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* Views expressed are those of the authors and do not necessarily reflect official positions of De Nederlandsche Bank.

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Pension profile preferences: the influence of trust and expected expenses*

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Abstract

This paper studies the influence of people's expectations about expenses during retirement and trust in pension funds on preferences for different pension arrangements. We find that although most workers prefer a flat-rate annuity, many workers want to deviate from it. The most popular option is a high/low, annuity-based profile, followed by a partial lump sum payment. One of the underlying reasons for preferring a more flexible pattern is an expected shift in expenditure during retirement. Our regressions reveal that workers who expect declining expenses during retirement are more likely to opt for a high/low annuity-based pension and/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 workers and pensioners with a high degree of trust.

Keywords: consumption, trust, pension annuities, lump sum.
JEL classifications: D14, D91,G20, J26.

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1. INTRODUCTION

Pension arrangements are considered 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 variable annuities or lump sum payments. Freedom of choice with respect to pension pay-outs may be conducive to members' lifetime utility. Members can choose a form that allows them to have a spending pattern during retirement that best matches their preferences, and thus realise an optimal consumption path. However, offering many options also has drawbacks, like high operating costs for pension funds, members making suboptimal choices due to the complexity of assessing the value of the different options (see e.g. Brown, 2007) or adverse selection (see e.g. Hurd and Panis, 2006).

An important contribution of our research to existing literature is that we provide a detailed insight into workers' expected expenditures during retirement, and the extent to which these drive their retirement income preferences. We examine 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 workers' assessment about whether their pension funds will be able to pay them the arranged level of pension benefits at all times. So, it acts as a proxy for the worker's trust in the future stream of income during retirement. Alongside expected consumption patterns and trust in one's pension funds, we control for a broad range of commonly included variables in pension literature: mortality risk, time rate of preference, risk-aversion, financial literacy[1], liquidity constraints, pension information[2] 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. They offer fixed annuities and often also variable annuities, where 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). However, there are policy discussions to further increase the freedom of choice with regard to the way accrued pension rights are paid out on retirement, by allowing pension funds to offer e.g. (partial) lump sum payments as an alternative for full annuitization. Currently, lump sum payments are not allowed in the Netherlands due to fiscal

[1] E.g. Van Rooij et al. (2012) show that financial literacy contributes to retirement planning and retirement saving.
[2] 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).

law.[3] These discussions are taking place in turbulent times. 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) linking pension rights to consumer price inflation or rises in employee wage levels or even cutting pension rights. The extent to which pension funds needed to take these measures has been unprecedented in the Netherlands, and these actions have received considerable media attention in recent years. Traditionally, the Dutch have great trust in the Dutch pension system. However, recent events have resulted in a lower level of trust (DNB, 2014), which may influence workers' preferences for different pension arrangements.

We generally find that although most workers prefer the default pension option - a flat-rate annuity - offering choice fulfils a need: a substantial share of workers is interested in other 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 for preferring a particular pattern are often related to expected expenditure patterns. Workers who expect a declining expenditure pattern are more likely to prefer a high/low pension and/or lump sum payment than workers with different expectations. Based on our regression analyses we show that next to the commonly-used drivers of pension choice, it is indeed important to include expected expenditure patterns. Third, we find evidence in our regression analyses that trust in one's pension fund plays a role. Workers and pensioners who do not trust their pension fund are more likely to prefer a lump sum over annuity based arrangements than workers and pensioners 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 our main survey results. In Section 7 we present the regression results and 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 pension pattern preferences.

[3] The option to choose a lump sum payment has recently been introduced in the UK (Loibl et al. 2015) and is common practice in other countries such as the US.

2.1 Consumption during retirement

Empirical literature shows that households' consumption and income fall at retirement. This pattern is found in many countries.[4] Economists were perplexed by this finding for a long time, 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.[5] 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 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 to 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 there is involuntary retirement due to poor health or unemployment (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 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.

[4] Examples are Hamermesh (1984) for the UK, Bernheim et al. (2001) for the US, Schwerdt (2005) for Germany, Wakabayashi (2008) for Japan, Battistin et al. (2009) for Italy and Li et al. (2015) for China.

[5] 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).

