

Flat annuities or flexible pension schemes: the influence of expected expenses and (dis)trust in pension funds*

Carin van der Cruijssen and Nicole Jonker

De Nederlandsche Bank, the Netherlands

29 August 2016

Abstract

This paper studies the influence of people's expectations about expenses during retirement and trust in their pension fund on their preferences for different pension arrangements. We find that although most workers prefer a flat annuity pension, many workers want to deviate from it. Most popular is a high-low annuity based profile, followed by a partial lump sum payment. One of the underlying reasons to prefer a more flexible pattern is expected expenditures. Our regressions reveal that workers who expect declining expenses during retirement are more likely to opt for a high-low annuity based pension or a lump sum payment at retirement than workers who expect stable expenses. Furthermore, we find that workers and pensioners who do not trust their pension fund are more likely to prefer a lump sum over annuity based arrangements than consumers with a high degree of trust.

Keywords: consumption, trust, pension annuities, lump sum

JEL classifications: D14, D91, G20, J26

* Nicole Jonker is the corresponding author, e-mail: n.jonker@dnb.nl. We are grateful for comments by Geert Dozeman, Leo de Haan, Dennis Jonker, Lieke Kools, Joris Knobens, Marieke Knoef, Hella van der Pal, Jante Parlevliet, Maarten van Rooij and Mathijs Zaal, and for discussions with seminar participants at the AFM, Netspar and De Nederlandsche Bank. We thank Miquelle Marchand (CentERdata) for arranging the survey. The views expressed in this paper do not necessarily reflect the views of De Nederlandsche Bank or those of the Eurosystem.

1. INTRODUCTION

Pension arrangements are considered as a way to smooth workers' income over their working life and retirement. Pension funds can offer their members different forms of arrangements, such as flat or flexible annuities or lump sum payments. Freedom of choice with respect to pension pay-outs may be conducive to prosperity. Members can choose a form that allows them to have a spending pattern during retirement that matches their preferences best, and thus realise an optimal consumption path. However, offering many options also has drawbacks like high operating costs for pension funds or members making suboptimal choices due to the complexity of assessing the value of the different options (see e.g. Brown, 2007).

An important contribution of our research to the existing literature is that we give detailed insight into workers' expected expenditures during retirement and to what extent these drive their retirement pay preferences. We examine both workers' expectations of their overall expenses, as well as of expenses on different goods and services. Another important novelty is that we relate workers' trust in their pension fund to their preferences for different pension profiles. Trust reflects the worker's assessment whether his pension fund(s) will be able to pay him the arranged level of pension benefits at all times. So, it acts as a proxy for the worker's certainty in the future stream of income during retirement. Next to expected consumption patterns and trust in one's pension funds, we control for a broad range of commonly included variables in the pension literature: mortality risk, time rate of preference, risk aversion, financial literacy, liquidity constraints, pension information¹ and bequest motives. It is important for policymakers and pension funds to have a good understanding of pension participants' interest in the different pension arrangements and the drivers of their preferences.

The Netherlands is a natural case to study pension choices and their drivers. Unlike pension funds in many other countries, Dutch pension funds currently only offer annuities (fixed annuities and often also flexible annuities). However, there are policy discussions to further increase the freedom of choice with regard to the way accrued pension rights will be paid out when retiring, by allowing pension funds to offer e.g. (partial) lump sum payments as an alternative for full annuitization.² These discussions take place in a turbulent period of time. Like many pension funds around the world, Dutch pension funds have been severely hit by the recent financial crisis. Many of them have faced deficits and needed to take recovery measures, such as raising contributions, not (fully) indexing pension rights to inflation or even cutting pension

¹ The role of information in workers' decisions about retirement planning seems crucial (see e.g. Lusardi, 2008). We expect that well-informed workers have more realistic expectations about the level of their pension benefits and the available choice possibilities. Yet, the empirical literature shows limited effects of increasing workers' knowledge on retirement planning, see e.g. Mastrobuoni (2011) or Prast et al. (2012).

² Such a development has also recently taken place in the UK (Loibl et al. 2015) and is common practice in other countries such as the US.

rights. The extent to which pension funds needed to take these measures have been unprecedented in the Netherlands and received a lot of media attention during the past few years. Traditionally the Dutch have great trust in the Dutch pension fund system. However, the recent events have resulted in a lower level of trust (DNB, 2014), which may influence workers' preferences for different pension arrangements.

Overall, we find that although most workers prefer the default option - a flat annuity pension - offering choice fulfils a need: a substantial share of workers has an interest in more freedom of choice in pension patterns. The most popular option is a high-low annuity based profile, followed by a partial lump sum payment in combination with a lower annuity. Second, we reveal that underlying reasons to prefer a particular pattern are often related to expected expenditures. Third, based on our regression analyses we show that next to the commonly used drivers of pension choice, it is important to include expected expenditure patterns and trust. Workers and pensioners who do not trust their pension fund are more likely to prefer a lump sum over annuity based arrangements than consumers with a high degree of trust.

Our paper is organised as follows. Section 2 presents an overview of the relevant literature. Section 3 summarizes the Dutch pension system. Section 4 introduces our conceptual model and our hypotheses. Section 5 describes our survey data and our model's variables. In Section 6 we show some survey results and in Section 7 we present the regression results and we test our hypotheses empirically. Finally, we conclude and discuss the policy implications of our research in Section 8.

2. LITERATURE

Our research builds on several, often intersecting, strands of literature which we use to identify factors that may explain people's pension pattern preferences.

2.1 Consumption during retirement

The empirical literature shows that households' consumption and income fall at retirement. This pattern is found in many countries.³ For long economists were puzzled by this finding, which they refer to as the "retirement consumption puzzle" because the joint drop of consumption and income is not in line with the life-cycle model of consumption.⁴ According to this model rational forward-looking consumers smooth their consumption during their life by avoiding fluctuations in consumption induced by predictable changes in income. They save during their working life

³ Examples are Hamermesh (1984) for the UK, Bernheim et al. (2001) for the US, Schwerdt (2005) for Germany, Wakabayashi (2006) for Japan, Battistin et al. (2009) for Italy and Li et al. (2015) for China.

⁴ The life-cycle consumption model is based on the life-cycle theory of income and consumption by Modigliani and Brumberg (1954) and the permanent-income theory of consumption by Friedman (1957).

and dissave during retirement to keep a constant lifetime utility level. One of the rationalizations put forward to explain the drop in spending at retirement is an unexpected insufficiency of savings at retirement (Hamermesh, 1984). Another rationalization is that consumers don't act as rational forward-looking agents. They instead use heuristic rules of thumb for retirement saving and adjust their spending levels at retirement, or differ in the extent in which they can discipline themselves to save during their working life over the urge to spend current income (Bernheim et al., 2001).

Several economists challenge the existence of the retirement consumption puzzle. According to Hurst (2008) there is both substantial heterogeneity in spending changes at retirement across consumption categories and across households. Households mainly spend less on food and work related expenses like clothing and transport (Battistin et al., 2009), but not on nearly all other non-durable categories (Aguiar and Hurst, 2013). However, this does not imply that they consume less in quantitative terms, but that they spend less money on it, due to home production or more efficient shopping (see e.g. Aguiar and Hurst, 2007; Velarde and Herrmann, 2014). Regarding differences across households, it turns out that expenses mainly decline in households with limited accumulated wealth prior to retirement or where poor health or unemployment is the reason to retire involuntarily (Smith, 2006; Hurd and Rohwedder, 2008). In the latter case, consumers may not anticipate the timing of retirement and may be confronted with an unexpected, sudden reduction in income which causes them to cut their spending. Ameriks et al. (2007) and Hurd and Rohwedder (2008) relate expected and actual household spending. Their results do not support the view put forward by Hamermesh (1984). Their results reveal that retirees in the US consume more during retirement than they had expected a priori, the only exception being retirees in the lowest wealth category.

2.2 Annuity consumption puzzle

Next to the retirement consumption puzzle there is also an annuity puzzle, which refers to the relatively low voluntarily take up of full annuities by retirees (see e.g. James and Song, 2001). From a lifecycle perspective risk averse utility maximizing agents with uncertain lifetime but without a bequest motive should always prefer to convert their entire accrued pension wealth into actuarially fair annuities over a lump-sum payment (Yaari, 1965). An annuity enhances someone's welfare by eliminating the longevity risk associated with an uncertain lifetime and by providing a higher consumption level during retirement. Even if agents have a bequest motive, partial annuitization of their accrued pension wealth remains optimal according to Davidoff et al. (2005). Brown (2007) states that "the insurance features of life annuities appear to be poorly understood and/or "under-valued by the general public". Many people "simply ignore uncertainty about length-of-life".

Numerous economists have tried to explain the annuity decision. Hurd et al. (1998) find some evidence of adverse selection; people opting for annuities have above-average life expectancies and people choosing for lump sum payments have below average life expectancies. Hurd et al. (1998) also point out that especially people with little wealth opt for cashing out their accrued pension entitlements. This also holds for people whose accrued pension wealth is relatively modest. The latter finding is supported by the results of Bütler and Teppa (2007) for Switzerland who think that this finding “may be due to higher rates of time preference”. In an experimental setting where non-student subjects can choose between an annuity and an investment option Agnew et al. (2008) find that women and risk averse subjects are more likely to choose the annuity option, whereas financially literate subjects are more prone to cash out and go for the investment option.⁵

The annuity decision also depends on the framing. This is for example shown by Agnew et al. (2008), who find that men being more sensitive to framing than women. When using a consumption frame, that highlights the protection annuitization offers against the longevity risk, subjects are directed towards annuitization. Alternatively, when using an investment frame, stressing the uncertainty of annuities’ total payoff due to the subject’s unknown lifetime and the risk of losing payoff as annuities can’t be passed on as a bequest, subjects are driven away from annuitization. Bockweg et al. (2016) are the first to examine the impact of framing on the decision to annuitize in an institutional setting outside the US, i.e. the Netherlands, where full annuitization of second pillar pension plans is standard (see section 3). The respondents are participants of one of the largest Dutch pension fund.. When in a neutral frame, 42% of the respondents chooses the full annuitization option and 58% opt for the partial lump sum option, of on average 12.3%.⁶⁷ Like Agnew et al. (2008) they find that respondents’ annuity decisions can be steered using defaults and framing in the expected way. However, they do not find that men are more sensitive to framing than women; they are only influenced by different frames. Furthermore, Bockweg et al. (2016) show that the impact of framing depends on age, risk aversion and debt position.

2.3 Trust

The literature has been silent up to now on which factors influence people’s trust in pension funds, and the impact of trust on participants’ preferences for different pay-out schemes.

⁵ According to the literature It is difficult to indicate a priori how financial literacy influences participants’ preference. Financially literate participants may be aware of the longevity risk and prefer the default full annuity pension plan, whereas financially illiterate participants may underestimate the longevity risk (Brown, 2007). Yet, financially literate participants may also opt for non-default pension plans as they may think to be able to achieve higher returns than their pension funds (investment option) (Van Rooij et al., 2007 or Banks et al., 2015).

⁶ 20% was the maximum one could choose.

