315)	(0.334)	(0.336)
	[-0.148]	[-0.121]	[-0.110]	[-0.138]	[-0.107]	[-0.098]
age56_60_spouse	-0.709***	-0.658***	-0.656***	-0.756***	-0.703***	-0.700***
	(0.219)	(0.231)	(0.231)	(0.222)	(0.235)	(0.235)
	[-0.176]	[-0.163]	[-0.150]	[-0.187]	[-0.172]	[-0.159]
age61_65_spouse	-0.404**	-0.334	-0.327	-0.420**	-0.358*	-0.350*
	(0.196)	(0.207)	(0.207)	(0.197)	(0.209)	(0.209)
	[-0.100]	[-0.083]	[-0.075]	[-0.104]	[-0.088]	[-0.080]
hhsize	-0.393***	-0.387***	-0.383***	-0.386***	-0.377***	-0.373***
	(0.112)	(0.120)	(0.121)	(0.121)	(0.131)	(0.132)
	[-0.097]	[-0.096]	[-0.088]	[-0.096]	[-0.093]	[-0.085]
parent_died	-0.321**	-0.378***	-0.368***	-0.330**	-0.386***	-0.365**
	(0.130)	(0.144)	(0.142)	(0.135)	(0.149)	(0.147)
	[-0.079]	[-0.094]	[-0.084]	[-0.082]	[-0.095]	[-0.083]
children	-0.011	0.018	0.040	0.036	0.067	0.088
	(0.212)	(0.222)	(0.222)	(0.220)	(0.232)	(0.232)
	[-0.003]	[0.004]	[0.009]	[0.009]	[0.017]	[0.020]
grandchildren	0.260*	0.282*	0.277*	0.237*	0.244	0.242
	(0.135)	(0.148)	(0.148)	(0.139)	(0.152)	(0.152)

	[0.064]	[0.070]	[0.063]	[0.059]	[0.060]	[0.055]
public	0.387***	0.378***	0.378***	0.382***	0.380***	0.381***
	(0.133)	(0.143)	(0.144)	(0.135)	(0.146)	(0.146)
	[0.096]	[0.094]	[0.086]	[0.095]	[0.093]	[0.087]
self_emp	-0.926***	-0.874***	-0.886***	-0.937***	-0.860***	-0.871***
	(0.228)	(0.241)	(0.242)	(0.229)	(0.242)	(0.242)
	[-0.230]	[-0.216]	[-0.202]	[-0.232]	[-0.211]	[-0.199]
job_not_satisfied	0.436*	0.312	0.325			
	(0.248)	(0.264)	(0.265)			
	[0.108]	[0.077]	[0.074]			
pension_no	0.161	0.213	0.226	0.141	0.222	0.235
	(0.208)	(0.230)	(0.230)	(0.213)	(0.236)	(0.236)
	[0.040]	[0.053]	[0.052]	[0.035]	[0.054]	[0.054]
pension_early	0.587***	0.710***	0.710***	0.479**	0.598***	0.597***
	(0.205)	(0.217)	(0.216)	(0.208)	(0.217)	(0.218)
	[0.145]	[0.176]	[0.162]	[0.118]	[0.147]	[0.136]
health_poor	-0.713	-0.549	-0.550	-0.843	-0.576	-0.568
	(0.632)	(0.633)	(0.635)	(0.624)	(0.603)	(0.606)
	[-0.177]	[-0.136]	[-0.126]	[-0.209]	[-0.141]	[-0.130]
health_improved	-0.480	-0.368	-0.325	-0.652	-0.627	-0.574
	(0.476)	(0.509)	(0.505)	(0.485)	(0.515)	(0.509)
	[-0.119]	[-0.091]	[-0.074]	[-0.161]	[-0.154]	[-0.131]
health_worsened	0.741**	0.847**	0.833**	0.724**	0.790**	0.777**
	(0.369)	(0.396)	(0.391)	(0.367)	(0.388)	(0.387)
	[0.184]	[0.210]	[0.190]	[0.179]	[0.194]	[0.177]
hh_income_t	3.541***	3.381***	3.804***	3.294***	3.245***	3.645***
	(1.183)	(1.154)	(1.178)	(1.190)	(1.167)	(1.187)
	[0.877]	[0.837]	[0.869]	[0.815]	[0.796]	[0.831]
hh_income_t^2	-0.160***	-0.155***	-0.172***	-0.149***	-0.149***	-0.165***
	(0.052)	(0.052)	(0.052)	(0.052)	(0.052)	(0.053)
	[-0.040]	[-0.038]	[-0.039]	[-0.037]	[-0.037]	[-0.038]
hh_wealth	0.022	0.018	0.018	0.017	0.013	0.013
	(0.016)	(0.016)	(0.016)	(0.017)	(0.016)	(0.016)
	[0.006]	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]
reduce_benefits	-0.005**	-0.004*	-0.004*	-0.005**	-0.004*	-0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]
raise_retage	-0.006***	-0.005**	-0.005**	-0.006***	-0.006***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	[-0.001]	[-0.001]	[-0.001]	[-0.002]	[-0.001]	[-0.001]
live_75	0.001	0.001	0.001	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
belgium	-1.214***	-1.261***	-1.261***	-1.128***	-1.176***	-1.173***
	(0.372)	(0.393)	(0.396)	(0.379)	(0.404)	(0.407)
	[-0.301]	[-0.312]	[-0.288]	[-0.279]	[-0.288]	[-0.267]
denmark	-3.347***	-3.449***	-3.445***	-3.292***	-3.397***	-3.389***
	(0.425)	(0.447)	(0.449)	(0.432)	(0.456)	(0.458)
	[-0.829]	[-0.854]	[-0.787]	[-0.814]	[-0.834]	[-0.772]
france	-1.014***	-1.054***	-1.045***	-1.129***	-1.194***	-1.184***
	(0.371)	(0.392)	(0.395)	(0.379)	(0.404)	(0.407)
	[-0.251]	[-0.261]	[-0.239]	[-0.279]	[-0.293]	[-0.270]
germany	-1.720***	-1.647***	-1.659***	-1.798***	-1.717***	-1.730***
	(0.394)	(0.414)	(0.416)	(0.407)	(0.431)	(0.433)
	[-0.426]	[-0.408]	[-0.379]	[-0.445]	[-0.421]	[-0.394]
italy	-1.194***	-1.261***	-1.266***	-1.308***	-1.389***	-1.390***

