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Age Anchors and the Individual Retirement Age

An Experimental Study

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Age anchors and the individual retirement age: an experimental study

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Abstract

This study examines the sensitivity of the retirement age decision to standard retirement ages in pension overviews (age anchors) with a self-constructed survey. Individuals retire later when they are confronted with a higher age anchor. Specifically, their retirement age corresponds to the age of the anchor. The effect of the age anchor on the retirement age is strongest for women. Interestingly, different socioeconomic subgroups of women are all sensitive to age anchors. The study also assesses the relevance of financial literacy, advice from pension funds and social interactions in explaining the sensitivity to age anchors. Financial literacy does not seem to play a role, while the role of advice from pension funds and the role of social interactions are limited. This suggests that age anchors may have a distinct effect on the retirement age.

1. Introduction[1]

Countries around the world are adjusting pension schemes to ensure fiscal sustainability. Concerns about the sustainability of current retirement arrangements are a consequence of aging of the population and the financial crisis. For individuals, this could mean that income from public retirement provisions will be a smaller share of their total retirement income in the future (OECD, 2013). Individuals are expected to take more responsibility for their own pensions and are increasingly exposed to risks of financial markets. This is especially true for the part of the income in addition to the public pensions. The question is whether individuals are able to cope with this responsibility and these risks.

Concerns have been raised that individuals save too little for retirement. For instance, Bernheim et al. (2001) attribute empirical wealth and consumption profiles to explanations consistent with "'rule of thumb', 'mental accounting' or hyperbolic discounting theories of wealth accumulation." For complex financial decisions, such as whether and with what amount to annuitize retirement wealth, this is even more the case. Benartzi et al. (2011) show that retirees in the US are under annuitized

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and therefore exposed to longevity risk. Consequently, individuals are at risk to have insufficient resources to meet their expenditure goals during retirement.

Individual decision-making is fraught with bounded rationality. Individuals have time-inconsistent preferences (e.g. hyperbolic discounting), they are sensitive to defaults or reference points and are sensitive to framing, among other things. In the pension domain such behavioral phenomena may be even more important as the results of many decisions related to pensions and retirement are only visible in the future. This paper studies the relevance of standard pension ages on pension overviews for the retirement age decision (i.e. the age to exit the labor market and enjoy retirement benefits). Different 'frames' of the same pension overview allow a study into this relevance.

To what extent are individuals susceptible to the framing of standard ages in a pension overview? Anecdotal evidence suggests that people have clear cut plans how they will spend their increased leisure time in retirement. This could make the retirement age less sensitive to framing than decisions related to complex financial decisions on, e.g., retirement savings. Besides framing, this study takes it as a given that the retirement age depends on constraints on individual decision-making, such as the amount of retirement savings or health status.

This paper examines the role of 'age anchors' or standard ages in a fictive flexible pension scheme for the retirement age. The flexibility of the fictive pension scheme means that individuals can choose their own retirement age. Earlier retirement comes at a price, in the form of a cut in the benefits over the remainder of the life-time, while later retirement means a higher level of benefits over the remainder of the life-time. The pension overview contains the level of benefits at a specific retirement age. Such a central age is called an 'age anchor' in this study. Respondents are randomized in different groups, each exposed to a different standard age in a pension scheme or different 'age anchor'. Earlier and later retirement is with respect to this reference age. But this is done in such a way that all respondents have the same benefit levels at the same retirement ages, so the only difference between the groups is the way in which the pension scheme is presented.

This study focuses on when to exit the labor market and enter retirement. Brown et al. (2013) is similar to our work but their work focuses on the claiming decision. Of course, these decisions are closely related but the claiming decision can be construed more as a financial decision, while the retirement decision is a decision about labor supply. In addition, this study also adds to the literature with the examination of the relevance of social interactions and advice from the pension fund for the role of age anchors in explaining the retirement age decision. The novel contribution of this paper is to estimate the sensitivity of the retirement age to framing and to examine possible underlying causes: financial literacy, the role of (implicit) advice and social interactions or social norms. Financially literate individuals plan and save more for retirement (Lusardi et al., 2007; Van Rooij et al., 2011). If they are more likely to plan for retirement, it stands to reason they have a thought-out idea of a suitable retirement age. Consequently, they may be less susceptible to framing. An 'age anchor' can be considered as implicit advice of the pension fund for a suitable age for retirement. A standard age on a pension overview may also give an idea about the expected retirement age of other individuals or it might even give information about the existence of a social norm.

This study finds that higher age anchors lead to a higher retirement age. The effect of the age anchors on the retirement age is stronger for women than for men. Interestingly, the effect does not seem to differ among socioeconomic subgroups, such as lower-educated and higher-educated women or single and married or cohabiting women. Financial literacy does not explain the sensitivity to age anchors in the retirement decision. Advice from pension funds and social interactions play a

limited role in this explanation. This could suggest that the presence of different standard ages on a pension overview has a separate effect on the individual retirement age.

Section 2 reviews the literature. Section 3 discusses the relevant retirement institutions in the Netherlands. Section 4 shows the research setup, while section 5 shows the empirical results. Section 6 concludes.

2. Literature

The timing of retirement is only one of the many decisions in the retirement process. Rational individuals with perfect foresight choose a consumption and leisure path for the remainder of their lifetime and take various constraints (budget, institutional, health, …) into account. Such assumptions are central in structural life-cycle models (e.g. Gustman et al.,1985; 2005; 2006; Rust et al., 1997; French, 2005). Calculation of an optimal consumption and leisure path over the remainder of the life-time implies a retirement age. Consequently, individuals plan their retirement age and how much to put aside in a retirement account to finance their consumption after retirement.

But individuals are sensitive to standard ages in retirement schemes. Retirement rates tend to peak at certain ages (e.g. see Gruber and Wise, 1999). Lumsdaine et al. (1996) looked into American retirement rates at the age of 65 (the Normal Retirement Age in Social Security until 2003) and attribute high retirement rates at this age to "the influence of custom or accepted practice". Pension reforms with an increase of the standard pension age magnify this effect. The reform of Social Security undertaken in 1983 induces different Normal Retirement Ages (NRA's) for different birth cohorts. Consequently, individuals exposed to different NRA's seem to adjust their retirement decision in lock step with the increase of the NRA (Behaghel and Blau, 2012). Mastrobuoni (2009) found a large effect of half a year per year increase in the NRA. Hanel et al. (2012) find similar results for Swiss female workers following a pension reform in Switzerland.

What can explain the large behavioral effects following an increase in the standard pension age? In any case, such large effects are not expected in standard structural life-cycle models with an assumption of complete rationality. Gustman et al. (2006) estimate such a model. With the results from this model and some additional assumptions Euwals et al. (2009) predict an increase of the mean retirement age with two months following an increase in the NRA of two years. Van Erp et al. (2014) consider other explanations and discuss the possible relevance of defaults, reference points and social norms for the retirement age, and conclude that more research into the influence of defaults is needed.

Defaults and reference points may partly explain the sensitivity of the individual retirement age to standard pension ages or anchor ages. Beshears et al. (2009) show that defaults determine contribution rates, participation and choice of investment portfolios in company retirement savings plans in the US. Standard options in retirement decisions are also relevant for the Netherlands (Teppa et al., 2011). In addition, the evaluation of an appropriate retirement age may lead individuals to start thinking about their retirement age starting from a reference point (Tversky et al.,1991). An age anchor in a pension scheme may form such a reference point. But retirement behavior of other individuals or social norms could also bring about a reference point. Beshears et al. (2009) name transaction costs, procrastination because of a lack of financial literacy, procrastination

because of preferences for the present and default as an endorsement for certain outcomes as likely reasons for susceptibility for the default option in retirement savings decisions.[2] This paper focuses on the relationship of age anchors with regard to financial literacy, (implicit) advice and social interactions.

This paper examines the relevance of financial literacy for the retirement age. Financial literacy plays a prominent role in retirement decision-making. Individuals with higher financial literacy have more (retirement) wealth (Rooij et al., 2012) and plan more for retirement (Alessie et al., 2011; Lusardi et al., 2011). Individuals who arduously plan for retirement, can also be expected to have a clear retirement age in mind and thus to be less susceptible to framing. Indeed, Brown et al. (2013) find a negative association between financial literacy and the susceptibility to framing. This literature in general also finds that men are more financially literate than women and that, in particular, women more often indicate that they do not know the answer to the questions measuring financial literacy.

People may perceive a default as an endorsement. For instance, Benartzi (2001) shows that individuals may direct additional discretionary employee retirement contributions to company stock (i.e. stocks of the firm where the employee works) in the case that the employer's contributions to the employee's retirement plan are automatically directed to company stock. With regard to the retirement age, Dominitz et al. (2007) include advice in two of their frames ('it would be to your advantage to delay your retirement'). They find that these frames increase the probability to delay claiming compared to the other frames. Somewhat related is Druckman (2001) who even claims that providing individuals with credible advice can overcome framing effects, and Kooreman (2000) who finds that parents spend a considerable amount of child benefits on clothing for children and calls this 'the labeling effect of child benefits'. The last study could imply that a name such as '*Normal* Retirement age' in a flexible retirement scheme can be considered as an endorsement to retire at this age.

An age anchor may lead retirement behavior to concentrate at a certain age as individuals anticipate that this age is the retirement age of others. In this sense an age anchor constitutes a 'focal point' for the retirement age of others (see also Brown, 2006). Vermeer et al. (2014) show the relevance of social interactions in the retirement age decision and find a possible role for social norms. They show that individuals are open to retirement advice from their social environment and are willing to postpone retirement if the social environment retires later. In the aftermath of announcing a Dutch pension reform that raised the statutory retirement age De Grip et al. (2013) also found that the expected retirement age shifted upwards. This would lead to the hypothesis that an age anchor set at a statutory or perhaps norm age may elicit a larger effect than a more 'arbitrary' age anchor. The reason for this is that for an age anchor at institutional ages the perception may exist that it is more 'credible', i.e., individuals are more likely to expect others will also retire at that age.

[2] Choi et al. (2011) find that transaction costs matter less than financial literacy and procrastination in the decision how much to contribute in a retirement savings plan.

3. Retirement institutions in the Netherlands

The first pillar in the Dutch retirement schemes is the state pension. This pillar (AOW) ensures a basic income for Dutch residents. Age and whether one lives in the Netherlands determine eligibility.[3] The number of years one has lived in the Netherlands determines the level of the benefits, which is therefore not related to the amount of contributions paid. This pillar is funded through Pay-as-you-go.

To ensure sustainability of this pillar, the statutory retirement scheme has increased. Since the inception of the AOW in 1956 until 2013, the statutory retirement age was 65 years of age. In recent years a discussion centered on the question how to ensure sustainability of the pension scheme to cope with aging of the population. In 2011 the government and the social partners agreed on an increase in the statutory retirement age: in 2020 the statutory retirement age would amount 66 years of age, followed by a further increase in 2025 to 67 years of age. This did not settle the debate as in April 2012 it was decided to start increasing the statutory retirement age in 2013 and attain 67 in 2023.[4] This statutory retirement age is important as flexible take-up around this age is not possible.

The other main component, the second pillar, of the retirement scheme in the Netherlands consists of the mandatory fully funded occupational pension savings. The retirement schemes of companies or economic sector can be either Defined Contribution (DC) or Defined Benefit (DB). The contributions are directly linked to earnings over the whole career, and determine the level of the retirement benefits. Individuals are not able to choose the pension fund or insurer or the amount of the contributions. Employment in a particular sector or with a specific employer determines which pension fund or insurer the individual is enrolled in. The retirement benefits are taxed, whereas the contributions are not.

Finally, there are individual retirement plans in the third pillar. Individuals can choose participation and specific details, such as the level of their contributions. To the extent that tax advantages are not used in the second pillar, these advantages can be accessed in this pillar. This is especially relevant for the self-employed who do not build up an occupational pension.

4. Research design and data

To elicit the effects of framing with regard to the retirement age respondents answered a survey about the preference for a certain retirement age. The respondents are members of the CentERpanel, who regularly answer questions about income, wealth and other financial matters, as part of the DNB Household Survey (DHS). Consequently, many background characteristics of the respondents are known. The CentERpanel is representative for the Dutch population and it is an internet-based survey.[5] The questionnaire for this study was fielded between 11 and 16 May 2012. At this time increases in the statutory retirement age were contemplated and communicated to the

[3] For instance, individuals living in the Netherlands and working abroad do not accrue first pillar pension rights.

[4] With the start of the new coalition government later that year (Rutte-Asscher, Autumn 2012) the statutory retirement age of 67 was announced to be reached in 2021.

[5] Households without an internet connection are provided with an easy-to-use computer and internet connection to ensure the sample is representative.

public (see section 3). 2,840 individuals were asked to participate and 1,845 in fact did participate. In the following, the focus is on future retirement behavior. This means that individuals older than 65 years of age and those that are (early) retired are excluded. This leads to a sample of 1,175 individuals. The descriptive statistics are weighted with regard to age, gender, education and individual yearly income to obtain a representative view of individual retirement behavior.

The survey exposed the respondents to a fictive retirement scheme. Respondents were asked to imagine the situation that the whole pension scheme would be made flexible. For every year they work longer they obtain 7% higher benefits, while every year of earlier retirement means 7% lower benefits. It is emphasized that the level of the benefits is for the remainder of their lifetime. The pension scheme also explains at one retirement age what the level of benefits is in terms of a replacement ratio. This retirement age functions as an 'anchor' as it sets the level of benefits at one specific age. This age anchor in the scheme was randomized among the respondents. One group of respondents received the anchor at 65 years and a replacement ratio of 65%, the next group had the anchor at 67 years of age and a replacement ratio of 79%, while the last group had the anchor at 68 years of age and a replacement ratio of 86%. This replacement ratio was defined as a percentage of average gross income. Appendix A lists the exact question.

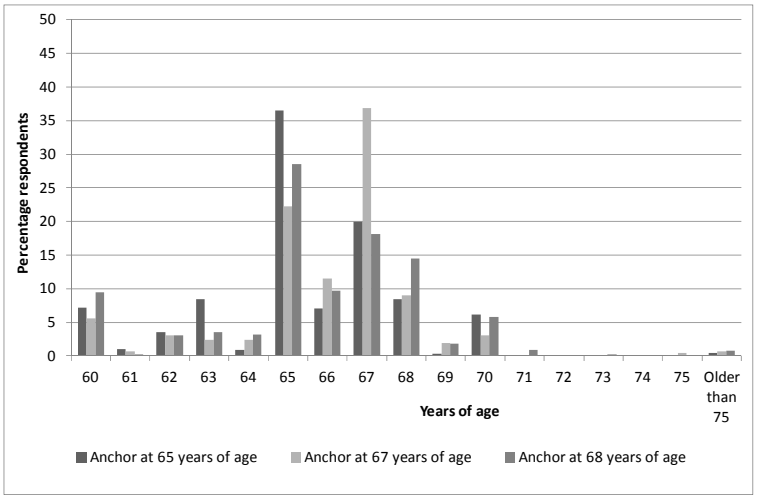
The questions are constructed such that retirement preferences should not be influenced if individuals are not sensitive to framing. The flexible nature of the pension scheme with differences of 7% implies that all possible retirement ages have the same replacement ratio, irrespective of the received age anchor. For instance, retirement at 67 years of age entails the same replacement ratio of 79% regardless of the age anchor. This implies that the age anchor should not influence the preferences of a completely rational individual. In addition, all age anchor variations employ the same answer scale in the question. In this way issues with the scale and the ordering of the answers are avoided.[6]

Respondents seem susceptible to the age anchor. Figure 1 shows the correspondence of the age anchor with the retirement age. When the age anchor is placed at 65 years of age, 37% of the respondents decide to retire at this age. But only 22% or 29% of the individuals retire at this age if they are exposed to one of the other two anchors. This leads to a difference of 8 to 15 percentage points. If the age anchor is present at the age of 67, then 37% of the respondents decide to retire at this age. But with another age anchor 18 to 20% retire at this age, leading to a difference of 17 to 19 percentage points. These differences indicate that age anchors matter for the retirement decision.

Interestingly, the anchor at 68 years of age seems to have a somewhat smaller effect. 14% of the respondents indicate to retire at 68 years of age with this anchor. Retirement at this age amounts around 8% if the age anchor is set at 65 or 67 years of age. The difference at 67 years of age is almost three times larger than this difference of 6 percentage points. This might be related to the notion that 65 and 67 are more salient retirement ages both in the past retirement scheme and in plans for the future Dutch retirement scheme.