⁷ Please not that in 2016 (partial)lump sum payments were not possible in the Netherlands

However, there is some research on the drivers of trust in other financial institutions. People's trust declines in times of financial turmoil. For instance, Stevenson and Wolfers (2011) show that the public's trust in the financial sector fell sharply during the recent global financial crisis. They highlight the pro-cyclical nature of trust in banks, businesses and the government worldwide. Knell and Stix (2015) find evidence of the depressing effect of the global crisis on people's trust in the Austrian banking system. Their study also shows that subjective factors affect trust, such as people's assessment of their current and future financial positions. Focussing on Spain, Carbó-Valverde et al. (2013) discover that customers' trust in banks is related to their perceptions of performance characteristics and attributes of their bank. Van der Crujisen et al. (2016) find that people's trust in banks in the Netherlands is affected by their personal financial crisis experiences, such as a bank failure. In a related study Jansen et al. (2015) show that large top management bonuses, negative media reports, drops in share prices and opaque product information may cause a fall in trust in banks.

3. THE DUTCH PENSION SYSTEM

The Dutch pension system is characterised by relatively high pension benefits. The gross pension income as share of gross wage, the so-called gross replacement rate, for an average earner is 90.5% (OECD, 2015). This is the highest among the OECD-countries and well above the average OECD gross replacement rate (58%) and the gross replacement rate of the United States (35%). Since the start of the 21st century the Dutch pension system has known several reforms to take into account the ageing of the population and the increasing life expectancy, but also to cope with changing accounting rules, declining investment returns and lower interest rates due to the financial crisis.

Like many other European countries, the Dutch pension system consists of three pillars (Been, 2015). The first pillar is a flat-rate public pension (AOW), which all residents in the Netherlands receive from the day they reach the AOW pension age that applies to them and which is financed on a pay-as-you-go basis. The level of the public pension depends on the net minimum wage and the number of years that someone has lived in the Netherlands. For example, pensioners who have lived in the Netherlands for 50 years prior to their retirement and are living without a partner receive 70% of the minimum wage, (EUR 1,076 per month in 2016) and pensioners living together with a partner receive 50% of the minimum wage (EUR 741 per month in 2016). At the introduction of the Dutch public pension system in 1957, the statutory retirement age was set at 65 years. Like in many other countries, the Dutch administration increased the statutory retirement age. In 2010 it announced that the statutory retirement age would increase, starting in 2013. Since then the statutory retirement age has gradually been increased to 65.5 years in 2016, 66 years in 2018 and will be 67 years in 2021. Thereafter, the statutory retirement

age will be linked to changes in life expectancy, see Parlevliet (2015) for a discussion of the reform process.

The second pillar consists of capital-funded occupational pension plans. The occupational pension plans and the public pension plan are well integrated (OECD, 2015). There is no statutory obligation for employers to offer an occupational pension plan, but due to labour market agreements between trade unions and employers 91% of employees are covered by an occupational pension plan, so they can be considered as quasi mandatory. At the retirement age participants receive a lifelong annuity based on the accrued pension benefits. These annuities are adjusted for inflation by linking the pension benefits to rises in employee wage levels if the funding ratio of the pension funds lies above the required funding rate.⁸ Most occupational pensions are defined benefit (DB) pension plans based on either final pay or career average wages with conditional indexation for active participants and pensioners.⁹ However, due to several factors an increasing share of the plans switched to defined contribution (DC) pension (Van Rooij et al., 2007; OECD, 2015).

Measures taken by pension funds since the outbreak of the crisis have weighed down heavily on households' disposable incomes and spending (DNB, 2015), received a lot of attention in the media and resulted in lower levels of trust in pension funds (DNB, 2014). Before the crisis pension funds were able to meet their obligations towards their participants and pensioners in terms of paying out the nominal pension rights and indexing these rights with a high degree of certainty. However, during the outbreak of the economic crisis in 2008 the average funding rate of pension funds dropped to 95% at the end of 2008 due to negative investment returns and historically low long term interest rates (DNB, 2009). Pension funds needed to take measures such as additional depositions by employers, increasing pension contributions for employees and employers, cancelling of (full) indexation or even cutting nominal pension benefits to improve their funding rate.¹⁰

Nowadays, pension funds offer their participants an increasing number of options to adjust their pensions to their individual needs. Since the retrenchment and abolition of collective early retirement arrangements during the late 1990s and early 2000s, pension funds provide participants the possibility to retire earlier than the pension fund's default retirement age, with a

⁸ Each pension funds has its own required funding rate, which ranges between 110-130%. If the funding rate drops below the required funding rate the pension funds needs to draw up a recovery plan with measures it will take to ensure that its financial situation recovers within a 10-year time span..

⁹ As of 1 January 2015, the pensionable salary has been maximized at EUR 100,000 annually in case of fulltime employment.

¹⁰ De Haan (2015) examines the usage of the different recovery measures by underfunded Dutch pension funds between 2011 – 2013. He finds that they increase the contribution first, followed by no indexation and only as a last resort cut pensions.

minimum retirement age of 55 years.¹¹ Recently, pension funds also offer the possibility to delay retirement, to combine part-time working with part-time retirement or to exchange the partner's entitlement of pension for higher benefits during one's retirement.¹²

For our study it is particularly interesting that pension funds may provide participants the possibility to vary the level of the pension benefit during retirement. For fiscal reasons, the variation should stay within certain margins, i.e. within the range 100:75. Participants can choose a higher benefit during the first years of their retirement and thereafter a lower benefit (high-low profile), or conversely (low-high profile). The length of the first period is maximized to 10 years, and only one change in the pension level is allowed. Note that a high-low annuity based pension arrangement can be regarded as an intermediate form between a flat annuity based pension and a partial lump sum payment in combination with a lower annuity based pension. Although existing legislation offers space for pension funds to match pensions with participants' preferences to some extent, it does not allow yet for a one-off take up of part of the accrued pension rights.¹³ However, there are discussions on allowing pension funds to offer such an option to their participants. The current maximum degree of variation of pension benefits may not be well-suited for all pensioners. For instance, participants may wish to take up a large sum of money for travelling at the beginning of retirement, for making a large purchase, reducing outstanding mortgage debts or to absorb idiosyncratic risks themselves.¹⁴

The third pillar consists of people's private savings and individual pension insurances products. The government fiscally stimulates second pillar pension savings for all employees and third pillar pension saving for self-employed people and employees with pension entitlement gaps, by making pension contributions tax deductible. Pension benefits received during retirement are taxed. At the end of 2013 54% of the pension entitlements in the Netherlands came from the first pillar, 40% of the second pillar and 6% of the third pillar (Bruil et al., 2015).

To sum up, the Netherlands is a good case to study pension choices and their drivers given the debate on increasing the freedom of choice and a setting where most pensioners receive a flat annuity pension and introducing flexibility is a new phenomenon. Given our interest in trust as a determinant of pension profile preferences it is useful to research this topic in a country where we expect to find a lot of variation in workers' and pensions' trust due to the high level of

¹¹ In the 1980s, pension funds provided early retirement arrangements to participants to reduce unemployment among young workers. At the end of the 1990s and early 2000s these collective arrangements were gradually phased out and replaced by individual voluntarily early retirement pension arrangements.

¹² Partner's entitlement of pensions: in case the participant dies, the spouse will receive pension benefits.

¹³ Apart from the Netherlands, pension funds in Norway and Sweden do not allow for the conversion of accrued pension rights into a one-off lump sum payment (EIOPA, 2014).

¹⁴ Arts and Ponds (2016) show that both young and older generations in the Netherlands may benefit from the exchange of home equity and pension wealth by the use of reverse mortgages and lump sum take-ups of accrued pension wealth.

uncertainty in the past years and differences in the degree to which funds had to take painful measures.

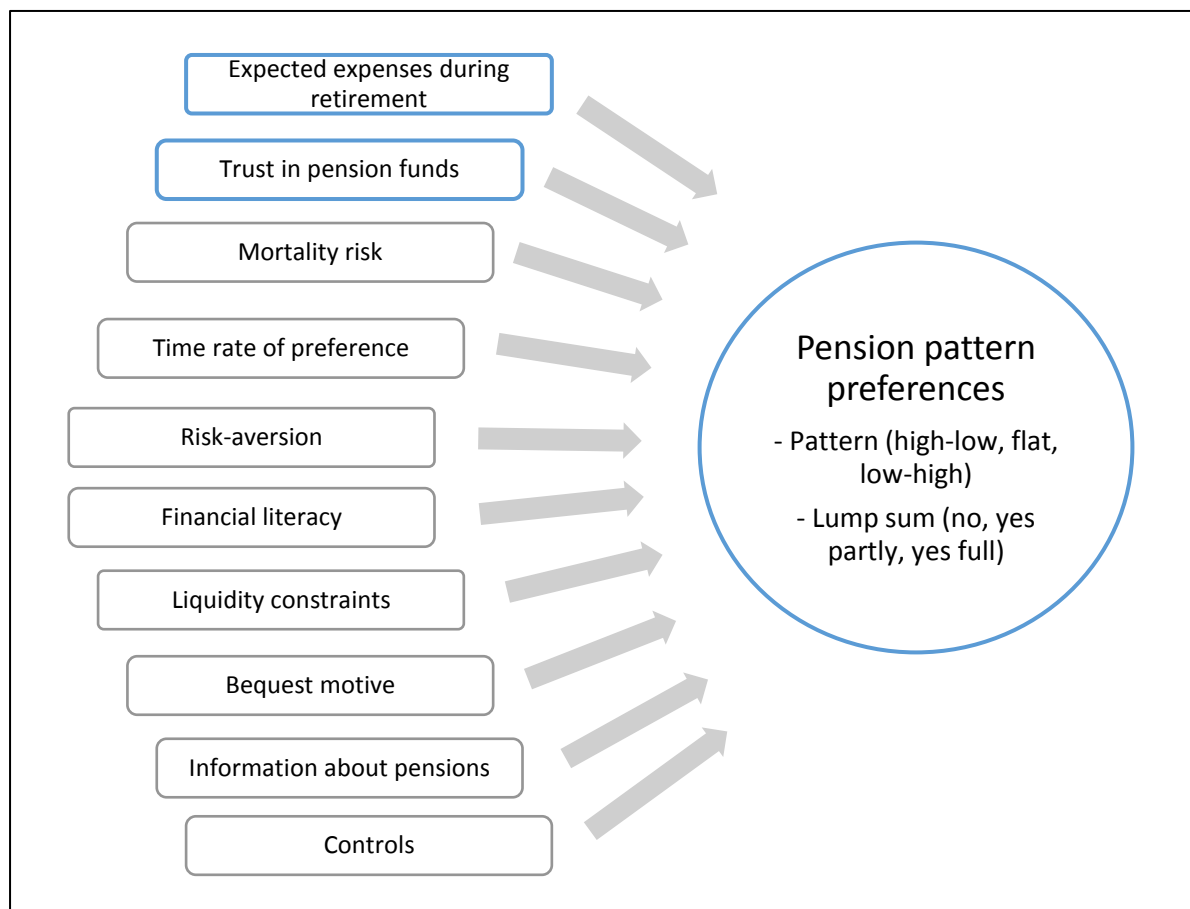
4. CONCEPTUAL MODEL AND HYPOTHESES

We build a conceptual model (Figure 1) which we use to explain workers' pension pattern preferences. We distinguish between the more general pattern preferences (flat profile, high-low profile and low-high profile) based on fully annuitized pension schemes and the lump sum pension payment (full annuitization, partly lump sum, full lump sum). Next to our main factors of interest expected expenses during retirement and trust in pension fund, we use commonly used drivers of pension choices, such as mortality risk, time rate of preference, risk aversion, financial literacy, liquidity constraints, pension information and bequest motives.