	(0.406)	(0.421)	(0.424)	(0.415)	(0.434)	(0.437)
	[-0.296]	[-0.312]	[-0.289]	[-0.324]	[-0.341]	[-0.317]
netherlands	-2.311***	-2.302***	-2.299***	-2.157***	-2.141***	-2.134***
	(0.391)	(0.411)	(0.413)	(0.400)	(0.423)	(0.426)
	[-0.573]	[-0.570]	[-0.525]	[-0.534]	[-0.525]	[-0.486]
spain	-2.185***	-2.169***	-2.164***	-2.340***	-2.339***	-2.324***
	(0.430)	(0.448)	(0.452)	(0.438)	(0.459)	(0.462)
	[-0.541]	[-0.537]	[-0.494]	[-0.579]	[-0.574]	[-0.530]
sweden	-3.564***	-3.841***	-3.812***	-3.456***	-3.751***	-3.710***
	(0.649)	(0.701)	(0.695)	(0.646)	(0.699)	(0.694)
	[-0.883]	[-0.951]	[-0.871]	[-0.855]	[-0.921]	[-0.846]
switzerland	-2.807***	-2.784***	-2.772***	-2.819***	-2.775***	-2.751***
	(0.416)	(0.441)	(0.441)	(0.425)	(0.454)	(0.454)
	[-0.695]	[-0.689]	[-0.633]	[-0.698]	[-0.681]	[-0.627]
inh_flag	0.278*			0.308**		
	(0.150)			(0.155)		
	[0.069]			[0.076]		
inh_value_t		0.034*			0.041**	
		(0.020)			(0.020)	
		[0.008]			[0.010]	
inh_value_			0.338**			0.346**
hhincome_t			(0.171)			(0.174)
			[0.077]			[0.079]
want_retire				0.814***	0.870***	0.860***
				(0.129)	(0.139)	(0.139)
				[0.201]	[0.213]	[0.196]
_cons	18.21***	17.60***	20.15***	-17.24**	17.36***	19.79***
	(6.765)	(6.507)	(6.659)	(6.792)	(6.565)	(6.696)
Log likelihood	-916.39	-801.12	-800.70	-895.27	-779.38	-779.52
Pseudo R^2	0.3592	0.3543	0.3543	0.3722	0.3697	0.3693
% correctly predicted	79.54	79.12	79.28	79.57	79.61	79.60
Number of observations	2072	1796	1795	2066	1790	1789
Mean of dependent variable	0.4614	0.4655	0.4657	0.4618	0.4659	0.4662