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 and Panis (2006) find 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 individuals are more likely to choose the annuity option, whereas financially literate individuals are more prone to cash out and go for the investment option.[6] Teppa and Lafourcade (2013) find that Dutch consumers with a low self-assessed life expectancy are more likely to prefer lump sum payments than Dutch consumers with a high life expectancy. They also show that preferences are driven by self-assessed life expectancy rather than actual life expectancy and that these self-assessments are too low. Therefore, Teppa and Lafourcade (2013) advise to help individuals in better assessing their longevity risk before introducing lump sum payments.

The annuity decision also depends on the framing. This is for example shown by Agnew et al. (2008), who find that men are 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,

[6] According to the literature it is difficult to indicate a priori how financial literacy influences participants' preferences. 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). Van Rooij and Teppa (2014) use survey data on Dutch consumers and show that when it comes to economic decision-making financially literate individuals are more likely to opt out the default and to set apart additional savings via third pillar retirement savings products.

stressing the uncertainty of annuities' total payoff due to the subject's unknown lifetime and the risk of losing payoff as annuities cannot 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 in one of the largest Dutch pension funds. When in a neutral frame, 42% of the respondents chooses the full annuitization option and 58% opts for the partial lump sum option, of on average 12.3%.[7][8] 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

Literature has so far not addressed which factors influence people's trust in pension funds, and the impact of trust on participants' preferences for different pay-out schemes. 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 Cruijsen 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 are important reasons why members of the general public may lose trust in banks.

3. THE DUTCH PENSION SYSTEM

The Dutch pension system is characterised by relatively high pension benefits. For an average worker, the gross pension income as share of gross wage, the so-called gross replacement rate, 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%).

[7] 20% was the maximum one could choose.
[8] Please note that in 2016 lump sum payments were not possible in the Netherlands due to fiscal law.

Since the start of the 21st century the Dutch pension system has undergone 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. This 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 of residence in the Netherlands.[9] 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 government increased the statutory retirement age.[10]

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 these plans can be considered as quasi-mandatory. At the retirement age participants receive a lifelong annuity based on the accrued pension benefits. These annuities can be adjusted for inflation by linking the pension benefits to consumer price inflation or to rises in employee wage levels if the funding ratio of the pension fund lies above the required funding rate.[11] Most occupational pensions are defined benefit (DB) pension plans based on career average wages with conditional indexation for active participants and pensioners.[12] 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). These measures have also received considerable media attention 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

[9] 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).

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

[11] Each pension fund has its own required funding rate, which ranges between 110 and 130%. If the funding rate drops below the required level 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.

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

rights with a high degree of certainty. However, during the outbreak of the financial 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 requiring additional deposits from employers, increasing pension contributions for employees and employers, cancelling of (full) indexation or even cutting nominal pension benefits to improve their funding rate.[13]

Nowadays, Dutch pension funds offer their participants an increasing number of options to adjust their pensions to individual needs. Since the retrenchment and abolition of collective early retirement arrangements during the late 1990s and early 2000s, pension funds provide participants with the possibility to retire earlier than the pension fund's default retirement age, with a minimum retirement age of 55 years.[14] Pension funds have also recently offered the possibility to delay retirement, to combine part-time working with part-time retirement and to exchange the partner's entitlement of pension for higher benefits during one's retirement.[15]

For our study it is particularly interesting that pension funds may provide participants with 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 fiscal 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.[16] 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

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

[14] 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.

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

[16] 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).

of money for travelling at the beginning of retirement, for making a large purchase, reducing outstanding mortgage debts or to absorb idiosyncratic risks themselves.[17] [18]

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 savings 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% from the second pillar and 6% from 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-rate annuity and 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 uncertainty in the past years and differences in the degree to which funds had to take recovery measures.

4. CONCEPTUAL MODEL AND HYPOTHESES

We build a conceptual model (Figure 1) which we use to explain workers' and pensioners' pension pattern preferences. We research two preferences: (1) the more general pattern preferences based on fully annuitized pension schemes; the choice between a high/low profile and a flat profile, and (2) the choice between a partly or full lump sum pension payment and full annuitization. Next to our main factors of interest, expected expenses during retirement and trust in one's pension fund, we apply commonly-used drivers of pension choices.