Figure 1 Respondents are sensitive to age anchor, especially at the age of 65 and 67 years of age

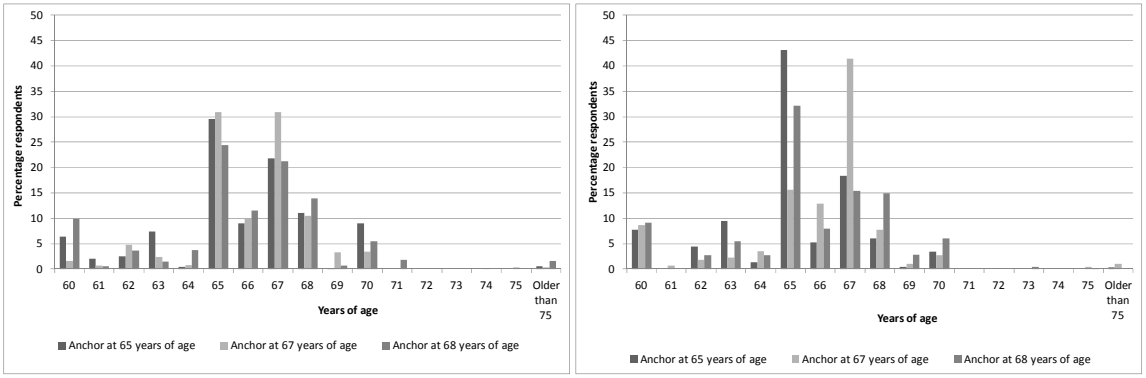
[6] For instance, Keren (2012) finds the relevance of the ordering of answer categories in surveys.



Distribution of the answers to the question: "At what age do you think you will retire?" Sample restricted to non-retired and less than 65 years of age and weighted with regard to age, gender, education and individual yearly income. *N = 1,175*

Another interesting fact is that the age anchors seem to have a larger effect on the retirement age of women than on the retirement age of men. Figure 2 shows that 43% of the female respondents will retire at 65 years of age when the age anchor is at that age but this amounts to only 15% or 32% when the age anchor is at 67 or 68, respectively. This leads to a difference between 11 and 28 percentage points. This difference is smaller for men as it amounts around 5 percentage points at most. The difference at 67 years of age between having an age anchor at that age and not also varies with gender: at least 25 percentage points for women and around 10 percentage points for men. The difference at the age of 68 years of age is smaller: almost 10 percentage points and 5 percentage points for women and men, respectively.

Figure 2: Framing effects are larger for female (right) than for male (left) respondents



Distribution of the answers to the question: "At what age do you think you will retire?" Sample restricted to non-retired and less than 65 years of age and weighted with regard to age, gender, education and individual yearly income. *N = 593* for the male sample and *N = 582* for the female sample

Information about the retirement age and its sensitivity to age anchors is first related to the financial literacy of the respondents. The financial literacy of the respondents was measured with five questions. Three of these questions are benchmark questions from the financial literacy literature (see for instance Lusardi and Mitchell, 2011). The five questions measure knowledge about 'compound interest', 'inflation', 'stock risk', 'debt' and 'stocks versus bonds'. The questions and descriptive statistics are listed in Appendix B. The descriptive statistics show that individuals find the three questions related to 'stocks' and 'debt' more difficult than the two questions about 'compound interest' and 'inflation'. The percentage of respondents that answer correctly varies from 40.1% (question about 'debt') to 89.8% (question about 'compound interest'). Furthermore, women answer the questions less often correctly and they more often indicate that they 'do not know' the answer. This last finding is in line with the literature about financial literacy (e.g. Lusardi and Mitchell, 2011).

Second, the sensitivity of the retirement age to the various age anchors is related to the role of advice from the pension fund or the financial advisor. The survey included two questions about the expected likelihood and importance of advice from different people or institutions. One of those institutions was the 'pension fund / financial advisor'. Appendix C shows the wording of the questions and the descriptive statistics for the likelihood and the importance of advice given by the pension fund or financial advisor. [7] 35% of the respondents indicate they expect to receive advice and attach a (very) large weight to it. These results do not vary substantially with gender.

Thirdly, we take the retirement behavior of the social environment into account in studying the sensitivity to age anchors in retirement schemes. The respondents were given a fictive retirement scheme. After this they were given a situation of a fictive person. They were then asked how they would react to a change in the retirement age of the social environment given the initial retirement age of the fictive person. Each respondent answered four such questions. From question to question the retirement age of the social environment and the initial retirement age of the fictive person were different. Some question elements were also randomized *within* respondent: the composition of the social environment (friends and family or colleagues), the gender of the name of the fictive person and the reason why the social environment increased their retirement age. Appendix D lists the wording of the questions and shows the descriptive statistics of the index of the social interactions in detail. This index counts the number of occasions where respondents choose to exactly follow the retirement age of their social environment. As there are four vignette questions, the minimum of the index is zero and the maximum is four. Around 40% of the respondents never follow the retirement age of the social environment exactly, while approximately 10% of the respondents follow the retirement age of the social environment all four times. The number of times respondents follow the retirement age of the social environment does not vary with gender. Vermeer et al. (2014) describe the influence of social interactions on the retirement age in much larger detail.

[7] Vermeer et al. (2014) discusses the role of advice in the individual retirement decision much more thoroughly.

5. Results

This section examines the sensitivity of respondents to the age anchor displayed centrally in the question. In addition, this section examines which respondents are particularly sensitive to the age anchor and looks at various explanations for the sensitivity to the age anchor. As section 2 argues there are different explanations for this sensitivity: financial literacy, advice and social interactions or possibly social norms could all play a role in the importance of framing and in this particular case the age anchor.

5.1 Sensitivity to age anchors

Does a higher age anchor lead to later retirement? To this end the effect on the age anchor on the individual retirement is studied in the following way. First, the answer categories to the questions are taken together in six categories (in years of age): 'Before 65', '65', '66', '67', '68', 'after 68'. Figure 1 shows that answers lower (larger) than 65 (68) are less prevalent and that respondents focus more on these answers than on other answers. Equation (1) describes the effect of the different age anchors on the individual retirement age:

$$R^*_{framing,i} = \alpha D67_i + \beta D68_i + X_i{}'\kappa + \varepsilon_i$$

(1)

$$R_{framing,i} = k \; if \; d_{k-1} < R^*_{framing,i} \leq d_k$$

$$with \; 1 \leq k \leq 6, d_0 = -\infty \; and \; d_6 = \infty$$

The individual retirement age ($R_{framing,i}$) depends on the age anchors $D67_i$ and $D68_i$ and individual background characteristics X_i (e.g. education, income, age, ...). Note that this implies that the baseline respondent has an age anchor at 65 years of age. The error term ε_i is assumed to be standard normally distributed and thus equation (1) describes an ordered probit model. The latent variable equation is also directly estimated with the observed retirement age answer $R_{framing,i}$ (ranging from 60 to 76) as a cardinal dependent variable in a linear model. More specifically, the following equation is estimated with OLS:

$$R_{framing,i} = \alpha_{linear} D67_i + \beta_{linear} D68_i + X_i{}'\kappa_{linear} + \varepsilon_{i,linear}$$

A higher age anchor relates to a higher retirement age. Table 1 shows that the anchor at 67 years leads to a higher retirement age than the age anchor at 65.[8] An anchor at 67 years of age also has a larger effect on the retirement age than an anchor at 68 years of age, but this difference is insignificant. These findings hold both for the estimations with a cardinal and an ordinal dependent variable. The estimations with the cardinal dependent variable point to an increase in the retirement age of almost half a year when the age anchor is 67 instead of 65 years of age. The fact that 67 years of age plays a central role in the new pension reforms may make this age anchor much more plausible. Consequently, this age anchor may elicit a larger effect on the individual retirement age compared to the age anchor of 68 years of age. The magnitude of the coefficient of the age anchor

[8] We find similar results for respondents that are retired and those that are above 65 years of age.

at 67 years of age (α) corresponds to a marginal effect of an increase of around 9 percentage points in the probability of retirement beyond 65 years of age. Table 1 also shows that the effects do not vary much with age, but they vary much more with gender: the age anchors affect the retirement age of the female respondents more. For women the magnitude of the effect of both age anchors on the retirement age amounts to an increase of around 14 percentage points in the probability to retire later than at 65 years of age.

Table 1: Estimates for the effect of the age anchors at 67 and 68 years of age (α and β in eq(1)) at the individual retirement age

	Cardinal dependent variable		Ordinal dependent variable					
	Whole sample	Whole sample	Whole sample	Whole sample	Age below 45 years of age	Age 45 and above	Male	Female
Anchor 67 years of age (α)	0.393**	0.481***	0.212***	0.256***	0.289**	0.222**	0.145	0.385***
	(0.181)	(0.178)	(0.075)	(0.076)	(0.127)	(0.095)	(0.107)	(0.109)
Anchor 68 years of age (β)	0.211	0.193	0.141*	0.143*	0.238*	0.082	-0.059	0.336***
	(0.183)	(0.179)	(0.076)	(0.076)	(0.129)	(0.095)	(0.107)	(0.112)
Controls	no	yes	no	Yes	yes	yes	yes	yes
Number of Observations	1175	1160	1175	1160	422	738	587	573

Cardinal dependent variable: answer to the question "at what age do you think you will retire?" Ordinal dependent variable: answer to the question "At what age do you think you will retire?"(in the six answer categories, ranging from 'before 65' to 'after 68'). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Baseline respondent has the age anchor at 65 years of age. Controls: gender, income, homeowner, age, region and education. Gender is omitted in the male and female sample, while age is omitted in the 'age below/above 45 years of age' sample. Estimation with sample restricted to the non-retired and under the age of 65 years. The models with the dependent variable as a cardinal variable are estimated with OLS. The models with the dependent variable as an ordinal variable are estimated with Maximum Likelihood. See Table E.1 in appendix E for full list of results.

But is a certain group of women more sensitive to the framing of the age anchor than other groups of women? For different subsamples equation (1) is re-estimated. Marital status can have an effect on the retirement age as complementarities in leisure may arise and such complementarities may lead to couples to have a strong preference to retire jointly. Consequently, the situation may arise that one person of the couple simply follows the other person's retirement age. This would lead to the hypothesis that married or cohabiting women may be more sensitive to framing than non-cohabiting women as they may be less knowledgeable about retirement decisions. This may also work the other way around. Married or cohabiting women may have a more clear idea about an appropriate retirement age. This could be based on the planned retirement age of the spouse. Table 2 shows these explanations do not play a role. The age anchors at 67 and 68 years of age affect the retirement age of both groups in the same way as this effect of the anchoring on the retirement age does not significantly differ.

Differences in education, earnings and age may also affect sensitivity to age anchors. The higher educated and those with more (gross individual) earnings may be less prone to framing. The same

holds for older women as it is more likely they thought about retirement more. Table 2 shows that such differences do not matter in the sensitivity for age anchors. If anything, higher educated women may be more susceptible, although the difference in the effect of the age anchor on retirement age between higher and lower educated women is not statistically significant.

Table 2: The effect of age anchors on the retirement age of female respondents broken down in different groups based on background characteristics

	Female respondents							
	Non-Cohabiting	Married or cohabiting	Lower earning	Higher earning	Lower educated	Higher educated	Age below 45 years of age	Age 45 and above
Anchor 67 years of age (α)	0.425*	0.288**	0.313*	0.413***	0.323*	0.411***	0.388**	0.385***
	(0.233)	(0.129)	(0.166)	(0.147)	(0.170)	(0.144)	(0.170)	(0.145)
Anchor 68 years of age (β)	0.583**	0.196	0.275	0.369**	0.223	0.414***	0.372**	0.324**
	(0.245)	(0.132)	(0.168)	(0.152)	(0.172)	(0.150)	(0.185)	(0.142)
Controls	yes	yes	yes	yes	yes	yes	yes	yes
Number of Observations	136	408	270	305	253	320	230	343
p-value LR-test	0.7392		0.4374		0.7898		0.4411	

Dependent variable: answer to the question "At what age do you think you will retire?"(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Baseline respondent has the age anchor at 65 years of age. Controls: gender, income, homeowner, age, region and education, where appropriate. 'Non-cohabiting' and 'cohabiting' takes cohabiting or non-cohabiting household heads from the data to attain a fair comparison. In this way, children living at home for example are omitted. 'Lower earning' and 'higher earning' contrasts women with individual gross earnings less and more than 1500 Euros per month. 'Higher educated' consists of those who completed at most tertiary education (hbo or wo) or upper secondary education (havo or vwo). 'Lower' educated attained at most primary school, lower secondary education (vmbo) or vocational tertiary education (mbo). 'p-value LR-test' shows the p-value of the LR-test in which two models are compared. The first model estimates equation (1) for the women. The other model adds interaction terms with every variable from the previous model and the variable that distinguishes the subsamples (such as earnings and education). Additionally, the interaction terms between such variables and the age anchor dummies are small and statistically insignificant for every subsample. See Table E.2 in appendix E for full list of results.

Another interesting issue is the change in the probability to retire at a specific age induced by a change in the age anchor. Figure 1 showed that an age anchor induces more retirement at the particular age the age anchor targets. New binary dependent variables $R^*_{spec,i}$ are introduced, taking the value one if the individual retires at the specific age *spec*, and zero otherwise. Different age anchors can change the probability to retire at each specific age $(spec)$. Equation (2) shows this more formally.

(2)
$$R^*_{spec,i} = \alpha_{spec} D67_i + \beta_{spec} D68_i + X_i{}' \kappa_{spec} + \varepsilon_i$$

$$R_{spec,i} = 1 \; if \; R^*_{spec,i} > 0$$

$$spec \in \{< 65, 65, 66, 67, 68, > 68\}$$

In contrast to equation (1) the coefficients (α_{spec} and β_{spec}) now denote the propensity to retire at a specific age. The error term ε_i is again assumed to be standard normally distributed. Equation (2) is a probit model and is separately estimated for each specific age.

The age anchor effect concentrates predominantly on the age on which it is targeted. Table 2 shows that the age anchor mainly influences the probability to answer the same age as the age anchor. There are no significant effects in the whole sample at other ages (i.e. <65, 66, >68). An age anchor at 67 years diminishes the probability with around 13 percentage points to retire at 65 years of age and increases the probability to retire at 67 years of age relative to an age anchor at 65 years with the same amount. Putting the age anchor at 68 years of age increases the probability of retirement at 68 years of age with 18 percentage points and decreases the probability of retirement at 65 years of age relative to an age anchor at 65 years with 9 percentage points. Interestingly, this anchor also decreases the probability of retirement at 67 years of age relative to the anchor at 65 years of age (with an amount of 8 percentage points). A similar effect for retirement at 68 years of age with an age anchor set at 67 years of age is not observed.

Table 3: The effect of the age anchors on the probability to retire at a specific age for the whole sample and the male and female subsample

	Retirement at … $(spec)$ years of age					
	<65	**65**	**66**	**67**	**68**	**>68**
Whole sample						
Anchor 67 years of age	-0.107	-0.348***	0.113	0.342***	-0.108	0.256*
(α_{spec})	(0.108)	(0.095)	(0.122)	(0.099)	(0.144)	(0.144)
Anchor 68 years of age	0.061	-0.249***	0.155	-0.228**	0.449***	0.192
(β_{spec})	(0.106)	(0.095)	(0.122)	(0.108)	(0.127)	(0.147)
Male sample						
Anchor 67 years of age	-0.156	-0.077	0.089	0.224	-0.244	0.069
(α_{spec})	(0.160)	(0.133)	(0.167)	(0.143)	(0.197)	(0.184)
Anchor 68 years of age	0.154	-0.178	0.195	-0.172	0.277	-0.190
(β_{spec})	(0.152)	(0.135)	(0.165)	(0.152)	(0.172)	(0.198)
Female sample						
Anchor 67 years of age	-0.065	-0.656***	0.152	0.445***	0.068	0.631**
(α_{spec})	(0.148)	(0.139)	(0.182)	(0.140)	(0.218)	(0.256)
Anchor 68 years of age	-0.014	-0.341**	0.122	-0.283*	0.649***	0.732***
(β_{spec})	(0.150)	(0.136)	(0.186)	(0.158)	(0.198)	(0.256)

Dependent variable is a dummy indicating retirement at the age in the column under consideration. Suppose a respondent indicates to retire at 66 years of age. Then the dummy for retirement at 66 years of age equals one (the case for the column '66', while the dummies for retirement at other ages (and thus columns) equal zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls are included: gender (only in whole sample), income, homeowner, age, region of the Netherlands and education. Baseline respondent has the age anchor at 65 years of age. Probit model of equation (2) is estimated with Maximum Likelihood. See table E.3 in appendix E for a full list of results.