We formulate two hypotheses regarding the impact of our two main factors of interest on people's pension pattern preferences.

Hypothesis 1 (H1): *Pension pattern preferences depend on people's expected expenses during retirement.*

Figure 1. Conceptual model



Hypothesis 1 is formulated in line with our expectation that employees' pension pattern preferences depend on their foreseen changes in consumption *during retirement*. First, we expect that workers who foresee declining expenses are more likely to prefer the high-low profile, or even cashing out part of their accumulated pension wealth than consumers who expect stable expenses. Contrary, we expect that workers who expect increasing expenses are more likely to opt for a low-high profile than workers who expect a flat expenditure pattern. Second, we expect categories representing a high share in total consumption such as housing, recurring expenses or car related expenses to have a relatively large impact on pension pattern preferences, whereas categories which represent a small share in total expenses, for example clothing, to have hardly any effect. Furthermore, people who expect increasing health costs during retirement may be less likely to opt for a high-low profile but more likely to opt for a flat rate or a low-high rate.¹⁵ Third, regarding the choice between full annuity over lump sum payments, we expect consumption categories reflecting high one-off expenses such as holidays or durable goods to influence the choice between full annuity and (partial) lump sum payments. However, it seems unlikely that other consumption categories influence the choice for cashing out or not.

Hypothesis 2 (H2): *Pension pattern preferences depend on the trust people have in their pension fund.*

We hypothesise that pension pattern preferences depend on the level of trust in pension funds. The lower someone's trust in the pension fund is, the more likely it is that (s)he prefers a high-low pension profile at retirement and/or a lump sum payment. During the past years, an increasing number of participants in pension funds have been confronted with recovery measures taken by their pension fund. This may have compromised participants' trust in their pension fund(s), such that they prefer to take out as much of their accrued pension wealth as quick as possible to reduce the risks of future cuts.

Table 1 summarizes these hypothesised effects as well as the effects found in the economic literature of other factors that influence people's preferences.

¹⁵ Health care expenses include for example health care insurance, medical out-of-pocket costs, and payments to service providers. Since the introduction of the mandatory base health care insurance in 2006 the Dutch have been confronted with rising health care costs insurance contributions and rising medical out-of-pocket costs, due to a rising excess of the Dutch base health care insurance, and cuts in its coverage. On top of that, the Dutch administration has economised on state-subsidised domestic help for people with health problems, so that people have to cover such expenses themselves.

Table 1. Determinants of pension pattern preferences

Driver	Hypothesized effect
Expected expenses during retirement	H 1: People who expect a decreasing consumption pattern during retirement are more likely to have an interest in a high-low profile and a (partial) lump sum payment than people with other expectations.
Trust in pension funds	H 2: The lower the trust in one's pension fund is, the higher the interest in a high-low profile and a (partial) lump sum payment.
Drivers from the economic literature	Effect found in the literature
Mortality risk	The higher the mortality risk is, the stronger the interest in a high-low profile and a (partial) lump sum payment.
Time rate of preference	The higher the time rate of preference, the stronger the interest in a high-low profile and a (partial) lump sum payment.
Risk-aversion	The stronger the risk aversion is, the weaker is the interest in a high-low profile and lump sum.
Financial literacy	Effect ambiguous.
Liquidity constraints	Effect ambiguous.
Bequest motive	The stronger the bequest motive, the lower the interest in full annuity and the higher the interest for a (partial) lump sum payment
Amount of information received about the available options	Effect ambiguous

5. OUR 2015 SURVEY ON PENSION PATTERN PREFERENCES AND THEIR DRIVERS

To get detailed insight into people's pension pattern preferences and their drivers, especially the role of expected expenses during retirement and trust, we conducted a survey, using the CenterPanel.¹⁶ This is a representative sample of the Dutch speaking population in the Netherlands. Centerdata is a research institution that is affiliated to Tilburg University and manages this online panel.¹⁷ Researchers and policymakers have used this panel to study a wide range of topics, including pension-related issues (e.g. Alessie et al. 2011, Van Duijn et al. 2013 and Van Schie et al. 2012). An important feature of this panel is that a wide range of information on the panellists can be found in the DNB Household Survey (DHS) database. Panellists answer the DHS, which exists for over two decades, on a yearly basis. It includes six modules: general information on the household, household and work, accommodation and mortgages, health and income, assets and liabilities and economic and psychological concepts.¹⁸ The advantage is that supplementary questionnaires, like ours, don't need to include questions on these issues. Our survey was held in November 2015. We selected panellists that were 25 years or older. Of the 2,463 panellists that received the survey 2,082 respondents completely filled it in. This implies a response rate of 84.5%.¹⁹ Our survey includes questions that measure whether people prefer a flat, high-low or low-high pension pattern and the underlying reasons. The latter is a first

¹⁶ The questionnaire is available on request.

¹⁷ More information on the CenterPanel is available at <http://www.centerdata.nl/en/projects-by-centerdata/the-center-panel>. URL last accessed on 19 May 2016. Teppa and Vis (2012) also give a good overview.

¹⁸ More information on the DHS is available at <http://www.centerdata.nl/en/projects-by-centerdata/dnb-household-survey-dhs>. URL last accessed on 19 May 2016.

¹⁹ There were 54 incomplete responses.

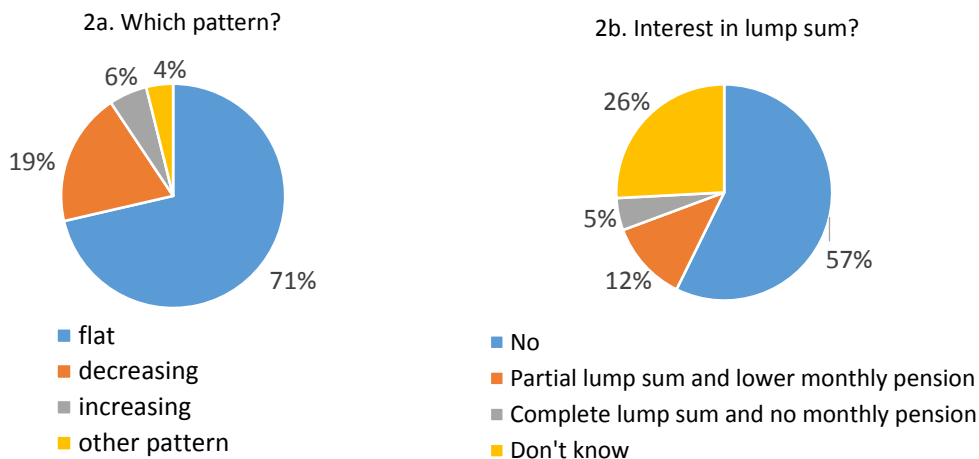
indication of what drives pension pattern preferences (see Section 5.2). Furthermore, we measure interest in a lump sum pension. Last, our survey includes questions to construct the broad set of potential drivers of preferences as included in our theoretical model. We use these to run regressions to formally test our hypotheses (see Section 7).

5.1 Dependent variables

We construct two dependent variables: *preference high-low* and *preference lump sum*. The first dependent variable is 0 for respondents who want a high-low profile and 1 for respondents that want a flat rate.²⁰ We estimate logit regressions to understand why some people opt for a high-low pay-out whereas others find a flat rate more appealing. The second dependent variable *preference lump sum* is 0 for respondents who don't want a lump sum benefit at the start of their retirement and 1 for respondents who want a partial or full lump sum. We estimate logit regressions with *preference lump sum* as dependent variable.

Although most respondents with pension rights would opt for a flat rate, 29% prefer a variable pension benefit (Figure 2a). Especially the high-low profile is popular; 19% prefer this pattern, whereas only 6% opt for the opposite profile. A majority of the respondents who prefer a high-low profile, prefer the steepest pattern possible. In contrast, a majority of the respondents who want a low-high profile rather want a moderate pattern.

Figure 2. Substantial interest in non-flat pension income pattern.



Source: CentERpanel, November 2015.

Note: Figure 2a shows the response shares for 1706 respondents, all with pension rights, to the question: "Suppose you could make below choices regarding the level of your pension. Suppose that prices of products and services don't change. What do you prefer?" Figure 2b shows the answer to "Suppose you could receive part of your accrued pension immediately when you retire. Would you want that?" for 1745 respondents with pension rights. Pensioners got the question: "Suppose you could receive part of your remaining pension immediately. Would you want that?"

²⁰ Note that the group of respondents wanting a low-high profile is too small to include in the analysis.

Of all respondents with pension rights, 17% would opt for a lump sum payment in exchange for a lower or no monthly pension benefit (Figure 2b). A partial lump sum is more popular than a full lump sum; 12% of the respondents versus 5% of the respondents have an interest. Note that 1 out of 4 respondents does not know whether he/she wants a lump sum payment. This may be explained by the fact that a lump sum payment is not yet introduced by pension funds in the Netherlands. Therefore, a lot of people lack knowledge and find it hard to tell their interest in this form of freedom of choice.

5.2 Variables for expected expenditure pattern

Our survey shows that people expect to spend less when they are retired. Table 2 presents the expectations regarding total expenses and for ten subcategories. It summarises the answers to the statements "Suppose you are retired and younger than 75. Compared to now, how do you expect your expenditures to change?" and "Suppose you are retired and 75 years or above. Compared to now, how do you expect your expenditures to change?" The answer categories are: 1 = much less than now, 2 = a bit less than now, 3 = the same as now, 4 = a bit more than now, and 5 = much more than now. The table shows plus and minus points based on the average response of the respondents. Plus (minus) points indicate that respondents expect to spend more (less) than they currently do. Overall, respondents think they will spend a bit less when they are retired than they are currently spending. This holds for both the first part of their retirement (until the age of 75) and the second part (from age 75 onwards). When looking at specific consumption categories, it turns out that, on average, respondents expect to spend less on recurrent payments, food and drinks, variable costs related to their car, clothing and durable

Table 2. Respondents expect to spend less when retired

	Expected expenses 65-74 years, compared to current situation	Expected expenses 75+ years, compared to current situation
Total expenses	--	--
<i>Category</i>		
Recurrent payments	-	--
Food and drinks	-	-
Fuel, car maintenance, taxes	-	--
Clothing	-	--
Durable goods	-	--
Public transport and taxis	+	+
Restaurants, cafes and recreation	+	-
Health care	++	++
Service providers	+	+
Holidays	+	-
Number of observations	1089	1084

Source: CentERpanel, November 2015.

Note: Only the responses of respondents with pension rights are included in this table. -- = mean is 2.5 or smaller, - = mean is between 2.5 and 3, + = mean is between 3 and 3.5, and ++ = mean is 3.5 or larger. Note that a value smaller than 3 indicates a decline of expenses and a value larger than 3 an increase of expenses.

goods. With the exception of food and drinks they also expect a further decline of these expenses during the second part of their retirement. Table 2 also reveals that in contrast to spending in general, on average, respondents expect to spend more on public transport and taxis, service providers and health care during retirement. These findings are in line with those of Battistin et al. (2009) for food and work related expenses and of Aguiar and Hurst (2013) for non-durable goods. Furthermore, respondents expect to spend more on leisure during the first part of retirement than before retirement. In contrast, in the second phase of retirement the average respondent expects to spend less on holidays and in restaurants, cafes and recreation than before retirement.