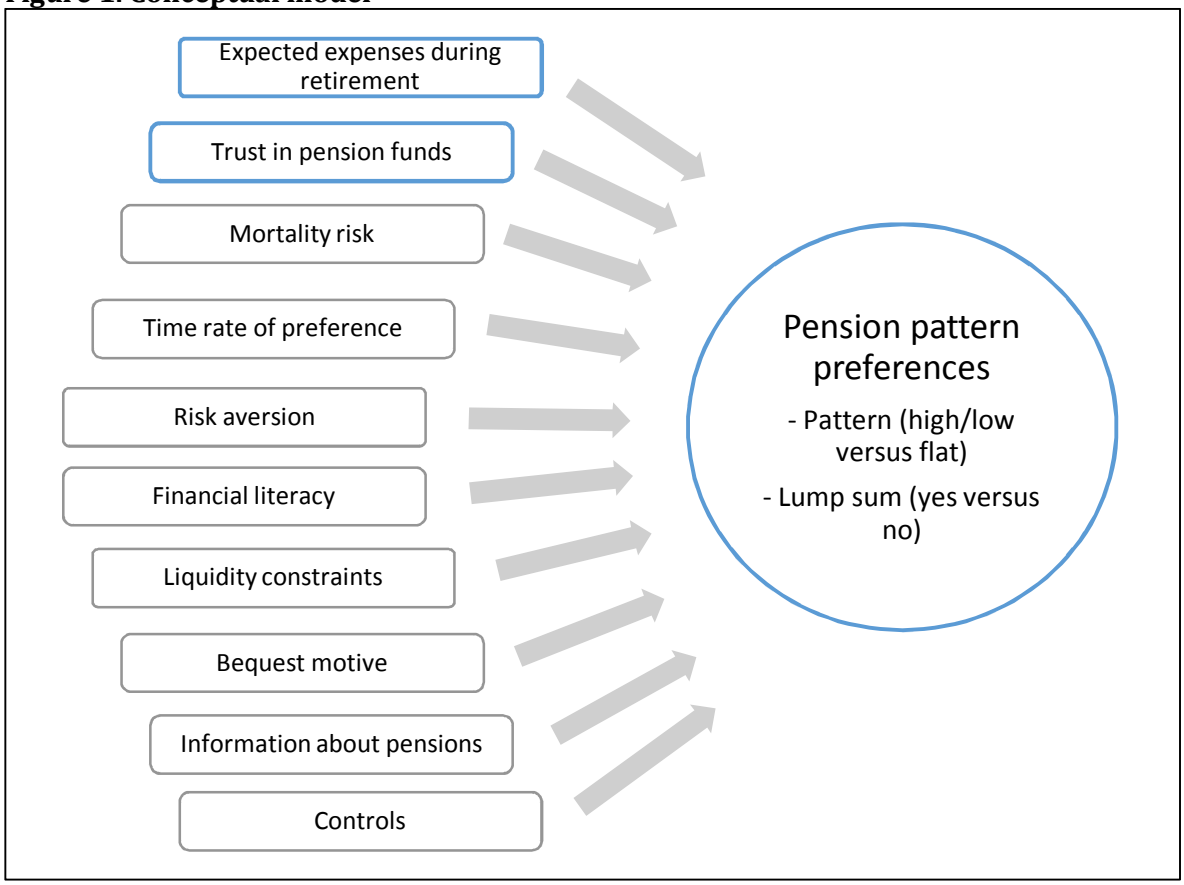
We formulate two hypotheses regarding the impact of our two main factors of interest on pension pattern preferences. The first hypothesis we test is as follows:

Hypothesis 1 (H1): *Workers who expect a decreasing consumption pattern during retirement are more likely to have an interest in a high/low profile and a lump sum payment than workers with other consumption pattern expectations.*

[17] 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.

[18] In general, there is little information about members' usage of different pension options in the Netherlands. However, Dellaert and Ponds (2014) show the choices of the members of the civil servant pension fund (ABP) who are born between 1940 and 1950. It turns out that in 2010 20.5% of these people was retired earlier or later than the default retirement age, 7% retired part-time and 1.5% made use of the high/low option. The popularity of the high/low profile is relatively low compared to other options. However, there is some evidence that between 2010 and 2015 the high/low profile has gained in popularity (Van den Bleeken et al., 2016).