The effects of framing on the retirement age are stronger for women than for men. Table 2 shows the absence of significant effects of the age anchors on the specific retirement age for male respondents. This is in line with the estimations found earlier in Table 1. Women are around 17 (25) percentage points more likely to retire at 67 (68) years of age if that age corresponds to the anchor age. Also notable is the increased tendency to retire later than 68 years of age when the age anchor amounts to 67 or 68 years of age.

The retirement age appears to be sensitive to the presence of age anchors. In addition, the effect of different age anchors on the individual retirement age differs between female and male respondents. In the following, the sensitivity to the age anchor in relation to financial literacy and the importance of advice from the pension fund or financial advisor is examined, as well as the possible role of social interactions in the explanation of this sensitivity.

5.2 The role of financial literacy

A possible explanation for the difference between men and women in the sensitivity of the retirement age to age anchors relates to differences in financial literacy. Financial illiteracy is also more pronounced for women than for men (see Section 2). Lower financial literacy may explain why people would retire at the age corresponding to the age anchor.

To measure financial literacy, an index is constructed based upon five standard financial literacy questions. As discussed before, appendix B lists the questions with the distribution of the answers and elaborates on the construction of the index to measure financial literacy. In short, the index is constructed with a principal factor analysis. The index is increasing in the number of the correct answers and also accounts for 'Do not know' answers. The last distinction could be important as women tend to answer 'Do not know' more often than men do.

Financial literacy is not the leading explanation for understanding the effect of age anchors on the individual retirement age. Table 4 shows the model estimates with the addition of the financial literacy index and interaction terms between the financial literacy index and the age anchors to equation (1). The two interaction terms are jointly insignificant. This result also holds when the sample is split between men and women. An explanation could be that the question on the retirement age is not as difficult as questions on complex financial decisions.

Table 4: Estimation results for the effect of financial literacy and the age anchor on the individual retirement age

	Whole sample		Male		Female	
Anchor 67 years of age (α)	0.253***	0.254***	0.136	0.147	0.385***	0.396***
	(0.076)	(0.076)	(0.107)	(0.115)	(0.109)	(0.111)
Anchor 68 years of age (β)	0.147*	0.147*	-0.057	-0.003	0.339***	0.360***
	(0.076)	(0.076)	(0.107)	(0.112)	(0.112)	(0.115)
fin. lit. index	0.063*	0.120*	0.116*	0.242**	0.056	0.002
	(0.038)	(0.066)	(0.065)	(0.109)	(0.047)	(0.088)
Age anchor 67 years of age * fin. lit. index	-	-0.051	-	-0.074	-	0.056
		(0.089)		(0.163)		(0.114)
Age anchor 68 years of age * fin. lit. index	-	-0.102	-	-0.255*	-	0.091
		(0.086)		(0.140)		(0.115)
log likelihood	-1900	-1899	-962.8	-961.1	-925.0	-924.7
p-value LR-test	0.4852		0.1680		0.7294	
Observations	1160		587		573	

Dependent variable: answer to the question "At what age do you think you will retire?"(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age,

region and education. Gender is omitted in the male and female sample. Sample restricted to the non-retired and under the age of 65 years. Baseline respondent has the age anchor at 65 years of age. The financial literacy index is increasing in the number of correct answers. Estimation results obtained with re-estimation of the ordered probit model of equation (1) with either the inclusion of the financial literacy index or with the inclusion of the financial literacy index and the interaction between this index and the age anchor dummies. The p-value of the Likelihood Ratio-test shows the p-value that tests the joint significance of the two interaction terms. See Table E.4 in appendix E for full list of results.

5.3 The role of advice from the pension fund

The respondents could take the age anchor as (implicit) advice from the pension fund for a reasonable retirement age. Consequently, they would consider retirement at or near the age anchor a suitable retirement age. The more value an individual attaches to advice from the pension fund the more sensitive an individual could be to age anchors. This means that the individuals who attach the largest value to advice from the pension fund are also most likely to follow the provided age anchor. The respondents indicated whether they expect to receive advice from different persons in the social environment and what value they attach to it. This also included advice from a pension fund or financial advisor.

Advice from pension funds plays a limited role in the sensitivity of individuals to the age anchor. Table 5 shows the estimation results of equation (1) with the addition of a dummy for 'a lot of value attached to advice from the pension fund' and two interaction terms between this dummy and the age anchors at 67 and 68 years of age. It shows that for the whole sample and the sample restricted to women these interaction terms are jointly significant. Notable is that the effect of the age anchor of 67 does not change when the interaction terms are included, while the coefficient for the effect of the age anchor at 68 years of age changes. Individuals who attach a lot of value to the advice from pension funds are more sensitive to the age anchor at 68. This relevance of the interaction between the age anchor at 68 and a lot of value for advice is more pronounced for women.

Table 5: Study into the role of advice of the pension fund or financial advisor

	Whole sample		Male		Female	
Anchor 67 years of age (α)	0.236***	0.280***	0.107	0.123	0.383***	0.466***
	(0.077)	(0.096)	(0.109)	(0.135)	(0.111)	(0.137)
Anchor 68 years of age (β)	0.145*	0.016	-0.071	-0.104	0.354***	0.126
	(0.078)	(0.096)	(0.110)	(0.133)	(0.114)	(0.140)
A lot of value attached to advice	0.060	-0.030	0.033	0.012	0.085	-0.073
	(0.066)	(0.121)	(0.094)	(0.169)	(0.094)	(0.176)
Anchor 67 * A lot of value attached to advice	-	-0.091	-	-0.036	-	-0.144
		(0.163)		(0.231)		(0.233)
Anchor 68 * A lot of value attached to advice	-	0.371**	-	0.100	-	0.644***
		(0.166)		(0.233)		(0.242)
log likelihood	-1837	-1832	-930.4	-930.2	-893.0	-886.2
p-value LR-test	0.0091		0.8260		0.0012	
Observations	1119		567		552	

Dependent variable: answer to the question "At what age do you think you will retire?"(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age, region and education. Gender is omitted in the male and female sample. Sample restricted to the non-retired and under the age of 65 years. Baseline respondent has an age anchor at the age of 65 years of age and expects to receive no advice from the pension fund or

financial advisor or attaches none or little value to it. Estimation results obtained with re-estimation of the ordered probit model of equation (1) with either the inclusion of an advice index dummy (=1 if respondent indicates to attach a lot of value to advice from pension fund) or with the inclusion of the advice index and the interaction between this index and the age anchor dummies. The Likelihood Ratio-test tests the joint significance of the two interaction terms. See Table E.5 in appendix E for full list of results.

The role of advice and the sensitivity to the age anchors seems to be directed only on retirement before 65 years of age. Advice and interaction terms between age anchors and advice are added to equation (2). Table 6 shows that an age anchor at 68 years of age and attaching weight to advice from the pension fund lead to a smaller probability for retirement at 66 years of age. At 65 and 66 years of age the coefficients for the value of advice and the interaction terms are statistically significant. But the coefficients that indicate that the respondent attaches a lot of value to advice and the interaction between the age anchors and a lot of value attached to advice are similar. This implies that an individual with an age anchor at 67 or 68 who attaches little or no value to advice and an individual with the same age anchor who attaches a lot of value to advice still have roughly the same probability for retirement at 65 and 66 years of age. This is not expected as individuals who are more sensitive to advice from the pension fund were expected to be more inclined to take the age of the age anchor as appropriate advice and retire at that age.

Table 6: Study into the role of advice of the pension fund or financial advisor at each specific retirement age

	Retirement at (years of age)					
	Before 65	65	66	67	68	After 68
Whole sample						
Anchor 67 years of age	-0.125	-0.479***	0.356**	0.447***	-0.217	0.169
	(0.139)	(0.121)	(0.161)	(0.124)	(0.186)	(0.178)
Anchor 68 years of age	0.241*	-0.357***	0.327**	-0.194	0.367**	-0.027
	(0.131)	(0.119)	(0.161)	(0.135)	(0.158)	(0.189)
A lot of value attached to advice	0.177	-0.374**	0.534***	0.075	-0.134	-0.142
	(0.165)	(0.152)	(0.187)	(0.163)	(0.229)	(0.251)
Anchor 67 * A lot of value attached to advice	-0.018	0.486**	-0.638**	-0.293	0.301	0.133
	(0.227)	(0.207)	(0.254)	(0.214)	(0.313)	(0.318)
Anchor 68 * A lot of value attached to advice	-0.614***	0.396*	-0.436*	-0.121	0.261	0.557*
	(0.234)	(0.210)	(0.253)	(0.235)	(0.284)	(0.321)
Observations	1119	1119	1119	1119	1119	1119
Log likelihood	-517.9	-670.3	-399.6	-574.9	-319.7	-270.7

Dependent variable is a dummy indicating retirement at the age in the column under consideration. Suppose a respondent indicates to retire at 66 years of age. Then the dummy for retirement at 66 years of age equals one (the case for the column '66', while the dummies for retirement at other ages (and thus columns) equal zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age, region and education. Sample restricted to the non-retired and under the age of 65 years. Baseline respondent has an age anchor at the age of 65 years of age and expects to receive no advice from the pension fund or financial advisor or attaches none or little value to it. Estimation results obtained with re-estimation of the probit model of equation (2) with the inclusion of the advice index dummy (=1 if respondent indicates to attach a lot of value to advice from pension fund) and the interaction between this index and the age anchor dummies. See appendix E for full list of results.

5.4 The role of social interactions

Finally, individuals could be sensitive to framing because they expect that others will also retire at the anchor age: If individuals are indeed sensitive to retirement behavior of the social environment, then individuals can also be sensitive to an anchor in a pension overview on the grounds that they expect others also to retire at this age. Information about the role of social interactions in the retirement decision-making is studied in relation to the sensitivity to framing in a single model.

The variable measuring the importance of social interactions could be endogenous in the equation for the preferred retirement age. The reason for this is that the answers to both the vignette questions measuring the influence of social interactions and the fictive pension overview are in terms of a preferred retirement age. But this concern may be alleviated somewhat by not considering the answer of the question directly (the retirement age in response to a change in the retirement age of the social environment). Instead, an index constructed out of these questions is used. This index simply counts the number of times the respondent retires exactly at the retirement age of the social environment in the vignette questions, as was discussed in Section 4.

The model consists of two equations, one for the number of times the retirement age of the respondent corresponds to the retirement age of the social environment and the other for the retirement age in response to the age anchor question. Equation (3) shows for respondent *i* that the number of times retirement of the respondent and the social environment corresponds with each other (soc_i) depends on vignette (F_i) and background characteristics (X_i). As discussed in section 4, the vignette characteristics only vary among respondents and do not change from vignette question to vignette question.

$$soc_i^* = F_i'\delta + X_i{}'\lambda + \varepsilon_i$$

(3)

$$soc_i = l \; if \; f_{l-1} < soc_i^* \leq f_l$$

$$with \; 0 \leq l \leq 4, f_{-1} = -\infty \; and \; f_4 = \infty$$

Equation (4) below relates the retirement age ($y_{framing,i}$) to the index of the social interactions. In particular, the equation describes how the social interactions index influences the individual retirement age and shows that the influence is allowed to work via the anchor age at 67 or 68 years of age. The coefficient γ describes the direct influence of the index of social interactions on the retirement age (if the age anchor is 65 years of age) directly.

An exclusion restriction is needed to identify equation (4). This is the omission of a direct effect of the vignette characteristics on the retirement age in equation (4). This is very reasonable assumption as the vignette characteristics are randomly assigned and only play a role in the *vignette* questions and not in the age anchor questions.

In principle the index soc_i^* tells us little about the preferred retirement age, but only about the willingness to follow retirement behavior of the social environment. A direct influence of the index on the retirement age cannot be excluded, however. The coefficients α' and β' relate to the interaction between the age anchor and the index of social interactions to the individual retirement age. In the absence of an effect due to the interaction between social interactions and the age anchor both coefficients α' and β' are equal to zero. The other coefficients, aside from the error terms, have the same interpretation as in equation (1).

$$R^*_{framing,i} = \gamma soc^*_i + (\alpha + \alpha' soc^*_i)D67_i + (\beta + \beta' soc^*_i)D68_i + X_i{}'\kappa + \eta_i$$

(4)
$$R_{framing,i} = k \; if \; d_{k-1} < R^*_{framing,i} \leq d_k$$

$$with \; 1 \leq k \leq 6, d_0 = -\infty \; and \; d_6 = \infty$$

In each of the two equations an error terms is present (ε_i and η_i, respectively). These error terms are assumed to be distributed as follows: $\binom{\varepsilon_i}{\eta_i} \sim N(\binom{0}{0}, \begin{pmatrix} 1 & \tau \\ \tau & 1 \end{pmatrix})$. So both error terms are allowed to be correlated, with correlation coefficient τ.

First, equation (4) is estimated under the assumption that the social interaction index is exogenous. Such an estimation is similar how the aforementioned results about the role of financial literacy and advice are obtained and is basically an estimation of equation (1) with the addition of the social interaction index and interactions between that term and the age anchors at 67 and 68 years of age. The first column in Table 7 shows that the social interaction index influences the individual retirement age. Adherence to the retirement age of the social environment implies later retirement in the framing question. The column in the table also shows that the interaction between the social interaction index and the age anchor at 68 years of age is positive and significantly different from zero (at the 5% level).

Second, the complete model with equations (3) and (4) is estimated. The coefficients δ determine the social interaction index (also see appendix F) and thus allow determination of the coefficient γ. In this complete model (column (2), Table 7) the coefficient γ and the correlation coefficient τ are not significantly different from zero (at the 5% level). Column (2) in Table 7 shows the same results for the interaction between the social interaction index and the age anchor at 68 years of age as the coefficient β' is positive and significantly different from zero (at the 5% level) also for this model. It implies that respondents who more often follow the retirement age of the social environment are also more likely to retire later if they are exposed to the age anchor 68 years of age instead of 65 years of age. On the other hand, the coefficient α' is not significant so there is no evidence for a similar effect for the age anchor of 67. Note that the anchor at 67 years of age still elicits later retirement in comparison with an age anchor at 65 years of age as the coefficient α is significantly positive. This would be consistent with the idea that both 65 and 67 are 'standard' retirement ages in the Dutch retirement scheme, while the age of 68 years is not. Interestingly, the lack of an interaction effect of the index of social interactions and the age anchor at 67 years of age and the positive effect of the interaction effect of the index of social interactions and the age anchor at 68 years of age seem to be present for both men and women (column 3 and 4 in Table 7).

Table 7 The role of social interactions

	(1)	(2)	(3)	(4)
	whole sample		male sample	female sample
Anchor at 67 years of age (α)	0.1801*	0.2566***	0.1334	0.4032***
	(0.1068)	(0.0779)	(0.1098)	(0.1194)
Anchor at 68 years of age (β)	-0.0370	0.1870**	-0.0715	0.4457***

	(0.1064)	(0.0897)	(0.1327)	(0.1311)
Γ	0.1480***	0.1299	0.1123	0.3633
	(0.0396)	(0.1860)	(0.2408)	(0.2429)
T	-	0.1177	0.1367	-0.1372
		(0.1778)	(0.2287)	(0.2457)
α'	0.0530	0.0537	-0.0574	0.1578
	(0.0550)	(0.0828)	(0.1158)	(0.1179)
β'	0.1561***	0.2139**	0.2598**	0.2096*
	(0.0558)	(0.0847)	(0.1149)	(0.1251)
Observations	1130	1130	571	559
log likelihood	-1805	-3435	-1733	-1678

Dependent variables: answers to the questions: "At what age do you think you will retire?" and the index that counts how many times the respondent follows retirement behavior of the social environment exactly. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Baseline respondent has an age anchor at the age of 65 years of age. The first column shows the estimates from the ordered probit model from equation (4), where the observed social interaction index *soc* replaces the unobserved variable soc^*. The second column shows the results of the full model (of equation (3) and (4)). The third and fourth columns show the estimation results restricted to men and women, respectively. See appendix table F.1 for full list of results.