Pensioners spend less than before retirement (Table 3, column 1) and first phase pensioners, pensioners below 75, expect a further decline of expenses (Table 3, column 2). Note that in contrast to the expectations of the cohort that is not retired yet, the pensioners spend less on leisure, public transport and service providers than before retirement. Health care is the only category with higher expenses after than before retirement and first phase pensioners expect that health care expenses will further increase.²¹

Table 3. Pensioners spend less than before retirement and first phase pensioners expect a further decline of expenses

	Current expenses, compared to pre-retirement (total group of pensioners)	Expected expenses 75+ years, compared to current situation (first phase pensioners)
Total expenses	-	-
<i>Category</i>		
Recurrent payments	-	-
Food and drinks	-	-
Fuel, car maintenance, taxes	--	--
Clothing	--	--
Durable goods	--	--
Public transport and taxis	--	-
Restaurants, cafes and recreation	-	--
Health care	++	++
Service providers	-	-
Holidays	-	--
Number of observations	666	462

Source: CentERpanel, November 2015.

Note: Only the responses of respondents with pension rights are included in this table. -- = mean is 2.5 or smaller, - = mean is between 2.5 and 3, + = mean is between 3 and 3.5, and ++ = mean is 3.5 or larger. Note that a value smaller than 3 indicates a decline of expenses and a value larger than 3 an increase of expenses.

In our baseline regressions we include a set of *expected expenditure pattern during retirement* variables as an explanatory variables, one for each spending category (see Table 4). We use the answers to the questions (1) "Suppose you are retired and younger than 75. Compared to now,

²¹ It may very well be the case that pensioners want to spend more but don't have enough income to do so. We find a significant positive correlation of 0.23 between the extent to which one thinks that one's pension income has been disappointing and the extent to which one spends less than expected before retirement.

Table 4. Determinants of pension pattern preferences

Driver	Measure
Expected expenses during retirement	<i>Expected expenditure pattern during retirement: c</i>
Trust in pension funds	<i>Trust pension funds</i>
Mortality risk	<i>Younger, more health care, less active Older, less health care, more active Chance 75</i>
Time rate of preference	<i>Time rate of preference</i>
Risk-aversion	<i>Risk taker: low, risk taker: high</i>
Financial literacy	<i>Responsible for finances Financial ability: more or less able, financial ability: able, financial ability: very able</i>
Liquidity constraints	<i>Wealth: low, wealth: high Homeowner Income: low, income: high and income: unknown Manage: very hard, manage: hard, manage: easy, manage: very easy</i>
Bequest motive	<i>Bequest motive 1: save to leave wealth Bequest motive 2 save to give presents Children</i>
Information about pensions	<i>Information newspaper Information Internet Information television/radio Information pension fund Information other Information own pension</i>
Other controls	<i>Male, Partner, 34 and below, between 35 and 44, between 55 and 64 Education: bachelor or higher, City</i>

Note: c = category.

how do you expect your expenditures to change?" and (2) "Suppose you are retired and 75 years or above. Compared to now, how do you expect your expenditures to change?" to construct this variable. The answers to both questions range from 1 (much less than now) to 5 (much more than now). *Expected expenditure pattern_j* is 0 for respondents who gave the same answer to both questions about spending category *c*, reflecting stable expenditures during retirement. It is 1 for respondents who foresee an increasing pattern for spending category *c* and -1 for respondents who expect expenses for this spending category to decline during retirement.

5.3 Variable for trust in one's pension funds

We include one measure of trust as explanatory variable: *trust pension funds*. This is the answer to the question "Do you trust your pension fund(s) to be able to pay your pension benefit at all times?". Answers are recoded such that higher values imply higher levels of trust. The variable ranges from 1 (no, not at all), to 5 (yes, completely).

Table 5 summarises the responses for employees with pension rights who are aged 64 or lower (column 2), pensioners (column 3) and for all panellists with pension rights (column 4). On average, the panellists trust that their pension funds will be able to pay their pension benefits at all times. However, 14% have strong doubts and 4% do not have any trust that their

Table 5. Trust in one's pension funds

(In percentages)

	Employees with pension rights, age <65	Pensioners with pension rights	All panelists with pension rights
1: No not at all	4.7%	2.7%	4.0%
2: No, predominantly not	16.4%	9.6%	13.8%
3: Neutral	22.4%	15.7%	19.8%
4: Yes, predominantly	40.1%	46.7%	42.6%
5: Yes, completely	7.5%	22.1%	13.1%
Don't know/no opinion	9.0%	3.2%	6.8%
Number of observations	1,081	664	1,745

Source: CentERpanel, November 2015.

pension funds will be able to do so. 7% did not provide an answer to this question. There are clear differences between the scores given by employees and pensioners. The former group gives lower scores to their pension funds than the latter and indicates more frequently not to be able to provide an answer.

We examine to what extent trust in one's pension fund reflects the "financial healthiness" of the pension fund. We do so by using logit regression analysis to explain the panellists' answers on the trust question with their answers on the question "Did your pension fund have financial problems during recent years?" and questions related to whether their pension fund had taken recovery measures in recent years to improve upon its funding rate. We construct a binomial trust variable, taking the value 1 if panellists indicated to trust their pension funds predominantly to completely, and 0 if they responded not to trust their pension fund at all to being neutral. We ran separate regressions for workers and pensioners. Next to variables related to the pension funds' financial healthiness and any recovery measures taken by it, we include a set of standard demographic characteristics, reflecting the respondents risk attitude towards pensions, their financial knowledge, their time preference and information sources used by them on pensions as control variables (see section 5.4 for a detailed explanation). The estimation results are summarized in Table C in appendix C.

The results reveal that people's trust in their pension fund depends on the perceived pension fund's performance. The likelihood that panellists trust their pension funds' capability to pay their pension benefits drops by 13 percentage points (workers) to 16 percentage points if they report that their pension fund has had financial problems in the past few years. The impact of the different recovery measures which pension funds varies a lot. Both workers' and pensioners' trust is lower in case of pension benefit cuts, respectively 11 and 14 percentage points. In addition, pensioners' trust is also relatively low if their pension fund has refrained from (fully) indexing the pension rights (-13 percentage points). However, trust is not significantly affected by rises in employer's or employees' pension contributions. The finding that trust is mainly affected by pension cuts and no or partial indexation suggests that trust reflects the extent

in which people feel certain about future stream of income during retirement, and the purchasing power it will provide them.

5.4 Other explanatory variables

Based on the literature on pension choices, we include a wide range of additional explanatory variables, see Table 4.

Mortality risk

First, we include a set of indicators of mortality risks. Respondents were asked to compare themselves with people of the same age and then report the degree of agreement with the statements “I expect to become older”, “I expect to need more health care”, “I expect to remain more active”. Based on this information we construct six binary dummy variables *younger, higher health care costs, less active, older, lower health care costs, and more active*. Respondents with the first three variables at 1 have a high mortality risk, whereas respondents with the last three variables at 1 have a low mortality risk. Our final measure of mortality risk is *chance 75*. This is the self-reported likelihood of reaching age 75 or beyond.

Time rate of preference

To measure the time rate of preference we build the variable *time rate of preference*. *Time rate of preference* is a factor distilled from six variables using factor analysis that measures the respondent’s agreement with six different statements: (1) “I live more for today than for tomorrow”, (2) “I am only concerned about the present”, (3) “things will work themselves out in the future”, (4) “I find it important to save, such that I will have some money in reserve for the future”, (5) “You have to take into account that things may get worse in the future”, and (6) “Regarding my future I want to leave as little as possible to chance.”. The answers range from 1 (completely disagree) to 5 (completely agree). We reversed the scales of statements 4, 5 and 6.

Risk-aversion

To capture respondents’ risk-aversion we use respondents’ self-reported risk aversion with respect to pensions. We construct two binary dummy variables based on the answers to the question “To what extent are you prepared to take risks with respect to your pension”. The answers range from 1 (not at all) to 7 (very prepared). *Risk taker low* is 1 for respondents who answer 3 or less, and 0 for other respondents. *Risk taker high* is 1 for respondents who are very prepared to take pension-related risks, and 0 for other respondents. Most respondents are risk-averse (63%), 1 out of five is risk neutral and 7 % is risk loving.

Financial literacy

We include two measures to capture respondents' financial literacy. *Responsible for finances* is a dummy equal to 1 if the respondent takes care of the household's finances. Second, we include a self-reported measure for financial ability, which is akin to variables used to proxy financial literacy (e.g. Lusardi and Mitchell 2007 and Van Rooij et al. 2011). We include three binary dummy variables: *financial ability: more or less able*, *financial ability: able*, and *financial ability: very able*. The reference category includes people who consider themselves not knowledgeable with respect to financial matters.

Liquidity constraints

We construct various measures of liquidity constraints. First of all we include wealth measures. *Wealth: low* and *wealth: high* are binary dummies based on the self-reported money on checking and savings accounts and investments. The first dummy is 1 if wealth is EUR 10,000 or lower. The second dummy is 1 if wealth is EUR 50,001 or more. In addition, we construct a binary dummy *wealth: unknown* that is 1 for respondents who did not report this information. Second, we include a binary dummy *homeowner*, which is 1 for homeowners. We also test for liquidity constraints by including income measures in our regressions. The binary dummy *income: low* is 1 for respondents who have a gross monthly income of EUR 1500 or less and 0 for other respondents, while the binary dummy *income: high* is 1 for respondents with an income higher than EUR 3000 and 0 for other respondents. *Income: unknown* is 1 for respondents who did not report their income. Furthermore, we use the outcomes to the question "How well can you manage on the total income of your household?" to construct four binary dummies: *manage: very hard*, *manage: hard*, *manage: easy*, *manage: very easy*. The reference group includes respondents who find it neither hard nor easy.

Bequest motive

To capture the bequest motive we include three variables: *children*, *save to leave wealth*, and *save to give presents*. *Children* is a binary variable that is 1 for respondents who have children and 0 for respondents who are childless. *Save to leave wealth* measures the degree to which respondents find it important to save to leave a house and/or other valuable assets to their children. This variable ranges from 1 (very unimportant) to 7 (very important). Similarly *save to give presents* measures how important one finds it to save to give presents or gifts to (grand)children.

Information about pensions

To measure the respondent's level of knowledge about choice options in pensions we use the answers to two questions. First, of all we use the answers to "During the past year, via which sources did you get information about pension-related choice options?" to construct a set of binary information dummies. Respondents could tick off several sources. *Information: newspaper* is a binary dummy that is 1 for respondents who read about flexible pensions in the newspaper and 0 for other respondents. Similarly, we construct *information: internet*, *information: television/radio*, *information: pension fund*. *Information: other* is a binary dummy that is 1 for respondents who received information about flexible pensions via magazines, their (former) employer, school/university, colleagues, family, friends or other sources and 0 for other respondents. Second, we use the answers to "During the past year, have you received and/or gathered information about your own pension?" to make the binary dummy *information own pension*. This variable is 1 for respondents who received and/or gathered information about their own pension and 0 for other respondents.