Figure 1. Conceptual model



We expect that this hypothesis will be supported; that employees' pension pattern preferences depend on their expected 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 workers who expect stable expenses. 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, workers who expect increasing expenses during retirement, for example due to increasing healthcare related costs, 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.[19] 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

[19] Healthcare expenses include for example healthcare 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 healthcare costs for insurance contributions and rising medical out-of-pocket costs, due to a rising excess of the Dutch base healthcare 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.

between full annuity and (partial) lump sum payments. However, it seems unlikely that other consumption categories influence the choice for cashing out or not.

We also hypothesise that pension pattern preferences of workers and pensioners depend on the level of trust in their pension fund. The second hypothesis we test is the following.

Hypothesis 2 (H2): *The less trust workers and pensioners have in their pension fund, the more they are interested in a high/low profile and a lump sum payment.*

We expect to find support for this hypothesis. In recent 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 funds, so that they prefer to take out as much of their accrued pension wealth as quickly as possible to reduce the risks of future cuts. Table 1 summarizes these hypothesised effects as well as the hypothesised effects of the other drivers included in our model.

Table 1. Determinants of pension pattern preferences

Driver	**Hypothesized effect**
Expected expenses during retirement	H1: Workers who expect a decreasing consumption pattern during retirement are more likely to have an interest in a high/low profile and a lump sum payment than workers with other consumption pattern expectations.
Trust in pension funds	H2: The less trust workers and pensioners have in their pension fund, the more they are interested in a high/low profile and a lump sum payment.
Drivers from economic literature	**Hypothesized effect**
Mortality risk	The higher the mortality risk, the stronger the interest in a high/low profile and a 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 lump sum payment.
Risk-aversion	The stronger the risk aversion, the stronger the interest in the default full flat annuity) and the weaker the interest in a high/low profile and lump sum.
Financial literacy	Effect is ambiguous. Financially literate people may value full flat annuities more than the lump sum or high/low option than finally illiterate people because they may be more likely to take the longevity risk into account. However, financially literate people may also think they'll be able to outperform their pension funds with respect to investing retirement savings and consequently may be more likely to opt for the lump sum or high/low option.
Liquidity constraints	Effect is ambiguous. On the one hand people who find it hard to manage on their income may be relatively likely to prefer a high/low profile and lump sum payment. On the other hand, they may prefer a full flat annuity because this is the only way to manage on their income during the whole period of retirement. Full flat annuities are then a form of self-control.
Bequest motive	The stronger the bequest motive, the lower the interest in a full flat annuity and the higher the interest in a lump sum or high/low payment.
Amount of information received about the available options	Effect is 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.[20] This is a representative sample of the Dutch-speaking population in the Netherlands. CentERdata is a research institution that is affiliated with Tilburg University and manages this online panel.[21] Researchers and policymakers have used this panel to study a broad variety 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. The DHS, which has existed for over two decades, is completed by the panellists 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.[22] The advantage is that supplementary questionnaires, like ours, do not 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 completed it. This implies a response rate of 84.5%.[23] 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 indication of what drives pension pattern preferences (see Section 6). Furthermore, we measure interest in a lump sum pension. Lastly, 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).

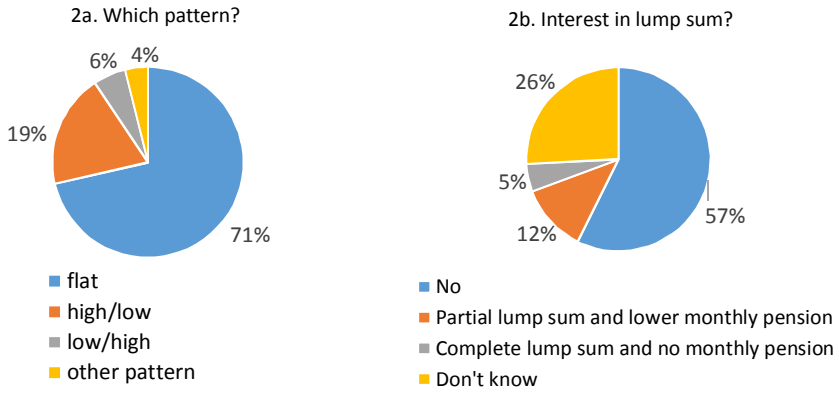
5.1 Dependent variables

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 who want a flat rate.[24] We estimate a logit regression to understand why some workers opt for a high/low annuity 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 but a fully annuitized pay out and 1 for respondents who want a partial or full lump sum. We estimate logit regressions with *preference lump sum* as dependent variable for both workers and retirees.