6. Discussion

This paper examined the role of standard retirement ages in pension overviews (age anchors) in the individual retirement decision, in particular to the individual retirement age. The main finding is that age anchors are relevant for the individual retirement decision. Individuals appear to be sensitive to the frame of the age anchor. An age anchor at 67 instead of 65 years of age leads to an increase in the probability to retire later than at age 65 of 9 percentage points. This finding contrasts with the study of Brown et al. (2013). They found no effect of an age anchor at 70 years of age versus an age anchor at 66 years of age *(the new Normal Retirement Age)*, although they found an effect of an age anchor at 62 years of age (versus an age anchor at the later ages). This study is not concerned with earlier retirement than the original Dutch statutory retirement age of 65 years or the various common early retirement ages.

The effect of the age anchor on the retirement age is concentrated at the age of the age anchor. So for instance, individuals are more likely to retire at 67 years of age if the age anchor also mentions 67 years of age compared to an age anchor at 65 years of age. With an age anchor at 67 years of age as opposed to an age anchor at 65 years of age the increase in the probability to retire at the age of 67 years of age amounts 13 percentage points.

Women are more sensitive to framing with an age anchor than men are. This study finds that for women an age anchor at 67 years of age leads to an increase in the probability of retirement later than 65 years of age of around 14 percentage points vis-à-vis an age anchor at 65 years of age. Surprisingly, observed heterogeneity among women does not drive these results. For instance, lower educated women are as susceptible to framing as higher educated women. A closer inspection of the probability to retire at a specific age reveals that women are more likely to retire precisely at the anchor age.

Financial literacy is not able to provide an explanation for the sensitivity to age anchors. It is clear that the question about the individual retirement age is not a very financial question. This can be contrasted with the 'framing' of the question in Brown et al. (2013) as they explicitly focus on when

an individual would start 'to claim Social Security benefits'. Our frame is much closer to the question 'when to exit the labor market'. Therefore, it is possible that financial literacy plays a smaller role in explaining the sensitivity to age anchors in this context. Financial literacy also cannot explain the difference between men and women in the sensitivity to age anchors. Financial illiteracy is more widespread among women, but an analysis restricted to women shows no significant interaction between financial literacy and the age anchors.

Attaching value to the advice from pension funds (or financial advisor) seems to play a specific, albeit small, role in the sensitivity to age anchors. Advice does not seem to play a large role in explaining the sensitivity to the age anchor of 67 years of age. The role of advice is more important for 68 years of age. Individuals with an age anchor at 68 years of age who attach a lot of value to advice prefer to retire at a later age than those who do not value or attach little value to advice. This effect seems to be stronger among women. It could also be conjectured that individuals who are open to advice and get this age anchor, are more likely to retire at the age of 68 years of age. For this hypothesis, however, this study finds no support.

The study also finds a specific role for social interactions in explaining the sensitivity to the age anchors of 68 years of age. With a social interaction index this paper examined the sensitivity to age anchors in relation to social interactions. A higher sensitivity to the retirement age of the social environment explains sensitivity to the age anchor of 68 years of age. This remains the case when allowing for potential endogeneity of the social interaction index in the preferred retirement age following the framing question.

The relevance of advice from the pension fund and social interactions for the age anchor of 68 years of age seems to suggest that an age anchor of 68 is different from an age anchor at 65 or 67. In comparison to an age anchor of 65 years of age, an age anchor at 67 means that individuals retire later, perhaps even later than with an age anchor of 68 years of age. Additionally, the age anchor at 68 years of age seems to be connected with attaching value to advice from the pension fund or to the retirement age of the social environment. It could be that this is related to salience of 65 and 67 years of age in the Dutch retirement schemes. The age of 68 years is less salient. Consequently, such an age anchor may elicit more varied responses among individuals. This might also explain why Brown et al. (2013) find no effect for an age anchor of 70 years of age versus an age anchor at 62 or 66 years of age. Ages 62 and 66 are the Early and Normal Retirement Age in Social Security, respectively. They are far more salient than age 70.

More research is needed, especially to understand the difference between men and women, who seem to react quite differently to age anchors. This study explores some mechanisms that could help to explain this difference, such as differences in financial literacy and the role of advice from pension funds. Furthermore, the lack of a differing sensitivity to age anchors among subgroups (e.g. marital status, education) seems to indicate that further research is needed.

Further research could also more explicitly focus on the role of social interactions or advice. Hallsworth et al. (2014) find that individuals pay their taxes sooner if they are reminded that they belong to a minority that pays late. To this end individuals could be randomized into groups in which some receive information about retirement behavior of others. Another approach is to make the function of advice more explicit. In this sense, it would also relate to Dominitz et al. (2007) who, for

example, explicitly state in one of their survey questions 'if you expect to live beyond age ..., then it would be to *your advantage to delay your retirement*' (emphasis mine).

Another avenue for research could be to expose the individuals to a pension reform in which the benefits in the flexible system are lowered in such a way that they have to work one year longer to attain the same level of retirement benefits. The question then becomes whether they want to keep the amount of retirement benefits constant (working one year longer) or keep their planned retirement age the same (and thus enduring a cut in benefits). In other words, do individuals exhibit loss aversion in the level of benefits or in the number of years worked and what exactly forms their reference point in this?

Policymakers should be aware that seemingly neutral statements can influence individual decision-making. People are sensitive to age anchors for their retirement decision. A flexible pension scheme allowing earlier and later retirement must also show the level of benefits at a certain age. This paper suggests that the effect of such an age anchor is larger when people consider it a 'plausible' retirement age. In this sense the display of a statutory retirement age on a pension overview may effect the retirement age the most. Further research is needed, but a name such as '*Normal* or *Full* Retirement Age' may amplify this effect. Policy makers can take such notions in the construction of pension overviews into account.

References

Alessie, R., M. van Rooij and A. Lusardi, 2011, Financial literacy and retirement preparation in the Netherlands, *Journal of Pension Economics and Finance*, 10(4), 527 - 545

Behaghel, L. and D. Blau, 2012, Framing Social Security Reform: Behavioral Responses to Changes in the Full Retirement Age, *American Economic Journal: Economic Policy*, 4(4), 41 - 67

Benartzi, S., 2001, Excessive Extrapolation and the Allocation of 401(k) Accounts to Company Stock, *Journal of Finance*, 56(5), 1747 - 1764

Benartzi, S., A. Previtero and R. Thaler, 2011, Annuitization Puzzles, *The Journal of Economic Perspectives*, 25(4), 143 - 164

Beshears, J., J. Choi, D. Laibson, B. Madrian, 2009, The Importance of Default Options for Retirement Saving Outcomes: Evidence from the United States, In Brown, J., J. Liebman and D. Wise (Eds), *Social Security Policy in a Changing Environment,* 167-195, Chicago: University of Chicago Press

Bernheim, D., J. Skinner and S. Weinberg, 2001, What Accounts for the Variation in Retirement Wealth among U.S. Households?, *The American Economic Review*, 91(4), 832 - 857

Brown, C., 2006, The Role of Conventional Retirement Age in Retirement Decisions, Michigan Retirement Research Center Working Paper 2006 - 120

Brown, J., A. Kapteyn and O. Mitchell, 2013, Framing and Claiming: How Information-framing affects expected Social Security Claiming Behavior, *Journal of Risk and Insurance*, doi: 10.1111/j.1539-6975.2013.12004.x

Choi, J., D. Laibson and B. Madrian, 2011, $100 bills on the sidewalk: suboptimal investment in 401(k) plans, *The Review of Economics and Statistics*, 93(3), 748 - 763

Druckman, J., 2001, Using Credible Advice to Overcome Framing Effects, *The Journal of Law, Economics, & Organization*, 17(1), 62-82

Erp, F. van, N. Vermeer and D. van Vuuren, 2014, Non-financial Determinants of Retirement: A Literature Review, *De Economist*, 162(2), 167 - 191

Euwals, R., R. de Mooij and D. van Vuuren, 2009, Rethinking Retirement, CPB Bijzondere Publicatie 80

French, E., 2005, The effects of health, wealth, and wages on labour supply and retirement behaviour, *Review of Economic Studies*, 72(2), 395-427

Grip, A. de, D. Fouarge and R. Montizaan, 2013, How Sensitive are Individual Retirement Expectations to Raising the Retirement Age, *De Economist*, 161(3), 225 - 251

Gruber, J. and D. Wise, 1999, *Social Security and Retirement around the World*, Chicago: University of Chicago Press

Gustman, A. and Th. Steinmeier, 1985, The 1983 social security reforms and labor supply adjustments of older individuals in the long run, *Journal of Labor Economics*, 3(2), 237-253

Gustman, A. and Th. Steinmeier, 2005, The social security early retirement age in a structural model of retirement and wealth, *Journal of Public Economics*, 89, 441-463

Gustman, A. and Th. Steinmeier, 2006, Social security and retirement dynamics, University of Michigan Retirement Research Center, working paper 2006-121

Hallsworth, M. J. List, R. Metcalfe and I. Vlaev, 2014, The behavioralist as tax collector: using natural field experiments to enhance tax compliance, NBER Working Paper 20007

Hanel, B. and R. Riphahn, 2012, The timing of retirement - New evidence from Swiss female workers, *Labour Economics*, 19(5), 718 - 728

Keren, G., 2012, Framing and communication: the role of frames in theory and in practice, Netspar Panel Paper 32

Kooreman, P., 2000, The Labeling Effect of a Child Benefit System, *American Economic Review*, 90(3), 571 - 583

Lumsdaine, R., J. Stock and D. Wise, 1996, Why are retirement rates so high at age 65? In: D. Wise (ed.), *Advances in the Economics of Aging*, Chicago: University of Chicago Press, 61-82

Lusardi, A. and O. Mitchell, 2007, Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth, *Journal of Monetary Economics*, 54(1), 205 - 224

Lusardi, A. and O. Mitchell, 2011, Financial literacy around the world: an overview, *Journal of Pension Economics and Finance*, 10(4), 497 - 508

Mastrobuoni, G., 2009, Labor supply effects of the recent social security benefit cuts: Empirical estimates using cohort discontinuities, *Journal of Public Economics*, 93(11-12), 1224 - 1233

OECD, 2013, Pensions at a Glance 2013: OECD and G20 Indicators, OECD Publishing, Paris, http://dx.doi.org/10.1787/pension_glance-2013-en

Rooij, M. van, A. Lusardi and R. Alessie, 2011, Financial literacy and retirement planning in the Netherlands, *Journal of Economic Psychology*, 32(4), 593 - 608

Rooij, M. van, A. Lusardi and R. Alessie, 2012, Financial Literacy, Retirement Planning and Household Wealth, *The Economic Journal*, 122(560), 449 - 478

Rust, J. and C. Phelan, 1997, How Social Security and Medicare affect retirement behavior in a world of incomplete markets, *Econometrica*, 65(4), 781-831

Teppa, F. and M. van Rooij, 2012, Are Retirement Decisions Vulnerable to Framing Effects? Empirical Evidence from NL and the US, DNB Working Paper 366

Tversky, A. and D. Kahneman, 1991, Loss aversion in riskless choice: A reference-dependent model, *The Quarterly Journal of Economics*, 106(4), 1039-1061.

Vermeer, N., M. van Rooij and D. van Vuuren, 2014, Social Interactions and the Retirement Age, CPB Discussion Paper 278

Appendix A: Wording of retirement age question

Below we show the variant 65 years of age. In brackets the other two variants are shown.

Imagine yourself the following situation. You have just become 50 [52, 53] years of age and have worked in total 25 years. The entire pension scheme (state pensions and supplementary pensions) is made flexible. This means that you will decide at what age you will receive pension benefits. If you choose to retire later, you will receive more retirement benefits for the remainder of your life. If you choose retire earlier, you will receive less retirement benefits for the remainder of your life.

If you have worked for forty years and retire at 65 [67, 68] years of age, you will receive 65 [79, 86]% of your average gross income. Every year you retire earlier, you will receive 7% less retirement benefits for the remainder of your lifetime. Every year you retire past this age, you will receive 7% more retirement benefits for the remainder of your lifetime.

At what age do you think you will retire?

1 60 years of age

2 61 years of age

3-14 .. years of age

15 74 years of age

16 75 years of age

17 Older than 75 years of age

Appendix B: Financial literacy questions wording and descriptive statistics

Financial Literacy questions (**correct answers bold**):

(Compound interest) Suppose you had 100 Euros in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

1) More than 102 Euros 2) Exactly 102 Euros 3) Less than 102 Euros 4) Do not know 5) Refuse to answer

(Inflation) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

1) More than today 2) Exactly the same **3) Less than today** 4) Do not know 5) Refuse to answer

(Stock risk) Please tell me whether this statement is true or false. 'Buying a single company's stock usually provides a safer return than a stock mutual fund'.

1) True **2) False** 3) Do not know 4) Refuse to answer

(Debt) Suppose you will take out a loan of 3000 Euros with a bank. Each month you pay 30 Euros to the bank. How many years does it take to pay back the debt assuming the interest rate on the loan amounts 12% (1% a month)?

1) Less than 5 years 2) Between 5 and 10 years 3) Between 10 and 15 years **4) Never, the debt will not be repaid** 5) Do not know 6) Refuse to answer

(Stocks versus bonds) Stocks are normally riskier than bonds. True or false?

1) True 2) False 3) Do not know 4) Refuse to answer

Table B.1 shows the distribution of the answers over the respondents. This information is used to construct a financial literacy index with iterated principal factor analysis. To this end dummies, those indicate whether a question is correct and whether a respondent does not know the answer to the question, are generated. Table B.2 shows the factor loadings for the ten dummies.

Table B.1 Descriptive statistics financial literacy questions in percentages of total number

	Compound interest			Inflation			Stock Risk		
	Whole sample	Male	Fe-male	Whole sample	Male	Fe-male	Whole sample	Male	Fe-male
Correct	89.8	92.0	87.5	84.3	88.9	79.6	50.8	64.8	36.6
Incorrect	6.0	5.7	6.5	7.0	6.2	7.9	8.1	5.7	10.6
Do not know	3.7	1.9	5.6	8.2	4.4	12.0	40.2	28.4	52.2
Refusal	0.4	0.4	0.5	0.5	0.5	0.5	0.9	1.1	0.7

	Debt			Stocks versus bonds		
	Whole sample	Male	Fe-male	Whole sample	Male	Fe-male
Correct	40.1	47.4	32.6	54.5	65.3	43.4
Incorrect	48.8	46.9	50.7	10.2	8.3	12.0
Do not know	10.0	4.6	15.4	34.6	25.3	44.0
Refusal	1.2	1.1	1.3	0.8	1.1	0.5

Sample sizes: *N = 1,124* for the whole sample, *N = 558* for the sample restricted to female respondents, *N= 566* for the sample restricted to males

Table B.2 Factor loadings for construction of financial literacy index

Financial literacy questions		Factor loadings
Compound interest	Correct	0.5575
	Do not know	-0.5698
Inflation	Correct	0.6927
	Do not know	-0.6979
Stock risk	Correct	0.4353
	Do not know	-0.0927
Debt	Correct	0.3932
	Do not know	-0.5188
Stock versus bonds	Correct	0.5374
	Do not know	-0.4912

Appendix C: Wording and descriptive of questions about likelihood and importance of advice from the pension fund

The likelihood and the importance of the advice questions were worded as follows:

Your retirement timing is an important decision in the course of your life. Various factors influence this decision. In this part of the survey we want to ask you questions about your retirement decision and the role of your social environment in this.

What persons do you expect to give / gave you advice in deciding when to retire?

	Not at all	Somewhat	Certainly
Spouse			
Children			
Friends			
Family			
Coworkers			
Neighbors			
Financial advisor / pension fund			

In the previous question we asked you what persons (will) advise you. What weight do you attach to the advice of the following persons?
If already retired: What weight did you attach to the advice of the following persons?

	None	A little	Much	Very much
Spouse				
Children				
Friends				
Family				
Coworkers				
Neighbors				
Financial advisor / pension fund				

This paper focuses on the 'financial advisor / pension fund' part of both questions. Furthermore, we restrict our discussion to individuals that are not retired. Table C.1 gives the descriptive statistics of the answer to this question.