Note: Coefficient estimates from a logit model are reported with standard errors in parentheses. Marginal effects (evaluated at the sample means) are shown in brackets. Marginal effects for factor levels are the discrete change from the base level. Household income and net wealth include imputed values, which are based on series one. inh_flag measures inheritances received between wave one and wave four (2005-2011), whereas inh_value_t and inh_value_hhincome_t only include inheritances received between wave one and wave two (2005-2007). * Significance at 10 % level, ** at 5% level, *** at 1 % level.

Table 14: Full Estimation Results for Specification 1 **(Probit-models)**

Dependent variable: retire						
Independent variable	Specification 1.1: ignoring unobserved heterogeneity			Specification 1.2: trying a proxy for unobserved characteristics		
	(1)	(2)	(3)	(4)	(5)	(6)
age56_60	0.296	0.386	0.383	0.255	0.369	0.367
	(0.262)	(0.318)	(0.318)	(0.266)	(0.327)	(0.327)
	[0.115]	[0.154]	[0.149]	[0.099]	[0.147]	[0.143]
age61_65	1.616***	1.698***	1.699***	1.607***	1.731***	1.732***
	(0.264)	(0.316)	(0.317)	(0.267)	(0.325)	(0.325)
	[0.627]	[0.677]	[0.662]	[0.622]	[0.690]	[0.676]
age66_70	2.596***	2.688***	2.684***	2.648***	2.782***	2.777***
	(0.284)	(0.336)	(0.336)	(0.286)	(0.344)	(0.344)
	[1.008]	[1.071]	[1.047]	[1.026]	[1.110]	[1.084]
age70_above	2.919***	2.945***	2.908***	2.965***	3.012***	2.979***
	(0.369)	(0.408)	(0.406)	(0.373)	(0.416)	(0.415)
	[1.133]	[1.174]	[1.134]	[1.149]	[1.201]	[1.162]
female	-0.124*	-0.105	-0.104	-0.096	-0.074	-0.074
	(0.073)	(0.078)	(0.078)	(0.074)	(0.079)	(0.079)
	[-0.048]	[-0.042]	[-0.041]	[-0.037]	[-0.029]	[-0.029]
years_school	-0.013	-0.008	-0.009	-0.007	-0.001	-0.002
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)
	[-0.005]	[-0.003]	[-0.003]	[-0.003]	[-0.000]	[-0.001]
no_spouse	-0.393***	-0.371**	-0.367**	-0.352**	-0.323**	-0.320**
	(0.138)	(0.146)	(0.146)	(0.140)	(0.149)	(0.149)
	[-0.153]	[-0.148]	[-0.143]	[-0.136]	[-0.129]	[-0.125]
age50_below_spouse	-0.475**	-0.442*	-0.442*	-0.510**	-0.473*	-0.474*
	(0.239)	(0.254)	(0.254)	(0.241)	(0.254)	(0.254)
	[-0.184]	[-0.176]	[-0.173]	[-0.197]	[-0.189]	[-0.185]
age51_55_spouse	-0.401**	-0.318*	-0.312	-0.389**	-0.297	-0.293
	(0.178)	(0.190)	(0.190)	(0.179)	(0.191)	(0.191)
	[-0.156]	[-0.127]	[-0.122]	[-0.151]	[-0.118]	[-0.114]
age56_60_spouse	-0.368***	-0.343***	-0.343***	-0.393***	-0.364***	-0.364***
	(0.122)	(0.128)	(0.128)	(0.123)	(0.130)	(0.130)
	[-0.143]	[-0.137]	[-0.134]	[-0.152]	[-0.145]	[-0.142]
age61_65_spouse	-0.145	-0.103	-0.100	-0.157	-0.117	-0.114
	(0.110)	(0.116)	(0.116)	(0.110)	(0.116)	(0.116)
	[-0.056]	[-0.041]	[-0.039]	[-0.061]	[-0.047]	[-0.044]
hhsize	-0.186***	-0.178**	-0.177**	-0.181***	-0.172**	-0.170**
	(0.065)	(0.070)	(0.070)	(0.068)	(0.073)	(0.074)
	[-0.072]	[-0.071]	[-0.069]	[-0.070]	[-0.069]	[-0.066]
parent_died	-0.148*	-0.165**	-0.164**	-0.147*	-0.163*	-0.155*
	(0.076)	(0.084)	(0.083)	(0.078)	(0.086)	(0.085)
	[-0.057]	[-0.066]	[-0.064]	[-0.057]	[-0.065]	[-0.061]
children	-0.050	-0.025	-0.014	-0.026	-0.004	0.008
	(0.127)	(0.133)	(0.134)	(0.129)	(0.137)	(0.137)
	[-0.020]	[-0.010]	[-0.005]	[-0.010]	[-0.001]	[0.003]
grandchildren	0.127	0.126	0.124	0.111	0.103	0.102
	(0.078)	(0.085)	(0.085)	(0.080)	(0.087)	(0.087)
	[0.049]	[0.050]	[0.048]	[0.043]	[0.041]	[0.040]
public	0.242***	0.230***	0.229***	0.248***	0.241***	0.241***
	(0.077)	(0.083)	(0.083)	(0.078)	(0.083)	(0.084)
	[0.094]	[0.092]	[0.089]	[0.096]	[0.096]	[0.094]