Controls

We control for a wide range of other factors. First, we measure gender by including a dummy *male* that is 1 for males and 0 for females. Second, the binary dummy *partner* captures whether the household head lives together with a partner. To control for the respondent's age we include three binary age dummies: *34 and below*, *between 35 and 44*, and *between 55 and 64*. The dummies are set at 1 for respondents who fall in the particular age category, and are 0 for the other respondents. The reference category is *between 45 and 54*. In the regressions with pensioners the only age dummy included is *between 55 and 64* and the reference category included people who are older. We furthermore include a variable that reflects the level of education. *Education* is 1 for respondents who have a graduate level diploma and 0 else. The variable *city* controls for the degree of urbanization of the respondent's residence and ranges from 1 (rural) to 5 (very urbanized). Further details on the control variables and descriptive information are in Appendix B.

6. THE FACTORS THAT EXPLAIN DIFFERENCES IN PREFERENCES: SURVEY RESULTS

The survey results give a first indication that expectations of expenses during retirement drive consumers' preferences for a specific pension profile. However, at first sight, trust seems to be a less important factor behind preferences Panellists reported why they prefer a specific pension profile. We gave them a long list of possible reasons and the option to fill in another reason. Each respondent has ticked off relevant reasons. Appendix A includes three figures that summarize the

responses regarding flat pensions (Figure A.1), high-low pension (Figure A.2) and low-high pension (Figure A.3). The most often mentioned reason for preferring a flat rate annuity pension is “most certainty about the level of pension”. It is a relevant reason for 59% of the respondents. A substantial group of respondents also indicates that they have savings for changes in expenses (34%), that they are uncertain about expenses during retirement (29%) or that they expect stable expenses (24%).

For respondents who prefer a high-low annuity pension we clearly find that the expectations of a high-low expenditure pattern during retirement is the main reason for this preference. “Declining daily expenses” is ticked off most, namely by 77% of the respondents. Many respondents also expect that recurrent expenses will decline (36%). In addition, we find that many respondents want more pension income in the beginning of their retirement than later on because they expect to travel a lot in the first years of their retirement (47%). A low life expectancy is a relevant reason for 1 out of 5 respondents to prefer a high-low pension. With this profile they maximize their total pension income. “To reduce the impact of future pension cuts” is mentioned by only 6% of the respondents, suggesting that trust in one’s pension funds has a limited impact on the respondents’ pension pattern preferences.

Also for respondents who prefer the opposite profile, we find that the main reasons are related to expectations of expenses during retirement. For seven out of ten respondents the expected increase in medical costs is a reason to prefer the low-high profile. Expecting an increase in daily expenses, recurrent expenses and costs of service providers are also often mentioned reasons for preferring a low-high pension (all 53%).

7. THE FACTORS THAT EXPLAIN DIFFERENCES IN PREFERENCES: REGRESSION RESULTS

Next, we formally test the two hypotheses introduced in section 4, i.e. H1: *Pension pattern preferences depend on people’s expected expenses during retirement* and H2: *Pension pattern preferences depend on the trust people have in their pension fund*. We have estimated binomial logit regressions to test whether differences in expected expenses during retirement, trust in one’s pension fund(s) and the other variables in our theoretical model significantly explain differences in pension profile preferences (Section 7.1) and lump sum preferences (Section 7.2). We find that expected expenses during retirement affect both choices, whereas the respondent’s trust on his/her pension fund(s) influences the choice to opt for a lump sum payment at retirement. So our results fully support H1 and support H2 with respect to the choice between a full annuity pension versus a (partial) lump sum payment. The results of the estimations are in Table 6.

7.1 Drivers of pattern preferences

For employees with pension rights we find that expectations of expenses during retirement are a driver of profile preferences (Table 6, column 1a). Employees who expect that variable expenses on cars and/or expenses on holidays will decrease during retirement are more likely to opt for a high-low profile than employees who expect differently. For example, employees who expect declining expenses on holidays during retirement are 7 percentage points more likely to prefer a high-low profile than employees who expect expenses on holidays to be stable during retirement. For car expenses the difference is 6 percentage points. We furthermore find that *preference pension pattern* does not depend on the level of trust. This holds for both employees and pensioners (Table 6, column 1a and 2a).

Regarding the other factors of our conceptual model, we find that employees who don't like to take risk with their pension are relatively unlikely to prefer a high-low rate. Employees with a high level of wealth and/or income are more likely to prefer the high-low profile than employees with a medium level of wealth and/or income. The wealth effect is also present for pensioners. These effects seem plausible. If you have a high income, the level of the low pension benefit in the second phase of retirement is probably still enough to cover your expenses and if you have a high level of wealth you can use your savings as a backup. Employees who find it hard to manage their household income are more likely to prefer a flat rate than employees who find it hard nor easy to manage. The picture with respect to the bequest motive is mixed. Employees with children are more likely to prefer the high-low profile than childless employees. However, those who like to save to leave wealth for their children are less likely to opt for the high-low pattern. We find the opposite pattern for pensioners.

Financial literacy is also a key driver of pensioner's preferences. Those who assess themselves to be very able are 24 percentage points more likely to prefer a high-low profile than pensioners who think they are not knowledgeable about financial matters. We furthermore find that pensioners who expect to need more health care than others with the same age are more likely to prefer a high-low profile than pensioners who expect to need the same as others. Last, we find a significant effect of information. Pensioners who received information about flexible pensions from their pension fund are 8 percentage points more likely to prefer a high-low profile than pensioners who did not receive information on this topic via this channel. For employees we do not find significant effects for variables reflecting financial literacy, mortality risk and information.

Regarding the controls, we find that young employees and employees who live in a rural area are relatively likely to prefer the high-low option. For pensioners the level of education matters: those with a high degree of education are 6 percentage points less likely to deviate from the default.

Table 6. Logit regressions

	(1)		(2)	
	Employees with pension rights		Pensioners with pension rights	
	(1a) <i>preference high-low</i>	(1b) <i>preference lump sum</i>	(2a) <i>preference high-low</i>	(2b) <i>preference lump sum</i>
<i>Expected expenditure pattern: fuel, car maintenance, taxes</i>	-0.06** (0.03)	-0.07* (0.04)		
<i>Expected expenditure pattern: holidays</i>	-0.07** (0.03)	0.01 (0.04)		
<i>Trust pension funds</i>	0.02 (0.02)	-0.07*** (0.02)	-0.02 (0.02)	-0.04*** (0.01)
Mortality risks				
<i>More health care</i>	0.02 (0.06)	-0.13* (0.08)	0.10** (0.04)	-0.02 (0.04)
<i>Chance 75</i>	-0.01 (0.01)	-0.02** (0.01)		
Time rate of preference				
<i>Time rate of preference</i>	0.01 (0.02)	0.05** (0.02)	-0.00 (0.01)	0.01 (0.01)
Risk-aversion				
<i>Risk taker: low</i>	-0.06* (0.03)	0.00 (0.05)	-0.04 (0.03)	-0.05** (0.02)
<i>Risk taker: high</i>	0.05 (0.05)	0.17** (0.07)	0.08 (0.06)	-0.03 (0.07)
Financial literacy				
<i>Financial ability: more or less able</i>	-0.01 (0.05)	0.10 (0.06)	0.06 (0.05)	0.08* (0.04)
<i>Financial ability: able</i>	-0.02 (0.05)	0.15** (0.07)	0.05 (0.05)	0.09* (0.05)
<i>Financial ability: very able</i>	-0.20 (0.12)	0.17 (0.12)	0.24*** (0.07)	0.18** (0.09)
Liquidity constraints				
<i>Wealth: low</i>	-0.03 (0.04)	-0.01 (0.05)	0.05 (0.04)	0.05** (0.03)
<i>Wealth: high</i>	0.08* (0.05)	-0.01 (0.06)	0.08** (0.03)	0.02 (0.03)
<i>Homeowner</i>	0.03 (0.05)	-0.04 (0.06)	-0.02 (0.04)	0.07** (0.03)
<i>Income: high</i>	0.10** (0.04)	-0.01 (0.05)	0.03 (0.03)	0.07** (0.03)
<i>Income: unknown</i>	0.16* (0.09)	0.05 (0.12)	-0.07 (0.14)	
<i>Manage: hard</i>	-0.22** (0.09)	-0.10 (0.08)	-0.00 (0.06)	0.10*** (0.04)
<i>Manage: very easy</i>	0.01 (0.06)	0.04 (0.07)	0.01 (0.04)	-0.13* (0.07)

Table 6. continued

	(1)		(2)	
	Employees with pension rights		Pensioners with pension rights	
	(1a) <i>preference high-low</i>	(1b) <i>preference lump sum</i>	(2a) <i>preference high-low</i>	(2b) <i>preference lump sum</i>
Bequest motive				
<i>Children</i>	0.09** (0.04)	0.05 (0.06)	-0.06** (0.03)	0.00 (0.03)
<i>Save to leave wealth</i>	-0.03*** (0.01)	-0.00 (0.01)	0.01** (0.01)	0.00 (0.01)
Information about pensions				
<i>Information: newspaper</i>	-0.03 (0.04)	-0.12** (0.05)	-0.00 (0.04)	-0.00 (0.03)
<i>Information: pension fund</i>	0.05 (0.04)	0.04 (0.04)	0.08*** (0.03)	0.02 (0.02)
<i>Information: own pension</i>	0.05 (0.04)	-0.00 (0.05)	0.01 (0.03)	0.05* (0.03)
Controls				
<i>34 and below</i>	0.10* (0.06)	0.02 (0.07)		
<i>Between 55 and 64</i>	-0.06 (0.04)	-0.14*** (0.05)	0.03 (0.05)	0.00 (0.04)
<i>Education: bachelor degree or higher</i>	-0.02 (0.04)	-0.03 (0.05)	-0.06* (0.03)	-0.04 (0.03)
<i>City</i>	-0.02* (0.01)	-0.03* (0.02)	0.01 (0.01)	0.00 (0.01)
Observations	778	581	519	564
Pseudo R-squared	0.11	0.12	0.20	0.22
Log pseudolikelihood	-406.3	-336.8	-129.7	-112.8
Wald chi2	101.0	70.1	79.3	81.1
Prob > chi2	0.00	0.05	0.00	0.00

Note:. The table reports marginal effects for logit regressions and robust standard errors for the marginal effects in parentheses. In column 1a and 2a the dependent variable is *preference high-low* (0=flat, 1=high-low). In column 1b and 2b the dependent variable is *preference lump sum* (0=no lump sum, 1=partial or full lump sum). Employees with pension rights are included in (1a) and (1b), pensioners with pension rights in (2a) and (2b). The reference person is someone who expects to become as old, stay as healthy and having as much health care costs as people of the same age, who is a female, without a partner, between 45 and 54, without a bachelor degree or a higher level of education, with a medium degree of risk aversion, income, and wealth, who does not own a house, has no children, received/gathered no information his/her own pension, and who finds it neither hard nor easy to manage on the household income. Unreported variables (younger, less active, older, lower healthcare costs, more active, responsible for finances, wealth: unknown, income: low, manage: very hard, manage: easy, save to leave presents, information: internet, information: television/radio, information: other, male, partner, between 35 and 44) are insignificant. A complete table is available upon request. * p<0.1, ** p<0.05, *** p<0.01

7.2 Drivers of lump sum pension preferences

The results of the lump sum regression confirm the relevance of expenditure expectations for preferences and also highlight that trust is an important explanatory factor (see columns 1b and 2b of Table 6). In particular, we now find an effect of the expectations about car expenses of 7 percentage point. The trust effect is strong. The lower the level of trust in one's own fund(s) is, the higher is the likelihood of wanting a lump sum pension. In other words, if trust is absent people rather secure their total pension rights at the start of their retirement. When *trust pension funds* declines by 1 the likelihood of wanting a lump sum increases by 7 percentage points for employees and 4 percentage points for retirees.