Table C.1: Descriptive statistics likelihood and importance advice pension fund / financial advisor in percentages of total number

	What persons do you expect to give you advice in deciding when to retire?		
	Whole sample	Male	Female
Not at all	40.1	38.6	41.5
Somewhat	44.3	44.2	44.4
Certainly	15.7	17.2	14.1
Number of observations	*1,131*	*570*	*561*
	What weight do you attach to the advice of the financial advisor / pension fund		
	Whole sample	Male	Female
None	0.7	0.9	0.6
A little	40.4	43.4	37.2
Much	46.0	42.0	50.3
Very much	12.8	13.7	11.9
Number of observations	*678*	*350*	*328*

Note: The question 'What weight do you attach to the advice of the financial advisor / pension fund' is only asked if the respondent indicates to expect to get 'somewhat' or 'certainly' advice from the pension fund or pension advisor.

Appendix D: Question wording vignettes social interactions and the retirement age

Below the vignette questions for the relation between the retirement age of the social environment and the individual retirement age are shown. Out of the four answers an index is constructed. This index simply counts the number of times that the individual retirement age corresponds to the increased retirement age of the social interaction. Table D.1 shows the descriptive statistics for this index.

Among policy makers there is a lot of discussion about reforming the pension scheme.
In the present plans it will be possible to decide at what age you will receive retirement benefits (both state and occupation benefits). If you worked for forty years and you will retire at the standard retirement age, the retirement benefits will amount 70% of your average gross income. The standard retirement age now amounts 65 years of age. One year earlier retirement means that your retirement benefits will be 7% lower for the rest of your life. One year later retirement means 7% higher retirement benefits for the rest of your life time.

We now would like to ask you questions about a fictive person.

Vignette 1
John / Lisa is not yet eligible for retirement. He / She does think about it from time to time. Given this retirement scheme John / Lisa plans to retire at 65 years of age. The most of his / her co-workers / family and friends retire at 65 years of age. When John / Lisa has turned 60, the most of his / her coworkers / family and friends retire at 66 years of age. This is a consequence of longer and healthier lives of individuals. / This is a consequence of a larger need for experienced employees by employers. / This is a consequence of financial consequences of the economic crisis. / This is a consequence of the raise in the standard retirement age in the pension scheme by one year. If John / Lisa wants to retire at the same age, he / she will receive 7% lower retirement benefits for the rest of his / her life.

What would you do in the situation of John / Lisa?
1 To retire earlier than 65 years of age
2 To retire at 65 years of age
3 To retire at 65.5 years of age
4 To retire at 66 years of age
5 To retire at 66.5 years of age
6 To retire at 67 years of age
7 To retire later than 67 years of age

Vignette 2
Arnold / Marlous is not yet eligible for retirement. He / She does think about it from time to time. Given this retirement scheme Arnold / Marlous plans to retire at 65 years of age. The most of his / her co-workers / family and friends retire at 65 years of age. When Arnold / Marlous has turned 60, the most of his / her coworkers / family and friends retire at 67 years of age. This is a consequence of longer and healthier lives of individuals. / This is a consequence of a larger need for experienced employees by employers. / This is a consequence of financial consequences of the economic crisis. / This is a consequence of the raise in the standard retirement age in the pension scheme by one year. If Arnold / Marlous wants to retire at the same age, he / she will receive 7% lower retirement benefits for the rest of his / her life.

What would you do in the situation of Arnold / Marlous?
1 To retire earlier than 65 years of age
2 To retire at 65 years of age
3 To retire at 65.5 years of age
4 To retire at 66 years of age
5 To retire at 66.5 years of age
6 To retire at 67 years of age
7 To retire later than 67 years of age

Vignette 3

Wim / Els is not yet eligible for retirement. He / She does think about it from time to time. Given this retirement scheme Wim / Els plans to retire at 64 years of age. The most of his / her co-workers / family and friends retire at 65 years of age. When Wim / Els has turned 60, the most of his / her coworkers / family and friends retire at 66 years of age. This is a consequence of longer and healthier lives of individuals. / This is a consequence of a larger need for experienced employees by employers. / This is a consequence of financial consequences of the economic crisis. / This is a consequence of the raise in the standard retirement age in the pension scheme by one year. If Wim / Els wants to retire at the same age, he / she will receive 7% lower retirement benefits for the rest of his / her life.

What would you do in the situation of Wim / Els?
1 To retire earlier than 64 years of age
2 To retire at 64 years of age
3 To retire at 64.5 years of age
4 To retire at 65 years of age
5 To retire at 65.5 years of age
6 To retire at 66 years of age
7 To retire later than 66 years of age

Vignette 4
Frans / Rachel is not yet eligible for retirement. He / She does think about it from time to time. Given this retirement scheme Frans / Rachel plans to retire at 64 years of age. The most of his / her co-workers / family and friends retire at 64 years of age. When Frans / Rachel has turned 60, the most of his / her coworkers / family and friends retire at 65 years of age. This is a consequence of longer and healthier lives of individuals. / This is a consequence of a larger need for experienced employees by employers. / This is a consequence of financial consequences of the economic crisis. / This is a consequence of the raise in the standard retirement age in the pension scheme by one year. If Frans / Rachel wants to retire at the same age, he / she will receive 7% lower retirement benefits for the rest of his / her life.

What would you do in the situation of Frans / Rachel?
1 To retire earlier than 64 years of age
2 To retire at 64 years of age
3 To retire at 64.5 years of age
4 To retire at 65 years of age
5 To retire at 65.5 years of age
6 To retire at 66 years of age
7 To retire later than 66 years of age

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How sure are you of your answers to the previous questions?
1 Very uncertain
2
3
4
5 Very certain

Table D.1: Descriptive statistics index for the number of times the retirement age of the social environment and the individual retirement age coincide

Index values	Whole sample (%)	Male (%)	Female (%)

0	41.24	39.72	42.78
1	22.15	23.52	20.77
2	14.27	15.16	13.38
3	10.68	10.28	11.09
4	11.65	11.32	11.97
Number of observations	1,142	574	568

Appendix E: Tables with full estimation results

This appendix shows the complete tables of the various estimations.

Table E.1: Study into the effect of the age anchor on the stated retirement age (complete table 1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cardinal dependent variable		Ordinal dependent variable					
			Whole sample; effect age anchor only	Whole Sample; effect age anchor and controls	Sample: younger than 45 years of age	Sample: older than 45 years of age	Sample: men only	Sample: women only
Anchor 67 years of age	0.393**	0.481***	0.212***	0.256***	0.289**	0.222**	0.145	0.385***
	(0.181)	(0.178)	(0.075)	(0.076)	(0.127)	(0.095)	(0.107)	(0.109)
Anchor 68 years of age	0.211	0.193	0.141*	0.143*	0.238*	0.082	-0.059	0.336***
	(0.183)	(0.179)	(0.076)	(0.076)	(0.129)	(0.095)	(0.107)	(0.112)
gender respondent	-	-0.341**	-	-0.132**	-0.285***	-0.051	-	-
		(0.146)		(0.062)	(0.105)	(0.078)		
25 - 34 years of age	-	-0.203	-	-0.129	-	-	-0.055	-0.129
		(0.466)		(0.197)			(0.290)	(0.274)
35 - 44 years of age	-	-0.453	-	-0.226	-	-	-0.360	-0.093
		(0.413)		(0.175)			(0.258)	(0.242)
45 - 54 years of age	-	-0.825**	-	-0.484***	-	-	-0.717***	-0.275
		(0.405)		(0.172)			(0.252)	(0.239)
55 - 64 years of age	-	-0.536	-	-0.348**	-	-	-0.500**	-0.200
		(0.402)		(0.170)			(0.251)	(0.236)
vmbo	-	0.062	-	0.013	-0.011	-0.163	-0.159	0.213
		(0.440)		(0.187)	(0.302)	(0.231)	(0.271)	(0.261)
mbo+havo/vwo	-	0.324	-	0.115	0.251	-0.149	-0.083	0.348
		(0.432)		(0.183)	(0.279)	(0.230)	(0.267)	(0.256)
hbo+wo	-	0.795*	-	0.327*	0.419	0.117	0.266	0.466*
		(0.435)		(0.184)	(0.278)	(0.229)	(0.269)	(0.258)
Family income between	-	0.520	-	0.182	0.186	0.123	0.031	0.271

1151 and 1800 Euro		(0.347)		(0.148)	(0.257)	(0.182)	(0.239)	(0.191)
Family income between 1801 and 2600 Euro	-	0.334	-	0.119	0.263	0.013	0.009	0.189
		(0.329)		(0.140)	(0.244)	(0.173)	(0.225)	(0.183)
Family income more than 2600 Euro	-	0.184	-	0.050	0.086	0.007	-0.095	0.132
		(0.321)		(0.137)	(0.240)	(0.167)	(0.221)	(0.176)
Rental home	-	0.399**	-	0.197**	0.478***	0.062	0.219*	0.213*
		(0.192)		(0.081)	(0.139)	(0.102)	(0.118)	(0.115)
Region North	-	-0.144	-	-0.106	-0.321**	0.005	-0.130	-0.080
		(0.228)		(0.097)	(0.154)	(0.126)	(0.136)	(0.139)
Region East	-	-0.054	-	-0.063	-0.286**	0.020	-0.032	-0.079
		(0.192)		(0.081)	(0.131)	(0.104)	(0.115)	(0.116)
Region South	-	-0.732***	-	-0.274***	-0.475***	-0.202**	-0.291**	-0.259**
		(0.192)		(0.082)	(0.146)	(0.101)	(0.115)	(0.119)
Constant	65.480***	65.579***	-	-	-	-	-	-
	(0.131)	(0.588)						
d1	-	-	-0.794***	-0.990***	-0.729**	-0.852***	-1.542***	-0.327
			(0.061)	(0.252)	(0.363)	(0.290)	(0.358)	(0.356)
d2	-	-	0.093	-0.070	0.160	0.089	-0.574	0.557
			(0.057)	(0.251)	(0.362)	(0.289)	(0.356)	(0.357)
d3	-	-	0.395***	0.243	0.351	0.478*	-0.220	0.835**
			(0.058)	(0.252)	(0.362)	(0.290)	(0.356)	(0.358)
d4	-	-	1.102***	0.972***	1.217***	1.129***	0.455	1.638***
			(0.064)	(0.253)	(0.364)	(0.292)	(0.356)	(0.360)
d5	-	-	1.584***	1.465***	1.735***	1.612***	0.953***	2.140***
			(0.072)	(0.254)	(0.369)	(0.294)	(0.358)	(0.365)
Number of observations	1175	1160	1175	1160	422	738	587	573
Log likelihood	-	-	-1960	-1901	-676.9	-1207	-964.4	-925.7

Dependent variable: answer to the question "At what age do you think you will retire?"(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age, region and education. Gender is omitted in the male and female sample, while age is omitted in the 'age below/above 45 years of age' sample. Sample restricted to the non-retired and under the age of 65 years.

Table E.2: Effect of age anchors on the individual retirement age of female respondents broken down in different categories based on background characteristics (complete table 2)

	Single women (and who are head of a household)	Cohabiting women (and who are household head or spouse)	lower-earning women	Higher-earning women	lower educated women	higher educated women	Below 45 years of age	Above 45 years of age
Anchor 67 years of age	0.425*	0.288**	0.313*	0.413***	0.323*	0.411***	0.388**	0.385***
	(0.233)	(0.129)	(0.166)	(0.147)	(0.170)	(0.144)	(0.170)	(0.145)

Anchor 68 years of age	0.583**	0.196	0.275	0.369**	0.223	0.414***	0.372**	0.324**
	(0.245)	(0.132)	(0.168)	(0.152)	(0.172)	(0.150)	(0.185)	(0.142)
25 - 34 years of age	-0.110	-0.757	0.257	-1.143	0.442	-0.383	-	-
	(1.162)	(0.512)	(0.379)	(0.760)	(0.469)	(0.392)		
35 - 44 years of age	-0.506	-0.606	-0.030	-0.900	0.090	-0.180	-	-
	(1.101)	(0.486)	(0.269)	(0.749)	(0.309)	(0.373)		
45 - 54 years of age	-0.741	-0.835*	-0.222	-1.072	-0.133	-0.402	-	-
	(1.112)	(0.487)	(0.270)	(0.747)	(0.307)	(0.372)		
55 - 64 years of age	-0.612	-0.757	-0.162	-1.011	0.061	-0.449	-	-
	(1.109)	(0.485)	(0.260)	(0.745)	(0.298)	(0.373)		
vmbo	-1.443**	0.339	0.360	-1.383*	-	-	0.458	-0.041
	(0.683)	(0.340)	(0.288)	(0.760)			(0.435)	(0.325)
mbo+havo/vwo	-1.094	0.387	0.445	-1.244*	-	-	0.634	0.037
	(0.668)	(0.342)	(0.287)	(0.747)			(0.403)	(0.322)
hbo+wo	-1.242*	0.551	0.389	-0.994	-	-	0.702*	0.215
	(0.666)	(0.346)	(0.308)	(0.740)			(0.404)	(0.323)
Family income between 1151 and 1800 Euro	0.258	0.244	-	-	0.102	0.456	0.212	0.297
	(0.253)	(0.413)			(0.266)	(0.285)	(0.301)	(0.254)
Family income between 1801 and 2600 Euro	0.332	0.222	-	-	0.109	0.259	0.227	0.165
	(0.315)	(0.381)			(0.248)	(0.276)	(0.289)	(0.238)
Family income more than 2600 Euro	0.436	0.208	-	-	0.193	0.100	0.009	0.213
	(0.385)	(0.373)			(0.236)	(0.270)	(0.279)	(0.232)
Rental home	0.068	0.320**	0.211	0.256	0.322**	0.098	0.418**	0.045
	(0.215)	(0.156)	(0.145)	(0.157)	(0.162)	(0.167)	(0.179)	(0.152)
Region North	-0.029	-0.063	0.022	-0.201	0.061	-0.130	-0.308	0.079
	(0.354)	(0.161)	(0.195)	(0.201)	(0.207)	(0.192)	(0.215)	(0.186)
Region East	-0.144	-0.054	0.022	-0.125	-0.139	-0.060	-0.307*	0.065
	(0.240)	(0.141)	(0.169)	(0.163)	(0.184)	(0.152)	(0.179)	(0.154)
Region South	-0.109	-0.221	-0.433**	-0.096	-0.181	-0.261	-0.252	-0.311**
	(0.258)	(0.144)	(0.180)	(0.162)	(0.178)	(0.162)	(0.197)	(0.153)
d1	-2.444*	-0.753	-0.353	-2.828***	-0.357	-0.946**	-0.043	-0.357
	(1.326)	(0.707)	(0.354)	(1.062)	(0.388)	(0.469)	(0.507)	(0.397)
d2	-1.567	0.152	0.579	-1.971*	0.593	-0.094	0.842*	0.545
	(1.321)	(0.707)	(0.354)	(1.059)	(0.389)	(0.468)	(0.509)	(0.397)
d3	-1.265	0.438	0.834**	-1.666	0.879**	0.185	0.981*	0.925**
	(1.319)	(0.708)	(0.355)	(1.058)	(0.390)	(0.469)	(0.509)	(0.399)
d4	-0.228	1.199*	1.507***	-0.724	1.607***	1.053**	1.920***	1.635***
	(1.315)	(0.709)	(0.363)	(1.053)	(0.397)	(0.470)	(0.516)	(0.404)
d5	0.483	1.618**	1.976***	-0.184	2.308***	1.473***	2.406***	2.152***
	(1.322)	(0.711)	(0.371)	(1.055)	(0.419)	(0.472)	(0.524)	(0.412)
Number of observations	136	408	270	305	253	320	230	343
Log likelihood	-213.1	-653.0	-433.1	-486.6	-393.4	-521.7	-358.0	-554.5

Dependent variable: answer to the question "At what age do you think you will retire?"(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age, region and education, where appropriate. 'Non-cohabiting' and 'cohabiting' takes cohabiting or non-cohabiting household heads from the

data to attain a fair comparison. In this way, children living at home for example are omitted. 'Lower earning' and 'higher earning' contrasts women with individual gross earnings less and more than 1500 Euros per month. 'Higher educated' consists of those who completed at most tertiary education (hbo or wo) or upper secondary education (havo or vwo). 'Lower' educated attained at most primary school, lower secondary education (vmbo) or vocational tertiary education (mbo).