[20] The questionnaire is available on request.
[21] More information on the CentERpanel is available at http://www.centerdata.nl/en/projects-by-centerdata/the-center-panel. URL last accessed on 12 September 2016. Teppa and Vis (2012) also give a good overview.
[22] More information on the DHS is available at http://www.centerdata.nl/en/projects-by-centerdata/dnb-household-survey-dhs. URL last accessed on 12 September 2016.
[23] There were 54 incomplete responses.
[24] Note that the group of respondents wanting a low/high profile is too small to include in the analysis.

Although most respondents with pension rights would opt for a flat rate, 29% prefer a non-flat pension benefit (Figure 2a). The high/low profile is especially popular; 19% prefer this pattern, wheras only 6% opt for the opposite profile. Regarding the interest in lump sum payments, we find that 17% of the respondents with pension rights 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 do not know whether they want a lump sum payment. This may be explained by the fact that a lump sum payment has not yet been introduced by pension funds in the Netherlands. A lot of people therefore lack knowledge and find it hard to tell their interest in this form of freedom of choice.

Figure 2. Substantial interest in high/low pension profile and lump sum.



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?". Pensioners were asked the question: “Suppose you could receive part of your remaining pension immediately. Would you want that?”. Figure 2b shows the response shares for 1,745 respondents with pension rights.

5.2 Variables for expected expenditure pattern

Our survey shows that people expect to spend less in retirement. Table 2 presents the expectations for total expenses and 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.

Overall, respondents think they will spend less than they are currently spending when they are retired. This holds for the first *and* second part of their retirement. When looking at specific consumption categories, it turns out that, in general, respondents expect to spend less on

recurrent payments, food and drinks, variable costs related to their car, clothing and durable goods. With the exception of food and drink, they also expect a further decline in these expenses during the second part of their retirement. The expected drop is largest for expenses on holidays, followed by expenses in restaurants, cafes and recreation and on costs related to car usage.

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	Difference
Total expenses	2.39	2.43	-0.05**
Category			
Recurrent payments	2.57	2.50	0.07***
Food and drink	2.72	2.57	0.15***
Fuel, car maintenance, road axes	2.60	2.29	0.31***
Clothing	2.64	2.46	0.18***
Durable goods	2.62	2.36	0.26***
Public transport and taxis	3.07	3.23	-0.15***
Restaurants, cafes and recreation	3.25	2.83	0.42***
Healthcare	3.66	3.80	-0.13***
Service providers	3.19	3.30	-0.11***
Holidays	3.29	2.80	0.49***
Number of observations	1084	1084	1084

Source: CentERpanel, November 2015.
Note: The table shows the mean answers to "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. Only the responses of respondents with pension rights who answered both questions are included in this table. The last column of the table shows the results of one-sided paired t-tests (* p<0.1, ** p<0.05, *** p<0.01).

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 healthcare 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 once they reach the age of 75 (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. Healthcare is the only category with higher expenses after than before retirement and first phase pensioners expect that healthcare expenses will further increase.[25]

[25] It may very well be the case that some pensioners want to spend more but do not 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 3. Pensioners spend less than before retirement and first phase pensioners expect a further decline of expenses

	Current expenses, compared to pre-retirement (all pensioners)	Expected expenses 75+ years, compared to current situation (first phase pensioners)
Total expenses	2.63^	2.61
Category		
Recurrent payments	2.90	2.94
Food and drinks	2.72	2.55
Fuel, car maintenance, taxes	2.47	2.32
Clothing	2.46	2.47
Durable goods	2.47	2.30
Public transport and taxis	2.47	2.77
Restaurants, cafes and recreation	2.52	2.31
Healthcare	3.50	3.65
Service providers	2.84	2.96
Holidays	2.70	2.50
Number of observations	666	462

Source: CentERpanel, November 2015.
Note: The table shows the mean answers to the questions about current expenses and expected expenses. 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. Only the responses of respondents with pension rights are included in this table. ^The number of observations is 665.