Employees who read about flexible pensions in the newspaper are less likely to prefer a lump sum pension benefit than employees who have not read about flexible pensions via this medium. We furthermore find that mortality risks play a role; employees who expect to have higher health care costs than other are relatively unlikely to want a lump sum pension. The same holds for employees that report a relatively high chance of reaching 75 or beyond. Unsurprisingly, employees with a high time rate of preference are more likely to prefer a lump sum payment than employees with a low time rate of preference. We furthermore find that the likelihood of preferring a lump sum is 17 percentage points higher for employees who are very prepared to take risks with respect to their pension than for risk neutral employees (reference group). Financial literacy is also a relevant factor behind lump sum preferences. Respondents who think they are knowledgeable with respect to financial matters are 15 percentage points more likely to prefer a lump sum than respondents who think they are not knowledgeable. We furthermore find that preferences of employees also depend on controls. Employees between 55 and 64 are less likely to prefer a lump sum payment than consumers between 45 and 54. A lump sum payment is relatively popular in rural areas.

The results for pensioners (column 2b) confirm that trust is an important driver of pension preferences. As for employees, we find a negative link between risk aversion and the likelihood of preferring a lump sum payment. Financial literacy is again positively related to the likelihood of wanting a lump sum payment. Pensioners who find it hard to manage with their household income and have a low level of wealth are relatively more likely to prefer a lump sum, whereas the opposite holds for pensioners who find it very easy to manage with their income. Homeowners are more likely to prefer lump sum payments than renters, perhaps to pay for renovations to their property.. Pensioners with a high level of income are more likely to opt for a lump sum than pensioners with a medium level of wealth. This seems plausible since the higher the income is the easier it is to still manage with your income if you lower your benefit in exchange for a partial lump sum. We furthermore find that pensioners that received or gathered

information about their own pension are 5 percentage points more likely to prefer a lump sum payment than pensioners who did not collect/receive this information.

8. CONCLUDING REMARKS

In this paper we examine to what extent people's expectations about their expenses during retirement and trust in their pension fund influences preferences for different pension arrangements using Dutch survey data.

We find that although most workers prefer a flat annuity pension, which is currently the default offered by most Dutch pension funds, many people want to deviate from it. So increasing freedom of choice fulfils a need. The most popular flexible pattern is a high-low annuity based profile, followed by a partial lump sum payment at retirement in exchange for a lower annuity pension.

One of the underlying reasons of people to prefer a particular pattern is their expected expenditures during retirement. Our regressions reveal that workers who expect declining expenses during retirement are more likely to opt for a high-low pension or (partial) lump sum payment than workers who expect stable expenses. This holds especially for car usage related expenses. In addition, we find that declining holiday expenses during one's retirement are a reason to favour a high-low annuity based profile over a flat one. However, we do not find a role for recurrent expenses, or daily expenses, even though our respondents earmarked these themselves among the most important reasons to prefer a high-low pension profile or a (partial) lump sum payment at retirement.

We also find that trust in one's pension fund influences preferences. People who do not trust their pension fund are more likely to prefer a lump sum over annuity based arrangements than those with a high degree of trust. However, distrust does not lead to a higher preference for a high-low annuity based pension.

The influence of trust suggests that people's preferences for pension arrangements may shift during financial crises, when pension funds funding rates worsen. They want to secure their pension rights at the start of their retirement by taking out (part of) their accrued pension wealth. Our results indicates that t especially holds especially when pension funds need to take painful recovery measures which lower the value of pension benefits. Reforms in the pension system which make funding rates less vulnerable to fluctuations in interest rates may therefore result in lower take out rates during crises.

References

- Agnew, Julie R., Lisa R. Anderson, Jeffrey R. Gerlach and Lisa R. Szykman (2008), Who Chooses Annuities? An Experimental Investigation of the Role of Gender, Framing and Defaults, *American Economic Review* 98, 418 – 422.
- Aguiar, Mark and Erik Hurst (2007), Life-cycle Prices and Lifecycle Production, *American Economic Review* 97(5), 1533 – 1559.
- Aguiar, Mark and Erik Hurst (2013), Deconstructing Lifecycle Expenditure, *Journal of Political Economy* 121(3), 437-492.
- Ameriks, John, Andrew Caplin and John Leahy (2007), Retirement consumption: insights from a survey, *The Review of Economics and Statistics* 89(2), 265 – 274.
- Alessie, R., van Rooij, M., and Lusardi, A. (2011). Financial literacy and retirement preparation in the Netherlands, *Journal of Pension Economics and Finance*, 10(4), 527-546.
- Arts, Jori and Eduard Ponds (2016), The need for Flexible Take-Ups of Home Equity and Pension Wealth in Retirement, Netspar Academic Series DP 01/2016-005.
- Banks, James, Rowena Crawford and Gemma Tetlow (2015), Annuity choices and income drawdown: evidence from the decumulation phase of defined contribution pensions in England, *Journal of Pension Economics and Finance*, 14(4), 412 – 438.
- Battistin, Erich, Agar Brugiavini, Enrico Rettore and Guglielmo Weber (2009), The Retirement Consumption Puzzle: Evidence from a Regression Discontinuity Approach, *American Economic Review* 99(5), 2209-2226.
- Been, Jim. (2015). Pensions, Retirement and the Financial Position of the Elderly, PhD-thesis MI-244, Meijers Research Institute and Graduate School, Leiden University.
- Behaghel, L. and D. M. Blau (2012), Framing social security reform: behavioral responses to changes in the full retirement age. *Am. Econ. J. Econ. Policy* 4, 41-67. <http://dx.doi.org/10.1257/pol.4.4.41>.
- Bernheim, B. Douglas, Jonathan Skinner, and Steven Weinberg (2001), What Accounts for the variation in Retirement Wealth among US Households?, *American Economic Review* 91(4), 832-857.
- Bockweg, Christian, Eduard Ponds, Onno Steenbeek and Joyce Vonken (2016), Framing and the Annuization Decision. Experimental evidence from a Dutch pension Fund, Working Paper.
- Brown, Jeffrey R. (2007), Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning, NBER Working Paper nr. 13537, NBER, Cambridge MA.
- Bruil, Arjan, Carlo Schmitz, John Gebraad and Rita Bhageloe-Datadin (2015), De Nederlandse economie 2015|2. ("The Dutch economy 2015|2"), CBS, The Hague.
- Bütler, Monika and Federica Teppa (2007), The choice between an annuity and a lump sum: Results from Swiss pension funds, *Journal of Public Economics* 91, 1944 – 1966.

- Carbó-Valverde, Santiago, Eduardo Maqui-López and Francisco Ródriguez-Fernández (2013), Trust in Banks: evidence from the Spanish financial crisis, working paper, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2310273.
- Crujisen, Carin van der, Jakob de Haan and David-Jan Jansen (2016), Trust and financial crisis experiences, *Social Indicators Research* 127(2), 577-600.
- Davidoff, Thomas, Jeffrey R. Brown and Peter A. Diamond (2005), Annuities and Individual Welfare, *American Economic Review* 96(5), 1583 – 1590.
- De Haan (2015), Recovery measures of underfunded pension funds: higher contributions, no indexation or pension cuts, DNB Working Paper 485.
- DNB (2009), DNB Annual Report 2008. Available at: http://www.dnb.nl/en/binaries/DNBar08_tcm47-216904.pdf.
- DNB (2014), Confidence in financial institutions rises slightly. DNBulletin. Available at: <http://www.dnb.nl/en/news/news-and-archive/dnbulletin-2014/dnb310579.jsp>.
- DNB (2015), DNB Annual Report 2014. Available at: http://www.dnb.nl/en/binaries/jv2014%20uk_tcm47-319635.pdf.
- DNB (2016), DNB Annual Report 2015. Available at: http://www.dnb.nl/en/binaries/Jaarverslag_ENG_web_tcm47-339389.pdf
- EIOPA (2014), EIOPA's fact finding report on decumulation phase practices, EIOPA report BoS-14/193.
- Hamermesh, Daniel S. (1984), Consumption During Retirement: The Missing Link in the Life Cycle, *The Review of Economics and Statistics* 66(1), 1 – 7.
- Hurd, Michael D. and Susann Rohwedder (2008), The retirement consumption puzzle: actual spending change in panel data, NBER Working Paper Series 13929. NBER, Cambridge MA.
- Hurst, Erik (2008), The retirement of a consumption puzzle, NBER Working Paper Series 13789. NBER, Cambridge MA.
- James, Estelle and Xu Song (2001), Annuities Markets Around the World: Money's Worth and Risk Intermediation Available at: SSRN: <http://ssrn.com/abstract=287375> or <http://dx.doi.org/10.2139/ssrn.287375>.
- Jansen, David-Jan, Robert Mosch and Carin van der Crujisen (2015), When does the general public lose trust in banks?, *Journal of Financial Services Research* 48(2), 127-141
- Knell, Markus and Helmut Stix (2015). Trust in Banks during Normal and Crises Times – Evidence from Survey Data, *Economica* 82, December 2015, 995-1020.
- Leinonen, T., M. Laaksonen, T. Chandola, and P. Martikainen (2016), Health as a predictor of early retirement before and after introduction of a flexible statutory pension age in Finland, *Social Science & Medicine* 158 (2016) 149-157.

- Li, Hongbin, Xinzheng Shi and Binzhen Wu (2015), The Retirement Consumption Puzzle in China, *Journal of Comparative Economics*, forthcoming.
- Loibl, Cäzilia, Wändi Bruine de Bruin, Simon McNair, and Barbara Summers (2015), Pension Freedom Day in the U.K.: Examining Pension Decisions, work in progress.
- Lusardi, Annamaria and Olivia S. Mitchell. 2007. Baby Boomer Retirement Security: The Roles of Planning, Financial Literacy, and Housing Wealth. *Journal of Monetary Economics*, 54(1): 205-224.
- Lusardi, Annamaria (2008), Household Saving behavior: The Role of Financial Literacy, Information and Financial Education programs, Working Paper 13824, available via <http://www.nber.org/papers/w13824>.
- OECD (2015), Pensions at a glance 2015: OECD and G20 indicators. OECD publishing, Paris.
- Parlevliet, Jante (2015), What drives public acceptance of reforms? Longitudinal evidence from the run-up of the increase of the Dutch retirement age, DNB Working paper 492.
- Prast, Henriëtte M., Federica Teppa and Anouk Smits (2012), Is information overrated? Evidence from the pension domain, DNB Working paper 360.
- Rooij, Maarten, J.C. van, Clemens J.M. Kool, and Henriëtte M. Prast (2007), Risk-return preferences in the pension domain: are people able to choose?, *Journal of Public Economics* 91, 701 – 722.
- Schwerdt, Guido (2005), Why does consumption fall at retirement? Evidence from Germany. *Economics Letters* 89 (2005) 300–305.
- Staubli, S. and J. Zweimüller (2013), Does raising the early retirement age increase employment of older workers? *J. Public Econ.* 108, 17-32. <http://dx.doi.org/10.1016/j.jpubeco.2013.09.003>.
- Smith, Sarah (2006), The retirement-consumption puzzle and involuntarily early retirement: evidence from the British household panel survey, *The Economic Journal* 116 (March), C130-C148.
- Van Duijn, M., Mastrogiacomo, M., Lindeboom, M., and Lundborg, P. (2013). Expected and actual replacement rates in the pension system of the Netherlands: How and why do they differ?, *Journal of Pension Economics and Finance*, 12, 168 - 189.
- Van Rooij, Maarten C.J., Annamaria Lusardi and Rob J.M. Alessie. 2011. Financial Literacy and Retirement Planning in the Netherlands. *Journal of Economic Psychology*, 32(4): 593-608.
- Van Schie, R., Donkers, B., and Dellaert, B. (2012). Savings adequacy uncertainty: Driver or obstacle to increased pension contributions?, *Journal of Economic Psychology*, 33(4), 882 - 896.
- Velarde, Melanie and Roland Herrmann (2014), How retirement changes consumption and household production of food: Lessons from German time-use data, *The Journal of the Economics of Ageing*, 3 (1), 1 – 10.