Table E.3: Study into the effect of the age anchor broken down by years (complete table 3)

	Retirement at … years of age					
	<65	65	66	67	68	>68
Whole sample						
Anchor 67 years of age	-0.107	-0.348***	0.113	0.342***	-0.108	0.256*
	(0.108)	(0.095)	(0.122)	(0.099)	(0.144)	(0.144)
Anchor 68 years of age	0.061	-0.249***	0.155	-0.228**	0.449***	0.192
	(0.106)	(0.095)	(0.122)	(0.108)	(0.127)	(0.147)
gender respondent	0.169*	-0.000	-0.121	0.063	-0.106	-0.198*
	(0.087)	(0.078)	(0.098)	(0.084)	(0.107)	(0.116)
Age 45 or older	0.132	0.134	0.414***	-0.309***	-0.161	-0.232**
	(0.093)	(0.083)	(0.110)	(0.086)	(0.110)	(0.117)
Higher educated (mbo+havo/vwo+hbo+wo)	-0.071	-0.236***	0.179	0.022	0.223*	0.257*
	(0.099)	(0.088)	(0.114)	(0.097)	(0.131)	(0.142)
1801 Euros or higher	-0.017	0.014	0.130	-0.041	-0.098	0.025
	(0.117)	(0.104)	(0.135)	(0.111)	(0.139)	(0.150)
Rental home	-0.082	-0.189*	0.150	-0.034	0.078	0.324**
	(0.115)	(0.102)	(0.125)	(0.109)	(0.134)	(0.137)
Region North	-0.023	0.156	-0.092	0.116	-0.168	-0.286
	(0.140)	(0.121)	(0.157)	(0.127)	(0.179)	(0.183)
Region East	-0.034	0.159	-0.172	0.023	0.126	-0.292*
	(0.117)	(0.102)	(0.134)	(0.108)	(0.134)	(0.151)
Region South	0.290***	0.014	0.066	-0.158	-0.010	-0.425**
	(0.110)	(0.104)	(0.124)	(0.114)	(0.143)	(0.166)
Constant	-1.050***	-0.240	-1.745***	-0.622***	-1.459***	-1.521***
	(0.181)	(0.159)	(0.213)	(0.171)	(0.222)	(0.242)
Observations	1160	1160	1160	1160	1160	1160
log likelihood	-537.8	-703.3	-410.1	-594.5	-336.0	-286.2
Male sample						
Anchor 67 years of age	-0.156	-0.077	0.089	0.224	-0.244	0.069
	(0.160)	(0.133)	(0.167)	(0.143)	(0.197)	(0.184)
Anchor 68 years of age	0.154	-0.178	0.195	-0.172	0.277	-0.190
	(0.152)	(0.135)	(0.165)	(0.152)	(0.172)	(0.198)
Age 45 or older	0.223	0.247**	0.298**	-0.319**	-0.221	-0.335**
	(0.142)	(0.120)	(0.151)	(0.125)	(0.152)	(0.161)
Higher educated (mbo+havo/vwo+hbo+wo)	-0.108	-0.233*	0.272*	-0.046	0.326*	0.191
	(0.141)	(0.123)	(0.160)	(0.136)	(0.188)	(0.185)
1801 Euros or higher	-0.115	0.139	-0.135	0.166	-0.199	-0.016
	(0.174)	(0.156)	(0.183)	(0.172)	(0.200)	(0.208)
Rental home	-0.081	-0.153	-0.011	0.056	-0.130	0.443**
	(0.167)	(0.146)	(0.175)	(0.157)	(0.196)	(0.185)
Region North	-0.044	0.350**	-0.283	-0.111	-0.014	-0.141
	(0.204)	(0.167)	(0.227)	(0.186)	(0.231)	(0.240)
Region East	-0.065	0.144	-0.102	0.078	0.053	-0.298
	(0.173)	(0.144)	(0.178)	(0.151)	(0.191)	(0.209)
Region South	0.324**	0.026	0.099	-0.301*	0.040	-0.279
	(0.157)	(0.145)	(0.167)	(0.165)	(0.193)	(0.214)
Constant	-1.028***	-0.573***	-1.484***	-0.683***	-1.283***	-1.259***

	(0.251)	(0.217)	(0.273)	(0.237)	(0.289)	(0.302)
Observations	587	587	587	587	587	587
log likelihood	-252.6	-357.5	-224.3	-292.2	-178.7	-157.7
Female sample						
Anchor 67 years of age	-0.065	-0.656***	0.152	0.445***	0.068	0.631**
	(0.148)	(0.139)	(0.182)	(0.140)	(0.218)	(0.256)
Anchor 68 years of age	-0.014	-0.341**	0.122	-0.283*	0.649***	0.732***
	(0.150)	(0.136)	(0.186)	(0.158)	(0.198)	(0.256)
Age 45 or older	0.075	0.020	0.557***	-0.271**	-0.095	-0.169
	(0.126)	(0.117)	(0.167)	(0.122)	(0.163)	(0.178)
Higher educated (mbo+havo/vwo+hbo+wo)	-0.041	-0.272**	0.092	0.096	0.157	0.458*
	(0.140)	(0.129)	(0.169)	(0.142)	(0.190)	(0.236)
1801 Euros or higher	0.051	-0.129	0.431**	-0.199	0.042	0.103
	(0.159)	(0.144)	(0.205)	(0.150)	(0.200)	(0.228)
Rental home	-0.094	-0.272*	0.379**	-0.131	0.315*	0.261
	(0.160)	(0.148)	(0.185)	(0.154)	(0.190)	(0.214)
Region North	-0.014	-0.062	0.120	0.303*	-0.376	-0.384
	(0.193)	(0.179)	(0.224)	(0.178)	(0.300)	(0.288)
Region East	-0.011	0.179	-0.273	-0.038	0.207	-0.261
	(0.160)	(0.144)	(0.211)	(0.157)	(0.190)	(0.223)
Region South	0.235	0.017	0.035	-0.037	-0.059	-0.621**
	(0.156)	(0.151)	(0.190)	(0.160)	(0.218)	(0.283)
Constant	-0.900***	0.137	-2.213***	-0.562**	-1.861***	-2.289***
	(0.240)	(0.220)	(0.324)	(0.234)	(0.332)	(0.408)
Observations	573	573	573	573	573	573
log likelihood	-283.6	-337.6	-180.9	-296.5	-153.3	-122.6

Dependent variable is a dummy indicating retirement at the age in the column under consideration. Suppose a respondent indicates to retire at 66 years of age. Then the dummy for retirement at 66 years of age equals one (the case for the column '66', while the dummies for retirement at other ages (and thus columns) equal zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls are included: gender (only in whole sample), income, homeowner, age, region of the Netherlands and education.

Table E.4: Study into the influence of financial literacy on the effect of the age anchor (complete Table 4)

	Whole sample		**Male**		**Female**	
Anchor 67 years of age	0.253***	0.254***	0.136	0.147	0.385***	0.396***
	(0.076)	(0.076)	(0.107)	(0.115)	(0.109)	(0.111)
Anchor 68 years of age	0.147*	0.147*	-0.057	-0.003	0.339***	0.360***
	(0.076)	(0.076)	(0.107)	(0.112)	(0.112)	(0.115)
fin. lit. index	0.063*	0.120*	0.116*	0.242**	0.056	0.002
	(0.038)	(0.066)	(0.065)	(0.109)	(0.047)	(0.088)
Age anchor 67 years of age * fin. lit. index	-	-0.051	-	-0.074	-	0.056
		(0.089)		(0.163)		(0.114)
Age anchor 68 years of age * fin. lit. index	-	-0.102	-	-0.255*	-	0.091
		(0.086)		(0.140)		(0.115)
gender respondent	-0.104	-0.105	-	-	-	-
	(0.064)	(0.064)				
25 - 34 years of age	-0.134	-0.135	-0.014	-0.036	-0.150	-0.147
	(0.197)	(0.197)	(0.291)	(0.292)	(0.274)	(0.275)
35 - 44 years of age	-0.243	-0.245	-0.364	-0.383	-0.117	-0.111

	(0.175)	(0.175)	(0.258)	(0.261)	(0.243)	(0.243)
45 - 54 years of age	-0.502***	-0.506***	-0.736***	-0.750***	-0.292	-0.283
	(0.172)	(0.172)	(0.253)	(0.255)	(0.240)	(0.241)
55 - 64 years of age	-0.371**	-0.379**	-0.517**	-0.546**	-0.230	-0.218
	(0.171)	(0.171)	(0.251)	(0.253)	(0.237)	(0.238)
vmbo	0.012	0.014	-0.194	-0.169	0.227	0.225
	(0.186)	(0.186)	(0.272)	(0.274)	(0.261)	(0.261)
mbo+havo/vwo	0.099	0.104	-0.146	-0.128	0.348	0.340
	(0.183)	(0.183)	(0.269)	(0.270)	(0.256)	(0.258)
hbo+wo	0.294	0.299	0.176	0.197	0.451*	0.448*
	(0.185)	(0.185)	(0.273)	(0.275)	(0.258)	(0.259)
Family income between 1151 and 1800 Euro	0.194	0.188	0.026	0.017	0.290	0.294
	(0.148)	(0.148)	(0.239)	(0.240)	(0.192)	(0.192)
Family income between 1801 and 2600 Euro	0.122	0.117	0.002	-0.001	0.193	0.198
	(0.140)	(0.141)	(0.225)	(0.226)	(0.183)	(0.183)
Family income more than 2600 Euro	0.048	0.043	-0.119	-0.126	0.135	0.139
	(0.137)	(0.137)	(0.221)	(0.222)	(0.177)	(0.177)
Rental home	0.215***	0.211**	0.241**	0.233*	0.233**	0.240**
	(0.082)	(0.082)	(0.119)	(0.119)	(0.116)	(0.117)
Region North	-0.103	-0.101	-0.119	-0.114	-0.080	-0.080
	(0.097)	(0.097)	(0.136)	(0.136)	(0.139)	(0.139)
Region East	-0.058	-0.056	-0.027	-0.020	-0.073	-0.073
	(0.081)	(0.082)	(0.115)	(0.115)	(0.116)	(0.117)
Region South	-0.268***	-0.265***	-0.277**	-0.265**	-0.257**	-0.256**
	(0.082)	(0.082)	(0.115)	(0.115)	(0.119)	(0.119)
d1	-1.007***	-1.011***	-1.604***	-1.584***	-0.353	-0.334
	(0.252)	(0.252)	(0.360)	(0.360)	(0.357)	(0.357)
d2	-0.084	-0.088	-0.629*	-0.607*	0.532	0.552
	(0.252)	(0.252)	(0.357)	(0.357)	(0.357)	(0.358)
d3	0.230	0.227	-0.274	-0.251	0.811**	0.831**
	(0.252)	(0.252)	(0.357)	(0.357)	(0.358)	(0.359)
d4	0.959***	0.956***	0.401	0.428	1.614***	1.634***
	(0.253)	(0.253)	(0.358)	(0.358)	(0.361)	(0.362)
d5	1.451***	1.449***	0.898**	0.927***	2.115***	2.136***
	(0.255)	(0.255)	(0.359)	(0.359)	(0.365)	(0.366)
log likelihood	-1900	-1899	-962.8	-961.1	-925.0	-924.7
p-value LR-test	0.4852		0.1680		0.7294	
Observations	1160		587		573	

Dependent variable: answer to the question "At what age do you think you will retire?"(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age, region and education. Gender is omitted in the male and female sample. Sample restricted to the non-retired and under the age of 65 years. The Likelihood Ratio-test tests the joint significance of the two interaction terms.

Table E.5: Study into the influence of advice from the pension fund or financial advisor on the effect of the age anchor (complete Table 5)

	Whole sample		Male		Female	
Anchor 67 years of age	0.236***	0.280***	0.107	0.123	0.383***	0.466***
	(0.077)	(0.096)	(0.109)	(0.135)	(0.111)	(0.137)
Anchor 68 years of age	0.145*	0.016	-0.071	-0.104	0.354***	0.126
	(0.078)	(0.096)	(0.110)	(0.133)	(0.114)	(0.140)

A lot of value attached to advice	0.060	-0.030	0.033	0.012	0.085	-0.073
	(0.066)	(0.121)	(0.094)	(0.169)	(0.094)	(0.176)
Anchor 67 * A lot of value attached to advice	-	-0.091	-	-0.036	-	-0.144
		(0.163)		(0.231)		(0.233)
Anchor 68 * A lot of value attached to advice	-	0.371**	-	0.100	-	0.644***
		(0.166)		(0.233)		(0.242)
gender respondent	-0.129**	-0.131**	-	-	-	
	(0.063)	(0.063)				
25 - 34 years of age	-0.158	-0.178	-0.061	-0.077	-0.214	-0.226
	(0.214)	(0.214)	(0.341)	(0.342)	(0.281)	(0.281)
35 - 44 years of age	-0.222	-0.245	-0.398	-0.411	-0.111	-0.135
	(0.191)	(0.191)	(0.308)	(0.308)	(0.247)	(0.248)
45 - 54 years of age	-0.496***	-0.515***	-0.768**	-0.779**	-0.322	-0.339
	(0.189)	(0.189)	(0.303)	(0.303)	(0.246)	(0.246)
55 - 64 years of age	-0.363*	-0.385**	-0.553*	-0.567*	-0.240	-0.258
	(0.187)	(0.187)	(0.301)	(0.302)	(0.243)	(0.243)
vmbo	-0.039	-0.024	-0.273	-0.268	0.180	0.215
	(0.195)	(0.196)	(0.289)	(0.289)	(0.269)	(0.269)
mbo+havo/vwo	0.075	0.091	-0.216	-0.212	0.357	0.401
	(0.191)	(0.192)	(0.285)	(0.285)	(0.263)	(0.264)
hbo+wo	0.288	0.306	0.162	0.166	0.457*	0.515*
	(0.192)	(0.193)	(0.285)	(0.286)	(0.264)	(0.266)
Family income between 1151 and 1800 Euro	0.201	0.196	0.070	0.069	0.280	0.270
	(0.153)	(0.153)	(0.240)	(0.240)	(0.200)	(0.201)
Family income between 1801 and 2600 Euro	0.077	0.086	-0.034	-0.034	0.155	0.184
	(0.146)	(0.146)	(0.227)	(0.227)	(0.193)	(0.194)
Family income more than 2600 Euro	0.021	0.025	-0.119	-0.118	0.092	0.101
	(0.142)	(0.142)	(0.222)	(0.222)	(0.186)	(0.186)
Rental home	0.163*	0.168**	0.187	0.190	0.164	0.171
	(0.084)	(0.084)	(0.120)	(0.120)	(0.120)	(0.120)
Region North	-0.118	-0.114	-0.187	-0.189	-0.058	-0.036
	(0.099)	(0.099)	(0.139)	(0.140)	(0.141)	(0.142)
Region East	-0.075	-0.069	-0.064	-0.058	-0.082	-0.101
	(0.083)	(0.083)	(0.116)	(0.117)	(0.118)	(0.119)
Region South	-0.267***	-0.259***	-0.314***	-0.309***	-0.234*	-0.242**
	(0.083)	(0.083)	(0.117)	(0.117)	(0.122)	(0.122)
d1	-1.054***	-1.082***	-1.754***	-1.766***	-0.363	-0.380
	(0.272)	(0.274)	(0.408)	(0.412)	(0.363)	(0.366)
d2	-0.151	-0.175	-0.795*	-0.805**	0.498	0.491
	(0.271)	(0.273)	(0.406)	(0.410)	(0.363)	(0.366)
d3	0.171	0.148	-0.432	-0.443	0.787**	0.782**
	(0.271)	(0.274)	(0.405)	(0.410)	(0.364)	(0.367)
d4	0.909***	0.888***	0.250	0.239	1.606***	1.613***
	(0.272)	(0.274)	(0.405)	(0.409)	(0.367)	(0.370)
d5	1.401***	1.383***	0.770*	0.758*	2.083***	2.101***
	(0.273)	(0.276)	(0.406)	(0.410)	(0.371)	(0.374)
log likelihood	-1837	-1832	-930.4	-930.2	-893.0	-886.2
p-value LR-test	0.0091		0.8260		0.0012	
Observations	1119		567		552	

Dependent variable: answer to the question “At what age do you think you will retire?”(in six answer categories). Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, income, homeowner, age,

region and education. Gender is omitted in the male and female sample. Sample restricted to the non-retired and under the age of 65 years. The Likelihood Ratio-test tests the joint significance of the two interaction terms.