self_emp	-0.589***	-0.576***	-0.581***	-0.585***	-0.556***	-0.562***
	(0.121)	(0.128)	(0.128)	(0.122)	(0.130)	(0.130)
	[-0.229]	[-0.229]	[-0.227]	[-0.227]	[-0.222]	[-0.219]
job_not_satisfied	0.217	0.166	0.170			
	(0.136)	(0.145)	(0.145)			
	[0.084]	[0.066]	[0.066]			
pension_no	0.020	0.033	0.042	0.007	0.042	0.051
	(0.113)	(0.123)	(0.124)	(0.116)	(0.126)	(0.126)
	[0.008]	[0.013]	[0.016]	[0.003]	[0.017]	[0.020]
pension_early	0.368***	0.462***	0.464***	0.309**	0.405***	0.406***
	(0.119)	(0.126)	(0.126)	(0.120)	(0.127)	(0.127)
	[0.143]	[0.184]	[0.181]	[0.120]	[0.161]	[0.158]
health_poor	-0.230	-0.105	-0.107	-0.300	-0.124	-0.123
	(0.383)	(0.423)	(0.425)	(0.378)	(0.401)	(0.403)
	[-0.089]	[-0.042]	[-0.042]	[-0.116]	[-0.049]	[-0.048]
health_improved	-0.059	0.026	0.045	-0.163	-0.129	-0.106
	(0.278)	(0.302)	(0.300)	(0.279)	(0.300)	(0.298)
	[-0.023]	[0.011]	[0.017]	[-0.063]	[-0.052]	[-0.041]
health_worsened	0.436**	0.493**	0.485**	0.428**	0.466**	0.459**
	(0.214)	(0.229)	(0.228)	(0.210)	(0.224)	(0.223)
	[0.169]	[0.196]	[0.189]	[0.166]	[0.186]	[0.179]
hh_income_t	1.936***	1.814***	2.047***	1.808***	1.754***	1.977***
	(0.662)	(0.669)	(0.691)	(0.669)	(0.676)	(0.696)
	[0.751]	[0.723]	[0.798]	[0.700]	[0.700]	[0.772]
hh_income_t^2	-0.087***	-0.083***	-0.092***	-0.081***	-0.080***	-0.089***
	(0.029)	(0.030)	(0.030)	(0.029)	(0.030)	(0.031)
	[-0.034]	[-0.033]	[-0.036]	[-0.031]	[-0.032]	[-0.035]
hh_wealth_t	0.012	0.011	0.011	0.009	0.007	0.007
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
	[0.005]	[0.004]	[0.004]	[0.003]	[0.003]	[0.003]
reduce_benefits	-0.003***	-0.003**	-0.003**	-0.003***	-0.003**	-0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]
raise_retage	-0.003***	-0.003**	-0.003***	-0.004***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]	[-0.001]
live_75	0.001	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
belgium	-0.763***	-0.787***	-0.789***	-0.716***	-0.737***	-0.738***
	(0.203)	(0.212)	(0.213)	(0.206)	(0.216)	(0.217)
	[-0.296]	[-0.314]	[-0.308]	[-0.277]	[-0.294]	[-0.288]
denmark	-1.988***	-2.037***	-2.039***	-1.954***	-2.005***	-2.005***
	(0.233)	(0.242)	(0.243)	(0.236)	(0.246)	(0.247)
	[-0.772]	[-0.812]	[-0.795]	[-0.757]	[-0.800]	[-0.782]
france	-0.577***	-0.574***	-0.571***	-0.631***	-0.639***	-0.635***
	(0.205)	(0.214)	(0.215)	(0.208)	(0.219)	(0.220)
	[-0.224]	[-0.229]	[-0.223]	[-0.245]	[-0.255]	[-0.248]
germany	-1.148***	-1.076***	-1.081***	-1.197***	-1.119***	-1.125***
	(0.214)	(0.221)	(0.222)	(0.218)	(0.227)	(0.228)
	[-0.446]	[-0.429]	[-0.422]	[-0.464]	[-0.447]	[-0.439]
italy	-0.799***	-0.807***	-0.810***	-0.855***	-0.870***	-0.872***
	(0.223)	(0.228)	(0.229)	(0.226)	(0.232)	(0.233)
	[-0.310]	[-0.322]	[-0.316]	[-0.331]	[-0.347]	[-0.340]
netherlands	-1.446***	-1.442***	-1.442***	-1.366***	-1.359***	-1.358***
	(0.215)	(0.223)	(0.223)	(0.219)	(0.228)	(0.229)