Wakabayashi, Midori (2008), The retirement consumption puzzle in Japan, *Journal of Population Economics* 21, 983 – 1005.

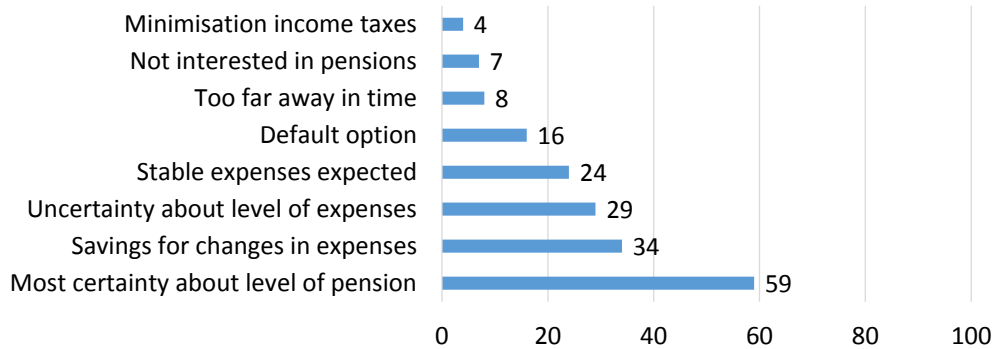
Yaari, M. (1965), Uncertain lifetime, life insurance, and the theory of the consumer, *Review of Economic Studies* 32, 137 – 150.

Appendix A. Drivers of pay-out preferences

Figure A.1. Certainty about the level of pensions is the main reason for preferring a flat rate

Why a flat pension?

% of respondents with pension rights



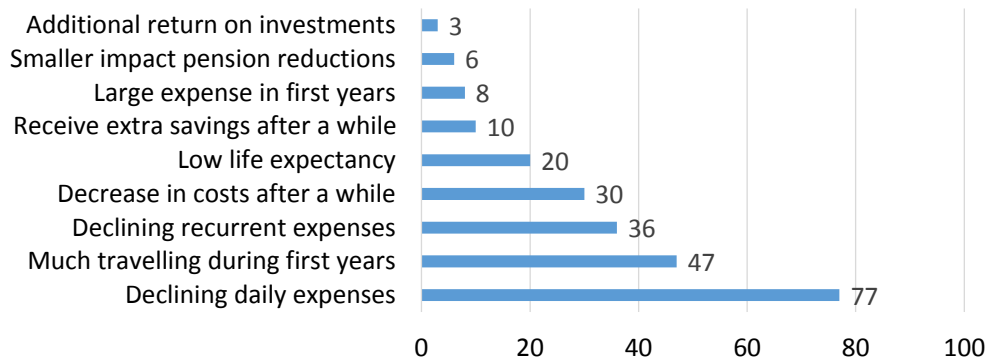
Source: CentERpanel, November 2015.

Note: The sample includes 1216 respondents, all with pension rights.

Figure A.2. Expected high-low expenditure pattern drives preference for high-low pension

Why a declining pension?

% of respondents with pension rights



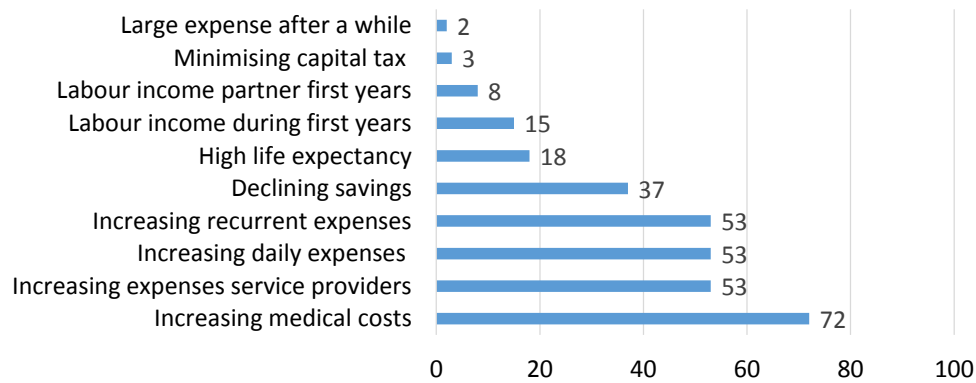
Source: CentERpanel, November 2015.

Note: The sample includes 328 respondents, all with pension rights.

Figure A.3. Expected low-high expenditure pattern drives preference for low-high pension

Why an increasing pension?

% of respondents with pension rights



Source: CentERpanel, November 2015.

Note: The sample includes 93 respondents, all with pension rights.

Appendix B. Description of variables

Table B. Description of variables

Variable	Description	Mean	Sd	Min	Max	N
<u>Dependent variables</u>						
<i>Preference pension pattern</i>	Measures the extent to which one wants to receive a higher pension benefits in the beginning of retirement than later at the end of retirement (0 = flat, 1 = high-low).	0.20	0.40	0	1	1297
<i>Preference lump sum</i>	Preference for lump sum pension benefit (0 = no, 1 = part or all pension wealth paid out at once).	0.22	0.42	0	1	1145
<u>Expected expenses during retirement</u>						
<i>Expected expenditure pattern: c</i>	Expected expenditure pattern during retirement (-1 = decreasing pattern, 0 = same level of expenditures in the first and second half of retirement, and 1= increasing pattern). It is based on a comparison of the answer to the statement "Suppose you are retired and 75 years or above. Compared to now, how do you expect your expenditures to change?" and the answer to the statement "Suppose you are retired and younger than 75. Compared to now, how do you expect your expenditures to change? ". The answers categories of these questions are: 1 = much less than now, 2 = a bit less than now, 3 = the same as now, 4 = a bit more than now, and 5 = much more than now. This variable is constructed for c spending categories.					
	-Recurrent payments	-0.04	0.52	-1	1	832
	-Food and drinks	-0.14	0.59	-1	1	832
	-Fuel, car maintenance, taxes	-0.25	0.59	-1	1	832
	-Clothing	-0.19	0.54	-1	1	832
	-Durable goods	-0.24	0.58	-1	1	832
	-Public transport and taxis	0.12	0.61	-1	1	832
	-Restaurants, cafes and recreation	-0.32	0.60	-1	1	832
	-Health care	0.14	0.49	-1	1	832
	-Service providers	0.09	0.58	-1	1	832
	-Holidays	-0.37	0.56	-1	1	832
<u>Trust in pension funds</u>						
<i>Trust pension funds</i>	Answer to the question "Do you trust your pension fund(s) to be able to pay your pension benefit at all times?" recoded such that 1 = no, not at all, 2 = no, predominantly not, 3 = neutral, 4 = yes, predominantly, 5 = yes, completely.	3.53	1.03	1	5	1445
<u>Financial literacy</u>						
<i>Responsible for finances</i>	Whether or not respondent is responsible for the household's financial affairs. Binary dummy (1 = responsible for financial affairs, 0 = else).	0.71	0.45	0	1	1445
<i>Financial ability: unable</i>	Binary dummy (1 = self-assessed financial ability is unable, 0 = else). Reference category.	0.15	0.36	0	1	1445
<i>Financial ability: more or less able</i>	Binary dummy (1 = self-assessed financial ability is more or less able, 0 = else).	0.58	0.49	0	1	1445
<i>Financial ability: able</i>	Binary dummy (1 = self-assessed financial ability is able, 0 = else).	0.24	0.43	0	1	1445
<i>Financial ability: very able</i>	Binary dummy (1 = self-assessed financial ability is very able, 0 = else).	0.02	0.15	0	1	1445
<u>Risk aversion</u>						
<i>Risk taker: low</i>	Binary dummy (1=respondents who answer 1, 2 or 3 to the question: "To what extent are you prepared to take risks with respect to your pension". The answers ranges from 1 (not at all) to 7 (very prepared), 0 = else).	0.63	0.48	0	1	1445
<i>Risk taker: middle</i>	Binary dummy (1=respondents who answer 4, 5 or 6 to the question: "To what extent are you prepared to take risks with respect to your pension". The answers ranges from 1 (not at all) to 7 (very prepared), 0 =			0	1	1445