In our baseline regressions we include a set of *expected expenditure pattern during retirement* variables as explanatory variables, one for each spending categories mentioned in Table 2 and 3. We use the answers to the questions (1) "Suppose you are retired and younger than 75. Compared to now, 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 these variables. *Expected expenditure pattern during retirement: c* 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). This measure of trust reflects the extent to which people feel certain about future stream of income during retirement, and the purchasing power it will provide them.

Table 4 summarises the responses for employees with pension rights, pensioners and for all panellists with pension rights.[26] 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

[26] In our survey we included a question to measure whether one has joined a company's pension scheme.

not have any trust that their 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.

Table 4. Trust in one's pension fund
(In percentages)

	Employees with pension rights	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.

We examine to what extent trust in one's pension fund reflects the "financial health" of the pension fund, as assessed by the respondent. We construct a binomial trust variable, taking the value 1 for panellists who trust their pension funds predominantly or completely, and 0 for respondents with a lower level of trust. We run separate logit regressions for workers and pensioners. Next to variables related to the pension funds' financial health and any recovery measures taken by it, according to the respondent (see Table B.2. in Appendix B for further details). 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 and Table B.1. in Appendix B for a detailed explanation). The estimation results are summarized in Table C.1 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 fund is much lower for respondents who report that their pension fund had financial problems in recent years than for other respondents. The effect is 13 percentage points for workers and 16 percentage points for pensioners. The impact of the different recovery measures of pension funds varies greatly. The likelihood that respondents trust their pension fund is negatively affected by pension benefit cuts. Workers who report a pension benefit cut by their pension fund are 11 percentage points less likely to trust their pension fund than other workers. The effect for pensioners is 14 percentage points. In addition, the likelihood that pensioners' trust their pension fund is also relatively low for pensioners whose pension fund has refrained from (full) indexation of pension rights. However, trust is not significantly affected by rises in employer's or employees' pension contributions.

5.4 Other explanatory variables

We include a wide range of additional explanatory variables to capture commonly included other drivers of pension choices and controls. Table 5 shows all measures of our model's determinants of pension pattern preferences. Appendix B gives a detailed overview and includes descriptive statistics.

Commonly included explanatory factors

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 healthcare", "I expect to remain more active". Based on this information we construct six binary dummy variables *younger*, *higher healthcare costs*, *less active, older*, *lower healthcare costs*, and *more active*. We also include *chance 75*, the self-reported likelihood of reaching age 75 or beyond. Second, we include a measure of the time rate of preference: *time rate of preference*. Third, to capture respondents' risk-aversion we use respondents' self-reported risk-aversion with respect to pensions and construct two binary dummies *risk taker low* and *risk taker high*. Fourth, 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. We also include three binary dummy variables capturing self-reported financial ability: *financial ability: more or less able*, *financial ability: able*, and *financial ability: very able*.[27] The reference category includes people who consider themselves not knowledgeable with respect to financial matters. Fifth, we construct various measures of liquidity constraints. We include a set of binary dummies: *wealth: low*, *wealth: high*, *wealth: unknown*, *homeowner*, *income: low, income: high*, *income: unknown*. Furthermore, we use the outcomes to the question "How well can you manage on the total income of your household?" to construct four additional binary dummies: *manage: very hard*, *manage: hard*, *manage: easy*, *manage: very easy*. The reference group includes respondents who find it neither hard nor easy. Sixth, 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 children or grandchildren. Last, we include variables that measure information about pensions. We include a set of binary information dummies indicating via which sources respondents received information about

[27] These self-reported measures for financial ability are akin to variables used to proxy financial literacy (e.g. Lusardi and Mitchell, 2007 and Van Rooij et al., 2011).

pension-related choice options: *information: newspaper*, *information: internet*, *information: television/radio*, *information: pension fund*, *information: other*. We also 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*.[28]

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 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 includes people who are older. We furthermore build 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).