Table E.6: Estimation of the relevance of advice for the sensitivity to age anchors at different retirement ages

	Retirement at (years of age)					
	Before 65	65	66	67	68	After 68
Whole sample						
Anchor 67 years of age	-0.125	-0.479***	0.356**	0.447***	-0.217	0.169
	(0.139)	(0.121)	(0.161)	(0.124)	(0.186)	(0.178)
Anchor 68 years of age	0.241*	-0.357***	0.327**	-0.194	0.367**	-0.027
	(0.131)	(0.119)	(0.161)	(0.135)	(0.158)	(0.189)
A lot of value attached to advice	0.177	-0.374**	0.534***	0.075	-0.134	-0.142
	(0.165)	(0.152)	(0.187)	(0.163)	(0.229)	(0.251)
Anchor 67 * A lot of value attached to advice	-0.018	0.486**	-0.638**	-0.293	0.301	0.133
	(0.227)	(0.207)	(0.254)	(0.214)	(0.313)	(0.318)
Anchor 68 * A lot of value attached to advice	-0.614***	0.396*	-0.436*	-0.121	0.261	0.557*
	(0.234)	(0.210)	(0.253)	(0.235)	(0.284)	(0.321)
gender respondent	0.178**	-0.017	-0.115	0.073	-0.145	-0.166
	(0.089)	(0.080)	(0.099)	(0.085)	(0.110)	(0.119)
Age 45 or older	0.122	0.165*	0.380***	-0.298***	-0.182	-0.245**
	(0.096)	(0.086)	(0.112)	(0.088)	(0.113)	(0.121)
Higher educated (mbo+havo/vwo+hbo+wo)	-0.105	-0.192**	0.125	0.008	0.258*	0.273*
	(0.101)	(0.092)	(0.117)	(0.100)	(0.138)	(0.150)
household income 1801 Euros or higher	0.032	0.030	0.106	-0.067	-0.122	0.007
	(0.121)	(0.108)	(0.137)	(0.114)	(0.144)	(0.154)
Rental home	-0.024	-0.214**	0.150	-0.040	0.032	0.332**
	(0.118)	(0.107)	(0.128)	(0.112)	(0.140)	(0.141)
Region North	-0.030	0.158	-0.109	0.142	-0.134	-0.392*
	(0.143)	(0.125)	(0.160)	(0.130)	(0.182)	(0.200)
Region East	-0.028	0.157	-0.194	0.053	0.101	-0.280*
	(0.120)	(0.104)	(0.138)	(0.110)	(0.138)	(0.153)
Region South	0.287**	-0.006	0.065	-0.138	0.006	-0.413**
	(0.113)	(0.106)	(0.126)	(0.116)	(0.145)	(0.168)
Constant	-1.114***	-0.207	-1.847***	-0.630***	-1.398***	-1.466***
	(0.192)	(0.168)	(0.229)	(0.180)	(0.236)	(0.257)
Observations	1119	1119	1119	1119	1119	1119
Log likelihood	-517.9	-670.3	-399.6	-574.9	-319.7	-270.7

Dependent variable is a dummy indicating retirement at the age in the column under consideration. Suppose a respondent indicates to retire at 66 years of age. Then the dummy for retirement at 66 years of age equals one (the case for the column '66', while the dummies for retirement at other ages (and thus columns) equal zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Controls: gender, household income, homeowner, age, region and education. Sample restricted to the non-retired and under the age of 65 years. See appendix E for full list of results.

The following tables study the influence of advice from the pension fund or financial advisor on the effect of the age anchor for each retirement age in more detail and for both male and female respondents.

Table E.7: Retirement before 65 years of age

	Male		Female	
25 - 34 years of age	0.391	0.455	-0.072	-0.072
	(0.642)	(0.647)	(0.397)	(0.402)
35 - 44 years of age	0.576	0.636	-0.014	0.005
	(0.589)	(0.593)	(0.346)	(0.350)
45 - 54 years of age	0.912	0.966*	0.157	0.170
	(0.578)	(0.581)	(0.341)	(0.345)
55 - 64 years of age	0.583	0.651	-0.079	-0.066
	(0.578)	(0.581)	(0.341)	(0.344)
vmbo	0.035	0.032	-0.079	-0.095
	(0.418)	(0.423)	(0.373)	(0.378)
mbo+havo/vwo	0.082	0.076	-0.146	-0.176
	(0.413)	(0.417)	(0.366)	(0.372)
hbo+wo	-0.380	-0.370	-0.205	-0.245
	(0.417)	(0.421)	(0.370)	(0.375)
Family income between 1151 and 1800 Euro	-0.306	-0.284	-0.423	-0.398
	(0.348)	(0.351)	(0.279)	(0.282)
Family income between 1801 and 2600 Euro	-0.249	-0.259	-0.137	-0.157
	(0.329)	(0.331)	(0.263)	(0.265)
Family income more than 2600 Euro	-0.199	-0.195	-0.130	-0.121
	(0.328)	(0.330)	(0.258)	(0.261)
Rental home	-0.080	-0.086	-0.022	-0.028
	(0.180)	(0.182)	(0.171)	(0.173)
Not in a job now, but worked before	-0.193	-0.174	0.046	0.060
	(0.231)	(0.234)	(0.154)	(0.157)
Region North	0.020	0.029	-0.050	-0.086
	(0.212)	(0.213)	(0.200)	(0.203)
Region East	-0.061	-0.081	-0.005	0.008
	(0.182)	(0.184)	(0.165)	(0.167)
Region South	0.381**	0.375**	0.197	0.198
	(0.164)	(0.164)	(0.161)	(0.163)
Anchor 67 years of age	-0.241	-0.257	-0.058	-0.208
	(0.167)	(0.281)	(0.152)	(0.237)
Anchor 68 years of age	0.184	0.387	-0.051	0.067
	(0.158)	(0.239)	(0.155)	(0.232)
Little value attached to advice	-0.223	-0.258	0.060	-0.054
	(0.172)	(0.311)	(0.161)	(0.266)
A lot of value attached to advice	-0.026	0.218	-0.088	-0.004
	(0.152)	(0.259)	(0.144)	(0.261)
Anchor 67 * Little value attached to advice	-	0.175	-	0.173
		(0.449)		(0.395)
Anchor 68 * Little value attached to advice	-	-0.039	-	0.200
		(0.409)		(0.388)
Anchor 67 * A lot of value attached to advice	-	-0.104	-	0.226
		(0.388)		(0.350)
Anchor 68 * A lot of value attached to advice	-	-0.575	-	-0.559
		(0.362)		(0.373)
Constant	-1.319*	-1.456**	-0.532	-0.509
	(0.675)	(0.694)	(0.489)	(0.506)
Observations	567	567	552	552
Log Likelihood	-236.4	-234.8	-271.8	-268.4
p-value LR test	0.5209		0.1442	

Dependent variable: binary answer to the question “At what age do you think you will retire?” Before 65 years of age is given the value one, while the other values are given zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Sample with the non-retired and under the age of 65 years. The p-value of the L(ikelihood) R(atio)-test lists the

joint significance of the interaction terms and is obtained by testing the restricted model (first and third column) versus the full model (second and fourth column), respectively.

Table E.8: Retirement at 65 years of age

	Male		Female	
25 - 34 years of age	-0.581	-0.641	0.309	0.303
	(0.452)	(0.456)	(0.380)	(0.383)
35 - 44 years of age	-0.244	-0.316	0.298	0.312
	(0.394)	(0.397)	(0.339)	(0.342)
45 - 54 years of age	-0.077	-0.128	0.247	0.257
	(0.387)	(0.389)	(0.336)	(0.338)
55 - 64 years of age	0.053	-0.005	0.368	0.382
	(0.383)	(0.385)	(0.333)	(0.335)
vmbo	0.162	0.114	-0.262	-0.262
	(0.369)	(0.372)	(0.344)	(0.346)
mbo+havo/vwo	0.010	-0.010	-0.397	-0.390
	(0.366)	(0.368)	(0.338)	(0.340)
hbo+wo	-0.038	-0.074	-0.533	-0.517
	(0.366)	(0.368)	(0.340)	(0.342)
Family income between 1151 and 1800 Euro	0.133	0.096	-0.012	-0.022
	(0.321)	(0.322)	(0.260)	(0.262)
Family income between 1801 and 2600 Euro	0.204	0.199	-0.080	-0.085
	(0.305)	(0.306)	(0.255)	(0.257)
Family income more than 2600 Euro	0.277	0.254	-0.116	-0.106
	(0.303)	(0.304)	(0.248)	(0.250)
Rental home	-0.099	-0.133	-0.336**	-0.333**
	(0.155)	(0.157)	(0.162)	(0.163)
Not in a job now, but worked before	-0.024	-0.032	-0.034	-0.024
	(0.183)	(0.186)	(0.143)	(0.145)
Region North	0.356**	0.347**	-0.063	-0.060
	(0.175)	(0.176)	(0.186)	(0.186)
Region East	0.174	0.175	0.206	0.193
	(0.149)	(0.151)	(0.151)	(0.152)
Region South	0.031	0.025	0.009	0.010
	(0.148)	(0.150)	(0.158)	(0.159)
Anchor 67 years of age	0.020	-0.286	-0.736***	-0.988***
	(0.138)	(0.223)	(0.145)	(0.221)
Anchor 68 years of age	-0.132	-0.481**	-0.387***	-0.522**
	(0.140)	(0.220)	(0.143)	(0.214)
Little value attached to advice	0.090	-0.124	-0.351**	-0.509**
	(0.141)	(0.241)	(0.160)	(0.242)
A lot of value attached to advice	-0.130	-0.651***	-0.064	-0.335
	(0.134)	(0.242)	(0.132)	(0.235)
Anchor 67 * Little value attached to advice		0.284		0.251
		(0.344)		(0.402)
Anchor 68 * Little value attached to advice		0.411		0.257
		(0.344)		(0.377)
Anchor 67 * A lot of value attached to advice		0.745**		0.535
		(0.334)		(0.326)
Anchor 68 * A lot of value attached to advice		0.790**		0.263
		(0.339)		(0.325)
Constant	-0.675	-0.355	0.171	0.271
	(0.543)	(0.563)	(0.481)	(0.489)

Observations	567	567	552	552
Log Likelihood	-341.1	-337.5	-315.5	-314.1
p-value LR test	0.1277		0.5670	

Dependent variable: binary answer to the question "At what age do you think you will retire?" The answer at '65 years of age' is given the value one, while the other values are given zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Sample restricted to the non-retired and under the age of 65 years. The p-value of the L(ikelihood) R(atio)-test lists the joint significance of the interaction terms and is obtained by testing the restricted model (first and third column) versus the full model (second and fourth column), respectively.

Table E.9: Retirement at 66 years of age

	Male		Female	
25 - 34 years of age	-0.672	-0.680	0.252	0.248
	(0.713)	(0.723)	(0.476)	(0.491)
35 - 44 years of age	0.191	0.195	-0.494	-0.480
	(0.575)	(0.580)	(0.459)	(0.474)
45 - 54 years of age	0.299	0.298	0.354	0.380
	(0.568)	(0.572)	(0.421)	(0.435)
55 - 64 years of age	0.345	0.346	0.326	0.356
	(0.564)	(0.570)	(0.418)	(0.432)
vmbo	0.412	0.440	-0.113	-0.135
	(0.549)	(0.553)	(0.425)	(0.440)
mbo+havo/vwo	0.606	0.604	-0.081	-0.112
	(0.543)	(0.547)	(0.415)	(0.431)
hbo+wo	0.599	0.614	-0.075	-0.125
	(0.543)	(0.547)	(0.420)	(0.435)
Family income between 1151 and 1800 Euro	-0.250	-0.223	0.492	0.585
	(0.366)	(0.368)	(0.420)	(0.441)
Family income between 1801 and 2600 Euro	-0.392	-0.402	0.666	0.702
	(0.354)	(0.355)	(0.413)	(0.431)
Family income more than 2600 Euro	-0.476	-0.479	0.986**	0.994**
	(0.352)	(0.354)	(0.405)	(0.423)
Rental home	-0.060	-0.036	0.505**	0.524***
	(0.189)	(0.191)	(0.197)	(0.201)
Not in a job now, but worked before	-0.379	-0.389	0.205	0.113
	(0.252)	(0.253)	(0.188)	(0.201)
Region North	-0.304	-0.318	0.116	0.109
	(0.237)	(0.239)	(0.236)	(0.247)
Region East	-0.180	-0.168	-0.251	-0.220
	(0.186)	(0.188)	(0.219)	(0.223)
Region South	0.051	0.070	0.071	0.062
	(0.171)	(0.173)	(0.197)	(0.204)
Anchor 67 years of age	0.104	0.272	0.136	1.207***
	(0.172)	(0.282)	(0.192)	(0.418)
Anchor 68 years of age	0.193	0.273	0.114	0.886**
	(0.170)	(0.270)	(0.194)	(0.427)
Little value attached to advice	-0.122	-0.257	-0.076	0.892**
	(0.182)	(0.361)	(0.210)	(0.449)
A lot of value attached to advice	0.161	0.435	0.063	1.121**
	(0.158)	(0.282)	(0.172)	(0.437)
Anchor 67 * Little value attached to advice		0.179		-1.937***
		(0.468)		(0.681)
Anchor 68 * Little value attached to advice		0.140		-0.871
		(0.468)		(0.574)
Anchor 67 * A lot of value attached to advice		-0.519		-1.553***

		(0.397)		(0.517)
Anchor 68 * A lot of value attached to advice		-0.270		-1.133**
		(0.384)		(0.527)
Constant	-1.511*	-1.616*	-2.368***	-3.128***
	(0.807)	(0.836)	(0.663)	(0.761)
Observations	567	567	552	552
Log Likelihood	-215.3	-213.8	-172.4	-165.1
p-value LR test	0.5820		0.0057	

Dependent variable: binary answer to the question "At what age do you think you will retire?" The answer at '66 years of age' is given the value one, while the other values are given zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Sample restricted to the non-retired and under the age of 65 years. The p-value of the L(ikelihood) R(atio)-test lists the joint significance of the interaction terms and is obtained by testing the restricted model (first and third column) versus the full model (second and fourth column), respectively.

Table E.10: Retirement at 67 years of age

	Male		Female	
25 - 34 years of age	0.635	0.601	-0.016	-0.003
	(0.500)	(0.499)	(0.376)	(0.377)
35 - 44 years of age	0.447	0.444	-0.014	-0.013
	(0.463)	(0.460)	(0.337)	(0.338)
45 - 54 years of age	0.120	0.107	-0.380	-0.375
	(0.460)	(0.458)	(0.340)	(0.342)
55 - 64 years of age	0.138	0.117	-0.151	-0.147
	(0.455)	(0.453)	(0.335)	(0.336)
vmbo	0.354	0.392	0.703	0.698
	(0.460)	(0.462)	(0.458)	(0.457)
mbo+havo/vwo	0.186	0.202	0.635	0.629
	(0.458)	(0.460)	(0.453)	(0.451)
hbo+wo	0.296	0.324	0.847*	0.836*
	(0.458)	(0.459)	(0.453)	(0.452)
Family income between 1151 and 1800 Euro	-0.102	-0.094	0.068	0.065
	(0.344)	(0.345)	(0.270)	(0.271)
Family income between 1801 and 2600 Euro	0.080	0.070	-0.258	-0.262
	(0.327)	(0.328)	(0.268)	(0.268)
Family income more than 2600 Euro	0.132	0.129	-0.263	-0.276
	(0.323)	(0.326)	(0.262)	(0.264)
Rental home	0.063	0.090	-0.156	-0.165
	(0.165)	(0.167)	(0.165)	(0.166)
Not in a job now, but worked before	0.185	0.170	-0.122	-0.123
	(0.197)	(0.200)	(0.156)	(0.157)
Region North	-0.053	-0.053	0.330*	0.326*
	(0.192)	(0.194)	(0.183)	(0.184)
Region East	0.097	0.107	-0.027	-0.023
	(0.156)	(0.157)	(0.161)	(0.163)
Region South	-0.272	-0.255	-0.011	-0.014
	(0.168)	(0.170)	(0.166)	(0.166)
Anchor 67 years of age	0.215	0.511**	0.533***	0.602***
	(0.147)	(0.238)	(0.147)	(0.228)
Anchor 68 years of age	-0.238	-0.099	-0.172	-0.085
	(0.156)	(0.249)	(0.164)	(0.255)
Little value attached to advice	0.082	0.268	0.275*	0.342
	(0.153)	(0.267)	(0.159)	(0.265)
A lot of value attached to advice	-0.043	0.256	0.010	0.125
	(0.145)	(0.255)	(0.142)	(0.271)

Anchor 67 * Little value attached to advice		-0.333		-0.029
		(0.365)		(0.367)
Anchor 68 * Little value attached to advice		-0.233		-0.199
		(0.388)		(0.419)
Anchor 67 * A lot of value attached to advice		-0.604*		-0.171
		(0.349)		(0.342)
Anchor 68 * A lot of value attached to advice		-0.241		-0.132
		(0.369)		(0.382)
Constant	-1.407**	-1.570**	-1.283**	-1.323**
	(0.658)	(0.673)	(0.582)	(0.590)
Observations	567	567	552	552
Log Likelihood	-279.6	-278.0	-283.4	-283.2
p-value LR test	0.5246		0.9716	

Dependent variable: binary answer to the question "At what age do you think you will retire?" The answer at '67 years of age' is given the value one, while the other values are given zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Sample restricted to the non-retired and under the age of 65 years. The p-value of the L(ikelihood) R(atio)-test lists the joint significance of the interaction terms and is obtained by testing the restricted model (first and third column) versus the full model (second and fourth column), respectively.