	[-0.561]	[-0.575]	[-0.562]	[-0.529]	[-0.542]	[-0.530]
spain	-1.542***	-1.535***	-1.536***	-1.626***	-1.626***	-1.623***
	(0.243)	(0.249)	(0.251)	(0.245)	(0.253)	(0.254)
	[-0.599]	[-0.612]	[-0.599]	[-0.630]	[-0.649]	[-0.633]
sweden	-1.954***	-2.055***	-2.049***	-1.889***	-2.006***	-1.994***
	(0.370)	(0.394)	(0.391)	(0.367)	(0.392)	(0.389)
	[-0.759]	[-0.819]	[-0.799]	[-0.732]	[-0.800]	[-0.778]
switzerland	-1.770***	-1.768***	-1.767***	-1.770***	-1.757***	-1.750***
	(0.231)	(0.242)	(0.242)	(0.236)	(0.249)	(0.248)
	[-0.687]	[-0.705]	[-0.689]	[-0.686]	[-0.701]	[-0.683]
inh_flag	0.153*			0.163*		
	(0.087)			(0.089)		
	[0.060]			[0.063]		
inh_value_t		0.016			0.020*	
		(0.012)			(0.012)	
		[0.006]			[0.008]	
inh_value_			0.190*			0.192*
hhincome_t			(0.101)			(0.102)
			[0.074]			[0.075]
want_retire				0.458***	0.495***	0.491***
				(0.074)	(0.080)	(0.080)
				[0.178]	[0.198]	[0.191]
_cons	10.23***	-9.70**	11.09***	-9.78**	-9.673**	11.01***
	(3.799)	(3.802)	(3.942)	(3.840)	(3.847)	(3.972)
Log likelihood	-908.21	-794.46	-793.77	-887.54	-773.06	-772.81
Pseudo R^2	0.3682	0.3627	0.3630	0.3808	0.3779	0.3778
% correctly predicted	79.86	79.60	79.92	80.37	79.98	79.91
Number of observations	2100	1819	1818	2094	1813	1812
Mean of dependent variable	0.4343	0.4376	0.4378	0.4346	0.4379	0.4382

Note: Coefficient estimates from a probit model are reported with standard errors in parentheses. Marginal effects (evaluated at the sample means) are shown in brackets. Marginal effects for factor levels are the discrete change from the base level. Household income and net wealth include imputed values, which are based on series one. inh_flag measures inheritances received between wave one and wave four (2005-2011), whereas inh_value_t and inh_value_hhincome_t only include inheritances received between wave one and wave two (2005-2007). * Significance at 10 % level, ** at 5% level, *** at 1 % level.