<i>Risk taker: high</i>	else). Reference category. Binary dummy (1=respondents who answer very prepared to the question: "To what extent are you prepared to take risks with respect to your pension", 0 = else).	0.07	0.25	0	1	1445
<u>Time rate of preference</u>						
<i>Time rate of preference</i>	Factor distilled from the degree of respondents' agreement with six statements: (1) "I live more for today than for tomorrow", (2) "I am only concerned about the present", (3) "things will work themselves out in the future", (4) "I find it important to save, such that I will have some money in reserve for the future", (5) "You have to take into account that things may get worse in the future", and (6) "Regarding my future I want to leave as little as possible to chance." We reversed the scales of statements 4,5 and 6.	-0.05	0.99	-2.73	4.31	1445
<u>Mortality risk</u>						
<i>Younger</i>	Binary dummy (1 = (completely) disagree with "Compared to people of the same age, I expect to become older.", 0 = else).	0.16	0.36	0	1	1445
<i>More health care</i>	Binary dummy (1 = (completely) agree with "Compared to people of the same age, I expect to need more health care.", 0 = else).	0.10	0.30	0	1	1445
<i>Less active</i>	Binary dummy (1 = (completely) disagree with "Compared to people of the same age, I expect to remain active for a longer period.", 0 = else).	0.13	0.33	0	1	1445
<i>Older</i>	Binary dummy (1 = (completely) agree with "Compared to people of the same age, I expect to become older.", 0 = else).	0.13	0.34	0	1	1445
<i>Less health care</i>	Binary dummy (1 = (completely) disagree with "Compared to people of the same age, I expect to need more health care.", 0 = else).	0.27	0.44	0	1	1445
<i>More active</i>	Binary dummy (1 = (completely) agree with "Compared to people of the same age, I expect to remain active for a longer period.", 0 = else).	0.27	0.44	0	1	1445
<i>Same age</i>	Binary dummy (1 = neutral position with respect to "Compared to people of the same age, I expect to become older.", 0 = else). Reference category.	0.71	0.45	0	1	1445
<i>Same health care</i>	Binary dummy (1 = neutral position with respect to "Compared to people of the same age, I expect to need more health care.", 0 = else). Reference category.	0.64	0.48	0	1	1445
<i>Same degree of activity</i>	Binary dummy (1 = neutral position with respect to "Compared to people of the same age, I expect to remain active for a longer period.", 0 = else). Reference category.	0.60	0.49	0	1	1445
<i>Chance 75</i>	The likelihood that one reaches age 75 or beyond indicated on a range from 0 to 10 (0 = absolutely no chance, 10 = absolutely certain).	7.12	1.87	0	10	956
<u>Liquidity constraints</u>						
<i>Wealth: low</i>	Binary dummy (1 = self-reported money on checking accounts, savings account and investments is 10,000 EUR or less, 0 = else).	0.33	0.47	0	1	1445
<i>Wealth: middle</i>	Binary dummy (1 = self-reported money on checking accounts, savings account and investments is between EUR 10,001 and 50,000, 0 = else). Reference category.	0.31	0.46	0	1	1445
<i>Wealth: high</i>	Binary dummy (1 = self-reported money on checking accounts, savings account and investments is 50,001 EUR or more, 0 = else).	0.24	0.43	0	1	1445
<i>Wealth: unknown</i>	Binary dummy (1 = self-reported money on checking accounts, savings account and investments is unknown, 0 = else).	0.12	0.33	0	1	1445
<i>Homeowner</i>	Binary dummy (1 = homeowner, 0 = else).	0.78	0.41	0	1	1445
<i>Income: low</i>	Binary dummy (1 = gross monthly personal income is EUR 1500 or less, 0 = else).	0.20	0.40	0	1	1445
<i>Income: middle</i>	Binary dummy (1 = gross monthly personal income is between EUR 1501 and 3000, 0 = else). Reference category.	0.44	0.50	0	1	1445
<i>Income: high</i>	Binary dummy (1 = gross monthly personal income is EUR 3001 or more, 0 = else).	0.33	0.47	0	1	1445
<i>Income: unknown</i>	Binary dummy (1 = gross monthly personal income is unknown because respondents don't know it or don't want to report it, 0 = else).	0.02	0.14	0	1	1445
<i>Manage: very hard</i>	Binary dummy (1 = very hard to manage on the total income of the household, 0= else).	0.01	0.12	0	1	1445
<i>Manage: hard</i>	Binary dummy (1 = hard to manage on the total income of the household, 0= else).	0.07	0.26	0	1	1445

<i>Manage: neither hard nor easy</i>	Binary dummy (1 = neither hard nor easy to manage on the total income of the household, 0= else). Reference category.	0.42	0.49	0	1	1445
<i>Manage: easy</i>	Binary dummy (1 = easy to manage on the total income of the household, 0= else).	0.39	0.49	0	1	1445
<i>Manage: very easy</i>	Binary dummy (1 = very easy to manage on the total income of the household, 0= else).	0.10	0.31	0	1	1445
<u>Bequest motive</u>						
<i>Children</i>	Binary dummy (1= children, 0 = no children).	0.71	0.45	0	1	1445
<i>Save to leave wealth</i>	The extent to which saving to leave a house and/or other valuable assets to your children is considered an important reason to have some money saved. This is measured on a range from 1 (very unimportant) to 7 (very important).	2.99	1.98	1	7	1445
<i>Save to give presents</i>	The extent to which saving to give presents or gifts to your children and/or grandchildren is considered an important reason to have some money saved. This is measured on a range from 1 (very unimportant) to 7 (very important).	3.78	2.06	1	7	1445
<u>Information about pensions</u>						
<i>Information: newspaper</i>	Binary dummy (1 = read about flexible pensions in the newspaper, 0 = else).	0.27	0.44	0	1	1445
<i>Information: internet</i>	Binary dummy (1 = read about flexible pensions on the Internet, 0 = else).	0.15	0.35	0	1	1445
<i>Information: television/radio</i>	Binary dummy (1 = heard about flexible pensions on television/radio, 0 = else).	0.18	0.38	0	1	1445
<i>Information: pension fund</i>	Binary dummy (1 = heard about flexible pensions from pension fund, 0 = else).	0.36	0.48	0	1	1445
<i>Information: other</i>	Binary dummy (1 = received information about flexible pensions via magazines, employer, school/university, colleagues, family, friends or other source, 0 = else).	0.19	0.39	0	1	1445
<i>Information: own pension</i>	Binary dummy (1 = information gathered or received about own pension, 0 = else).	0.67	0.47	0	1	1445
<u>Controls</u>						
<i>Male</i>	Binary dummy (1 = male, 0 = female).	0.61	0.49	0	1	1445
<i>Partner</i>	Binary dummy (1 = if household head lives together with a partner, 0 = else).	0.78	0.42	0	1	1445
<i>34 and below</i>	Binary dummy (1 = 34 or below, 0 = else).	0.06	0.23	0	1	1445
<i>Between 35 and 44</i>	Binary dummy (1 = between 35 and 44, 0 = else).	0.15	0.36	0	1	1445
<i>Between 45 and 54</i>	Binary dummy (1 = between 45 and 54, 0 = else).	0.16	0.36	0	1	1445
<i>Between 55 and 64</i>	Binary dummy (1 = between 55 and 64, 0 = else).	0.23	0.42	0	1	1445
<i>65 and over</i>	Binary dummy (1 = 65 or older, 0 = else).	0.41	0.49	0	1	1445
<i>Education: bachelor degree or higher</i>	Successful completion of higher vocational education and/or university education. Binary dummy (1 = graduate level diploma, 0 = else).	0.40	0.49	0	1	1445
<i>City</i>	Degree of urbanisation of respondent's residence based on the address density (1= not urbanised, 2 = little urbanised, 3 = moderately urbanised, 4 = strongly urbanised, 5 = very strongly urbanized).	2.95	1.29	1	5	1445

Note: This table describes the variables used in the regressions reported in Table 6. The mean, standard deviation (sd), minimum (min), maximum (max) and number of observations (N) are reported for the sample included in these regressions.

Appendix C. Trust regressions

Table C. Logit regressions explaining trust in pension fund's capability to pay pension benefits

	(1)		(2)	
	Employees with pension rights		Pensioners with pension rights	
	(1a) <i>Trust</i>	(1b) <i>Trust</i>	(2a) <i>Trust</i>	(2b) <i>Trust</i>
<i>Pension fund in financial problems</i>				
<i>Pension fund in financial problems</i>	-0.13*** (0.03)		-0.16*** (0.03)	
<i>Recovery measures</i>				
<i>Increase contribution employer</i>		0.02 (0.05)		0.06 (0.06)
<i>Increase contribution employees</i>		-0.04 (0.03)		-0.05 (0.06)
<i>Cut pension benefits</i>		-0.11*** (0.03)		-0.14*** (0.03)
<i>No full indexation pension rights</i>		-0.05 (0.03)		-0.13*** (0.04)
<i>Other controls</i>				
<i>Time rate of preference</i>	-0.01 (0.01)	-0.01 (0.01)	0.02 (0.02)	0.01 (0.02)
<i>Risk taker: low</i>	0.00 (0.03)	0.01 (0.03)	-0.04 (0.03)	-0.03 (0.03)
<i>Risk taker: high</i>	-0.01 (0.05)	0.01 (0.05)		
<i>Financial ability: more or less able</i>	0.05 (0.04)	0.06 (0.03)	0.06 (0.03)	0.07* (0.04)
<i>Financial ability: able</i>	0.04 (0.04)	0.03 (0.04)	0.05 (0.04)	0.02 (0.04)
<i>Financial ability: very able</i>	-0.04 (0.09)	-0.03 (0.08)		
<i>Account</i>	0.00 (0.03)	0.01 (0.03)	0.04 (0.03)	0.03 (0.03)
<i>Homeowner</i>	0.00 (0.04)	0.00 (0.04)	0.09*** (0.03)	0.08*** (0.03)
<i>Male</i>	-0.00 (0.03)	-0.00 (0.03)	0.03 (0.03)	0.04 (0.03)
<i>Married/living together</i>	-0.01 (0.03)	-0.00 (0.03)	-0.02 (0.04)	-0.01 (0.04)
<i>34 and below</i>	-0.12*** (0.05)	-0.12*** (0.04)		
<i>Between 35 and 54</i>	-0.01 (0.04)	0.00 (0.04)		
<i>Between 55 and 64</i>	0.04 (0.04)	0.04 (0.04)	-0.09 (0.06)	-0.08 (0.06)

Table C. Continued

	(1)		(2)	
	Employees with pension rights		Pensioners with pension rights	
	(1a) <i>Trust</i>	(1b) <i>Trust</i>	(2a) <i>Trust</i>	(2b) <i>Trust</i>
<i>Education: bachelor degree or higher</i>	0.03 (0.03)	0.03 (0.03)	-0.02 (0.03)	-0.02 (0.03)
<i>City</i>	-0.03** (0.01)	-0.03** (0.01)	0.02** (0.01)	0.02** (0.01)
<i>Income: low</i>	0.06 (0.04)	0.05 (0.04)	0.01 (0.03)	0.01 (0.03)
<i>Income: high</i>	0.08** (0.03)	0.09** (0.04)	0.05 (0.04)	0.05 (0.04)
<i>Income: unknown</i>	0.08 (0.08)	0.10 (0.08)		
<i>Wealth: low</i>	-0.07* (0.04)	-0.07** (0.04)	-0.01 (0.04)	-0.02 (0.03)
<i>Wealth: high</i>	-0.05 (0.04)	-0.06 (0.04)	0.01 (0.04)	0.01 (0.04)
<i>Wealth: unknown</i>	-0.16*** (0.04)	-0.17*** (0.04)	-0.11*** (0.04)	-0.11*** (0.04)
<i>Information: newspaper</i>	0.03 (0.04)	0.02 (0.04)	0.02 (0.03)	0.02 (0.03)
<i>Information: internet</i>	-0.04 (0.04)	-0.02 (0.04)	-0.09*** (0.04)	-0.06* (0.04)
<i>Information: pension fund</i>	0.07** (0.03)	0.08** (0.03)	0.03 (0.03)	0.02 (0.03)
<i>Information: on own pension</i>	0.07*** (0.03)	0.07** (0.03)	-0.00 (0.03)	0.00 (0.03)
Observations	962	962	604	604
Pseudo R-squared	0.08	0.09	0.15	0.18
Log pseudolikelihood	-478.6	-475.7	-204.7	-196.9
Wald chi2	78.6	81.1	49.9	71.2
Prob > chi2	0.00	0.00	0.00	0.00

Note: The table reports marginal effects for logit regressions and robust standard errors for the marginal effects in parentheses. The dependent variable is *Trust* (0=no, 1=yes). Employees with pension rights are included in (1a) and (1b), pensioners with pension rights in (2a) and (2b). The reference is person is someone who is a female, without a partner, between 45 and 54, without a bachelor degree or a higher level of education, with a medium degree of risk aversion, income and wealth, who does not own a house, received/gathered no information his/her own pension and who is not responsible, for household finances. * p<0.1, ** p<0.05, *** p<0.01