Table E.11: Retirement at 68 years of age

	Male		Female	
25 - 34 years of age	0.332	0.373	-0.553	-0.562
	(0.532)	(0.544)	(0.471)	(0.473)
35 - 44 years of age	-0.303	-0.217	-0.295	-0.305
	(0.504)	(0.516)	(0.383)	(0.384)
45 - 54 years of age	-0.457	-0.386	-0.325	-0.324
	(0.501)	(0.511)	(0.378)	(0.379)
55 - 64 years of age	-0.252	-0.193	-0.545	-0.546
	(0.486)	(0.499)	(0.391)	(0.392)
vmbo	-0.892*	-0.944**	-0.082	-0.073
	(0.477)	(0.476)	(0.496)	(0.499)
mbo+havo/vwo	-0.563	-0.619	0.188	0.195
	(0.457)	(0.455)	(0.469)	(0.472)
hbo+wo	-0.367	-0.448	0.241	0.262
	(0.453)	(0.452)	(0.475)	(0.480)
Family income between 1151 and 1800 Euro	4.932	4.957	0.235	0.229
	(173.768)	(166.486)	(0.372)	(0.374)
Family income between 1801 and 2600 Euro	4.599	4.689	0.209	0.226
	(173.768)	(166.486)	(0.370)	(0.371)
Family income more than 2600 Euro	4.504	4.573	0.086	0.095
	(173.768)	(166.486)	(0.362)	(0.363)
Rental home	-0.026	-0.010	0.231	0.231
	(0.211)	(0.215)	(0.211)	(0.212)
Not in a job now, but worked before	0.032	0.028	0.089	0.094
	(0.267)	(0.271)	(0.204)	(0.206)
Region North	-0.064	-0.032	-0.290	-0.283
	(0.242)	(0.246)	(0.308)	(0.309)
Region East	-0.032	-0.038	0.180	0.174
	(0.206)	(0.208)	(0.203)	(0.204)
Region South	-0.032	-0.017	0.017	0.015
	(0.202)	(0.205)	(0.227)	(0.228)
Anchor 67 years of age	-0.240	-0.126	0.114	-0.045
	(0.210)	(0.375)	(0.228)	(0.377)
Anchor 68 years of age	0.295	0.450	0.657***	0.521

	(0.183)	(0.311)	(0.212)	(0.337)
Little value attached to advice	0.294	0.660**	0.309	0.143
	(0.196)	(0.334)	(0.215)	(0.397)
A lot of value attached to advice	0.147	0.041	0.137	-0.050
	(0.185)	(0.366)	(0.195)	(0.426)
Anchor 67 * Little value attached to advice		-0.883		0.361
		(0.600)		(0.557)
Anchor 68 * Little value attached to advice		-0.462		0.128
		(0.449)		(0.519)
Anchor 67 * A lot of value attached to advice		0.297		0.185
		(0.511)		(0.555)
Anchor 68 * A lot of value attached to advice		0.018		0.273
		(0.460)		(0.507)
Constant	-5.245	-5.418	-1.859***	-1.767***
	(173.768)	(166.486)	(0.635)	(0.657)
Observations	567	567	552	552
Log Likelihood	-163.3	-160.8	-140.1	-139.8
p-value LR test	-		0.9446	

Dependent variable: binary answer to the question "At what age do you think you will retire?" The answer at '68 years of age' is given the value one, while the other values are given zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Sample restricted to the non-retired and under the age of 65 years. The p-value of the L(ikelihood) R(atio)-test lists the joint significance of the interaction terms and is obtained by testing the restricted model (first and third column) versus the full model (second and fourth column), respectively.

Table E.12: Retirement at 'after 68 years of age'

	Male		Female	
25 - 34 years of age	-0.530	-0.479	-0.149	-0.185
	(0.523)	(0.532)	(0.549)	(0.566)
35 - 44 years of age	-0.523	-0.512	0.182	0.204
	(0.456)	(0.465)	(0.470)	(0.489)
45 - 54 years of age	-0.904**	-0.896*	-0.097	-0.064
	(0.458)	(0.466)	(0.472)	(0.488)
55 - 64 years of age	-0.836*	-0.811*	-0.050	-0.006
	(0.444)	(0.451)	(0.476)	(0.491)
vmbo	-0.388	-0.423	-0.105	-0.039
	(0.484)	(0.489)	(0.551)	(0.559)
mbo+havo/vwo	-0.332	-0.363	0.368	0.430
	(0.467)	(0.472)	(0.515)	(0.526)
hbo+wo	0.144	0.124	0.361	0.454
	(0.463)	(0.468)	(0.523)	(0.533)
Family income between 1151 and 1800 Euro	-0.289	-0.278	-0.021	-0.066
	(0.404)	(0.405)	(0.399)	(0.404)
Family income between 1801 and 2600 Euro	-0.256	-0.259	0.261	0.263
	(0.378)	(0.379)	(0.396)	(0.401)
Family income more than 2600 Euro	-0.376	-0.389	-0.027	-0.021
	(0.379)	(0.381)	(0.390)	(0.393)
Rental home	0.414**	0.390*	0.266	0.310
	(0.207)	(0.209)	(0.232)	(0.237)
Not in a job now, but worked before	0.239	0.260	-0.101	-0.124
	(0.244)	(0.248)	(0.246)	(0.251)
Region North	-0.336	-0.355	-0.403	-0.396
	(0.282)	(0.286)	(0.303)	(0.313)
Region East	-0.235	-0.245	-0.296	-0.342

	(0.219)	(0.221)	(0.231)	(0.236)
Region South	-0.292	-0.315	-0.658**	-0.704**
	(0.225)	(0.227)	(0.294)	(0.301)
Anchor 67 years of age	0.049	-0.190	0.653**	0.613
	(0.199)	(0.313)	(0.267)	(0.380)
Anchor 68 years of age	-0.219	-0.242	0.957***	0.466
	(0.208)	(0.301)	(0.283)	(0.394)
Little value attached to advice	-0.250	-0.558	0.188	0.144
	(0.222)	(0.401)	(0.299)	(0.482)
A lot of value attached to advice	-0.015	-0.078	0.133	-3.754
	(0.189)	(0.324)	(0.198)	(142.656)
Anchor 67 * Little value attached to advice	-	0.640	-	-0.273
		(0.542)		(0.617)
Anchor 68 * Little value attached to advice	-	0.266	-	
		(0.573)		
Anchor 67 * A lot of value attached to advice	-	0.269	-	3.592
		(0.459)		(142.656)
Anchor 68 * A lot of value attached to advice	-	-0.064	-	4.378
		(0.478)		(142.656)
Constant	-0.171	-0.069	-2.344***	-2.215***
	(0.657)	(0.692)	(0.747)	(0.786)
Observations	567	567	518	518
Log Likelihood	-140.1	-139.3	-115.6	-111.8
p-value LR test	0.8041			

Dependent variable: binary answer to the question "At what age do you think you will retire?" The answers larger than '68 years of age' are given the value one, while the other values are given zero. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. Sample restricted to the non-retired and under the age of 65 years. The p-value of the L(ikelihood) R(atio)-test lists the joint significance of the interaction terms and is obtained by testing the restricted model (first and third column) versus the full model (second and fourth column), respectively.

Appendix F: Details derivation likelihood function

For the derivation of the likelihood function the joint probability is computed:

(F.1) $$Pr\left(y_{framing,i} = k, soc_i = l\right) = \Pr\left(y^*_{fram,i} \leq d_k, soc^*_i \leq f_l\right) - \Pr\left(y^*_{fram,i} \leq d_{k-1}, soc^*_i \leq f_l\right) - \Pr\left(y^*_{fram,i} \leq d_k, soc^*_i \leq f_{l-1}\right) + \Pr(y^*_{fram,i} \leq d_{k-1}, soc^*_i \leq f_{l-1})$$

The latent variables are given by equations (3) and (4). The probabilities are from a bivariate standard normal distribution and lead to:

$$P\left(y^*_{fram,i} \leq d_{k+x}, soc^*_i \leq f_{l+x}\right)$$

$$= \Phi_2(\mathrm{f}_{l+x} - F_i'\delta$$

$$- X_i{}'\lambda, \frac{\mathrm{d}_{k+x} - (\gamma + \alpha' D67_i + \beta' D68_i)(F_i'\delta + X_i{}'\lambda) - \alpha D67_i - \beta D68_i - X_i{}'\kappa}{sd_{y_{framing,i}}}, \frac{\tau + \gamma + \alpha' D67_i + \beta' D68_i}{sd_{y_{framing,i}}})$$

where x∈ $\{0, -1\}$ and $sd_{y_{framing,i}} = \sqrt{1 + (\gamma + \alpha' D67_i + \beta' D68_i)^2 + 2(\gamma + \alpha' D67_i + \beta' D68_i)\tau}$

Table F.1 lists all estimation results for this model.

Table F.1: Complete estimation results for the model with framing and social interactions

	(1) Whole sample	(2)	(3) male sample	(4) female sample
Gender vignette person	-	-0.0216	0.0427	-0.0885
		(0.0657)	(0.0922)	(0.0934)
Composition social environment (=1 'friends and family')	-	-0.1440**	-0.0381	-0.2520***
		(0.0659)	(0.0952)	(0.0937)
More need for experienced employees	-	0.1237	0.0736	0.0877
		(0.1009)	(0.1418)	(0.1474)
Financial consequences of the economic crisis	-	0.3497***	0.4442***	0.2031
		(0.0949)	(0.1326)	(0.1406)
Reduction of pension rights by one year	-	0.4518***	0.4680***	0.4349***
		(0.0925)	(0.1307)	(0.1394)
gender respondent	-	-0.0253		
		(0.0659)		
45 - 54 years of age	-	-0.0987	-0.0913	-0.1359
		(0.0812)	(0.1159)	(0.1158)
55 - 64 years of age	-	-0.0599	-0.0462	-0.0539
		(0.0803)	(0.1147)	(0.1147)
mbo+havo/vwo	-	-0.0041	0.0223	-0.0433
		(0.0880)	(0.1228)	(0.1280)
hbo+wo	-	0.1729**	0.2174*	0.1401
		(0.0841)	(0.1180)	(0.1217)
Family income between 1801 and 2600 Euro	-	0.0453	-0.1518	0.1939
		(0.1006)	(0.1466)	(0.1408)
Family income more than 2600 Euro	-	-0.0198	-0.2827**	0.2022
		(0.0926)	(0.1357)	(0.1290)
Rental home	-	-0.0045	-0.0540	0.0670
		(0.0854)	(0.1205)	(0.1231)
Region North	-	-0.1104	-0.0548	-0.1459
		(0.1035)	(0.1457)	(0.1484)
Region East	-	-0.0868	-0.1515	-0.0182
		(0.0856)	(0.1200)	(0.1227)
Region South	-	-0.2496***	-0.4024***	-0.0799
		(0.0874)	(0.1226)	(0.1264)
Framing equation				
gender respondent	-0.1219*	-0.1214*	-	-
	(0.0631)	(0.0636)		
45 - 54 years of age	-0.3097***	-0.3102***	-0.5001***	-0.1407
	(0.0781)	(0.0793)	(0.1135)	(0.1186)
55 - 64 years of age	-0.1722**	-0.1765**	-0.2624**	-0.1125
	(0.0769)	(0.0778)	(0.1108)	(0.1127)
mbo+havo/vwo	0.0830	0.0892	0.0057	0.1577
	(0.0841)	(0.0846)	(0.1186)	(0.1252)
hbo+wo	0.2705***	0.2890***	0.3684***	0.2133*
	(0.0812)	(0.0857)	(0.1217)	(0.1285)

Family income between 1801 and 2600 Euro	-0.0580	-0.0528	-0.0449	-0.0941
	(0.0972)	(0.0978)	(0.1473)	(0.1424)
Family income more than 2600 Euro	-0.1165	-0.1098	-0.1212	-0.1716
	(0.0894)	(0.0899)	(0.1443)	(0.1319)
Rental home	0.1703**	0.1663**	0.2233*	0.1416
	(0.0825)	(0.0829)	(0.1193)	(0.1223)
Region North	-0.1297	-0.1286	-0.2241	-0.0056
	(0.0996)	(0.1019)	(0.1433)	(0.1486)
Region East	-0.0517	-0.0526	-0.0542	-0.0434
	(0.0822)	(0.0843)	(0.1214)	(0.1202)
Region South	-0.2126**	-0.2245**	-0.2569*	-0.1830
	(0.0834)	(0.0944)	(0.1494)	(0.1277)
d1	-0.6959***	-1.0396***	-1.3029***	-0.7979***
	(0.1686)	(0.1413)	(0.1951)	(0.2162)
d2	0.2548	-0.0814	-0.2869	0.1206
	(0.1685)	(0.1373)	(0.1987)	(0.2278)
d3	0.5970***	0.2610*	0.1043	0.4208*
	(0.1692)	(0.1375)	(0.2025)	(0.2333)
d4	1.3758***	1.0393***	0.8257***	1.2786***
	(0.1715)	(0.1409)	(0.2126)	(0.2534)
d5	1.8755***	1.5384***	1.3418***	1.7711***
	(0.1749)	(0.1470)	(0.2248)	(0.2693)
f1	-	-0.3228	-0.3038	-0.4123
		(0.2033)	(0.2896)	(0.2803)
f2	-	0.2633	0.3270	0.1369
		(0.2033)	(0.2897)	(0.2805)
f3	-	0.6964***	0.7928***	0.5448*
		(0.2041)	(0.2905)	(0.2823)
f4	-	1.1384***	1.2336***	0.9994***
		(0.2058)	(0.2925)	(0.2853)
Anchor at 67 years of age (α)	0.1801*	0.2566***	0.1334	0.4032***
	(0.1068)	(0.0779)	(0.1098)	(0.1194)
Anchor at 68 years of age (β)	-0.0370	0.1870**	-0.0715	0.4457***
	(0.1064)	(0.0897)	(0.1327)	(0.1311)
γ	0.1480***	0.1299	0.1123	0.3633
	(0.0396)	(0.1860)	(0.2408)	(0.2429)
τ	-	0.1177	0.1367	-0.1372
		(0.1778)	(0.2287)	(0.2457)
α'	0.0530	0.0537	-0.0574	0.1578
	(0.0550)	(0.0828)	(0.1158)	(0.1179)
β'	0.1561***	0.2139**	0.2598**	0.2096*
	(0.0558)	(0.0847)	(0.1149)	(0.1251)
Observations	1130	1130	571	559
log likelihood	-1805	-3435	-1733	-1678

Dependent variables: answers to the questions: "At what age do you think you will retire?" and the index that counts how many times the respondent follows retirement behavior of the social environment. Standard errors in parentheses, *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level. The first column shows the model from equation (1) with the addition of the social interaction index and the interaction between the social interaction index and the age anchors. The second column shows the results of the full model (of equation (3) and (4)). The third and fourth column show the estimation results restricted to men and women, respectively.