Table 15: The effect of inheritance receipt on retirement and labor force exit for different series of imputed values of household income and household net wealth

	Dependent variable: retire				Dependent variable: exit			
	Logit-models		Probit-models		Logit-models		Probit-models	
Specification	1.1	1.2	1.1	1.2	1.3	1.4	1.3	1.4
Using series 1 of hh_income and hh_wealth:								
inh_flag	*	**	*	*	*	**	*	*
inh_value_t	not	**	not	*	*	**	not	*
(inh_value /hh_income)_t	*	*	*	*	**	**	*	*
Using series 2 of hh_income and hh_wealth:								
inh_flag	*	*	not	*	*	*	not	*
inh_value_t	not	*	not	not	not	*	not	*
(inh_value /hh_income)_t	not	not	not	not	not	not	not	not
Using series 3 of hh_income and hh_wealth:								
inh_flag	*	**	*	*	*	*	*	*
inh_value_t	not	**	not	*	*	**	not	*
(inh_value /hh_income)_t	**	**	*	*	**	**	**	*
Using series 4 of hh_income and hh_wealth:								
inh_flag	*	*	*	*	*	*	*	*
inh_value_t	not	*	not	not	not	*	not	*
(inh_value /hh_income)_t	not	not	not	not	not	not	not	not
Using series 5 of hh_income and hh_wealth:								
inh_flag	*	**	*	*	*	**	*	*
inh_value_t	not	**	not	*	*	**	not	*
(inh_value /hh_income)_t	**	**	**	**	**	**	**	**

Note: p-values for the test that coefficient estimates are equal to zero (null-hypothesis) are reported: * p<0.1; ** p<0.05; not p>0.1. All models include controls for gender, age, years of schooling, marital status, age of spouse/partner, household size, children, grandchildren, death of a parent, health, jobs satisfaction, sector employment, pension entitlements, household income, household wealth, life expectancy, expectations about future pension reforms and countries. Specification 1.2 and 1.4 further include want_retire as proxy for unobserved characteristics. inh_flag measures inheritances received between wave one and wave four (2005-2011), whereas inh_value_t and inh_value_hhincome_t only include inheritances received between wave one and wave two (2005-2007). Estimates are based on the ´maximum sample´.

Appendix 4: All results for various estimates of specification 2

Table 16: The effect of expected and unexpected inheritance receipt on retiring earlier than previously planned for different series of imputed values of household income and household net wealth

Inheritance measure	Dependent variable: retire_early									
	Using series 1 of hh_income and hh_wealth:		**Using series 2 of hh_income and hh_wealth:**		**Using series 3 of hh_income and hh_wealth:**		**Using series 4 of hh_income and hh_wealth:**		**Using series 5 of hh_income and hh_wealth:**	
	Logit-model	Probit-model	Logit-model	Probit-model	Logit-model	Probit-model	Logit-model	Probit-model	Logit-model	Probit-model
inh_flag	**	**	**	**	**	**	**	**	**	**
inh_value_t	**	**	**	**	**	**	**	**	**	**
(inh_value /hh_income)_t	**	*	not	not	**	**	not	not	**	*
def.1: inh_flag unexpected	not	not	not	not	not	not	not	not	not	not
def.1:inh_flag expected	*	*	*	*	*	*	*	*	*	*
def.1: inh_value_t unexpected	not	not	not	not	not	not	not	not	not	not
def.1: inh_value_t expected	*	*	*	*	*	*	**	*	*	*
def.2: inh_flag unexpected	*	*	*	*	*	*	*	*	*	*
def.2:inh_flag expected	not	not	not	not	not	not	not	not	not	not
def.2: inh_value_t unexpected	**	*	**	*	**	*	**	*	**	*
def.2: inh_value_t expected	not	not	not	not	not	not	not	not	not	not

Note: p-values for the test that coefficient estimates are equal to zero (null-hypothesis) are reported: * $p<0.1$; ** $p<0.05$; not $p>0.1$. All models include controls for gender, age, years of schooling, marital status, age of spouse/partner, household size, children, grandchildren, death of a parent, health, jobs satisfaction, sector employment, pension entitlements, household income, household wealth, life expectancy, expectations about future pension reforms and countries. Only inheritances received between wave one and wave two (2005-2007) are considered. Estimates are based on the minimum sample: N = 1445.Def. 1: inheritances are considered as unexpected if and only if the self-reported chance of receiving an inheritance (at wave one) within the next 10 years is zero. Def. 2: inheritances are considered as unexpected if and only if the self-reported chance of receiving an inheritance (at wave one) within the next 10 years is smaller or equal to 50.

Appendix 5: Abstract and Curriculum vitae

Abstract English

The aim of this paper is to study how wealth affects retirement behavior. The study is based on data from the 2004-2012 Survey of Health Ageing and Retirement (SHARE) focusing on 10 European countries. Inheritances are used as an exogenous change in wealth to estimate the causal effect of wealth / inheritance receipt on retirement. I apply Binary choice models for a sample of persons working at 2004/05 to estimate the effect of inheritance receipt during 2005-2011 on the probability of retirement in 2011/12. By comparing data on expected retirement age at the beginning of the sample period with actual retirement age I am able to control for unobserved factors that might be correlated with wealth and affect retirement decisions. The main findings are: i) Inheritance receipt is quite common for individuals nearing retirement age (50+). About 20 % of the sample with age 50 and older lives in households receiving an inheritance between 2005 and 2011. ii) Inheritance receipt significantly increases the probability of retirement and the effect increases with the size of the inheritance. iii) In contrast to what life-cycle theory suggests I don´t find any evidence that expected and unexpected inheritances affect adjustments of planned retirement age differently. These results are important for assessing the effect of policies that induce changes in wealth, such as pension reforms, tax reforms or reforms of Social Security, on retirement behavior.

Abstract German

Diese Arbeit untersucht die kausale Wirkung von Vermögen auf die Pensionsentscheidung. Die Untersuchung basiert auf Daten der Survey of Health Ageing and Retirement in Europe (SHARE), bezieht sich auf einen Zeitraum von 2004 bis 2012 und konzentriert sich auf zehn europäische Länder. Erbschaften werden als exogene Veränderung von Vermögen verwendet, um die kausale Wirkung von Vermögen / Erbschaften auf die Pensionsentscheidung zu schätzen. Ich verwende binäre Entscheidungsmodelle, um den Einfluss von Erbschaften, die zwischen 2005 und 2011 erhalten wurden, auf die Pensionswahrscheinlichkeit im Jahr 2011/12 zu schätzen. Die Stichprobe beschränkt sich auf Personen die im Jahr 2004/05 beschäftigt waren. Durch den Vergleich des erwarteten Pensionsantrittsalters am Beginn des Untersuchungszeitraums mit dem tatsächlichen Pensionsantrittsalter, ist es möglich unbeobachtete Einflüsse, die mit Vermögen korrelieren und Auswirkungen auf die Pensionsentscheidung haben, zu berücksichtigen. Die wichtigsten Ergebnisse sind: i) Individuen die sich dem Pensionsantrittsalter nähern (50+) erhalten häufig Erbschaften. Ungefähr 20 % der Stichprobe mit einem Alter über 50 Jahren lebt in Haushalten die zwischen 2005 und 2011 eine Erbschaft erhielten. ii) Der Erhalt einer Erbschaft erhöht die Wahrscheinlichkeit in Pension zu sein und steigt mit der Höhe der Erbschaft. iii) Entgegen den Voraussagen des Lebenszyklusmodells unterscheiden sich erwartete und unerwartete Erbschaften nicht in Ihrer Wirkung auf Veränderungen des geplanten Pensionsantrittsalters. Diese Ergebnisse sind deshalb wichtig, weil dadurch die Wirkung von vermögensverändernden Politikmaßnahmen auf das Pensionsantrittsalter besser abgeschätzt werden kann. Zu solchen Politikmaßnahmen zählen z.B. Pensionsreformen, Steuerreformen oder Reformen des Sozialversicherungssystems.

Curriculum Vitae

personal information

first name:	Andreas
surname:	Eder

education

Feb.-July 2010	Rijksuniversiteit Groningen, ERASMUS
March 2011	Bakk. rer. soc. oec., University of Vienna (excellent success)
2011- 2014	Magisterstudium Volkswirtschaftslehre, University of Vienna

teaching experience

Oct. 2009 – Jan. 2010	Tutorial in Microeconomics

personal skills

mother tongue:	German
other languages:	English (fluent)
	French (Maturaniveau)
software:	operating system: Windows
	MS Office
	E-Views
	R
	Stata