Table 5. Determinants of pension pattern preferences

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

[28] Please note that pension funds in the Netherlands are obliged to provide their members with information about their pension every year. So all respondents with pension rights have received information from their pension funds. However, many of them are not aware of that, indicating that the answers to this question should be considered as self-assessed.

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 list of possible reasons and the option to fill in another reason. Each respondent has indicated relevant reasons. Appendix A includes three figures that summarize the responses regarding full flat annuity pensions (Figure A.1), high/low annuity pensions (Figure A.2) and low/high annuity pensions (Figure A.3). The commonest reason for preferring a full flat annuity pension is "most certainty about the level of pension". It is a relevant reason for 59% of respondents. A substantial group of respondents also indicates that they have savings for changes in expenses, that they are uncertain about expenses during retirement, or that they expect stable expenses.

For respondents who prefer a high/low annuity pension we clearly find that the main reason for this preference are expectations of a high/low expenditure pattern during retirement. "Declining daily expenses" is most frequently indicated, namely by 77% of the respondents. Many respondents also expect that recurrent expenses will decline. 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. A low life expectancy is a relevant reason for 1 out of 5 respondents to prefer a high/low pension. This profile allows them to 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 pension pattern preferences.

We also find for respondents who prefer a low/high profile 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.

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

Next, we formally test the two hypotheses introduced in Section 4. We have estimated binomial logit regressions to assess whether differences in expected expenses during retirement, trust in one's pension fund(s), and the other explanatory variables significantly explain differences in

pension profile preferences for workers (Section 7.1) and lump sum preferences for both workers and pensioners (Section 7.2).[29]

We find that expected expenses during retirement matter for the likelihood that someone prefers a high/low profile *and* the likelihood that one prefers a lump sum pension, whereas trust matters only for the latter likelihood. Our results therefore fully support H1 and support H2 with respect to the choice between a full flat annuity pension and a lump sum payment. Table 6 shows the results of these estimations.

7.1 Drivers of pattern preferences

For employees with pension rights we find that expectations on the development of expenses *during* retirement are a driver of profile preferences (Table 6, column 1). 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 with different expectations. 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.

Regarding the other factors of our conceptual model, we find that employees who do not like to take risks 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. These effects seem plausible. If you have a high income, the low pension benefit level 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 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. Self-control may be the underlying reason. Regarding the bequest motive, we find that employees with children are indeed more likely to prefer the high/low profile than childless employees. Those who like to save to leave wealth for their children are less likely to opt for the high/low pattern. Regarding the controls, we find that young employees and employees who live in an urbanised area are relatively less likely to prefer the high/low option than employees living in a rural area.

[29] With respect to the choice between a flat profile and a high/low profile, we focus on workers only because this choice is made before retirement.

Table 6. Preferences for pension pay-out: Logit regressions

	Employees with pension rights		Pensioners with pension rights
	(1) *preference high/low*	(2) *preference lump sum*	(3) *preference lump sum*
Expected expenses and trust			
Expected expenditure pattern during retirement: fuel, car maintenance, taxes	-0.06**	-0.07*	
	(0.03)	(0.04)	
Expected expenditure pattern during retirement: holidays	-0.07**	0.01	
	(0.03)	(0.04)	
Trust pension funds	0.02	-0.07***	-0.04***
	(0.02)	(0.02)	(0.01)
Mortality risks			
More health care	0.02	-0.13	-0.02
	(0.06)	(0.08)	(0.04)
Chance 75	-0.01	-0.02**	
	(0.01)	(0.01)	
Time rate of preference			
Time rate of preference	0.01	0.05**	0.01
	(0.02)	(0.02)	(0.01)
Risk-aversion			
Risk taker: low	-0.06*	0.00	-0.05**
	(0.04)	(0.05)	(0.02)
Risk taker: high	0.05	0.17**	-0.03
	(0.05)	(0.07)	(0.07)
Financial literacy			
Financial ability: more or less able	-0.01	0.10	0.08**
	(0.05)	(0.06)	(0.04)
Financial ability: able	-0.02	0.15**	0.09*
	(0.05)	(0.07)	(0.05)
Financial ability: very able	-0.20	0.17	0.18**
	(0.13)	(0.12)	(0.08)
Liquidity constraints			
Wealth: low	-0.03	-0.01	0.05**
	(0.04)	(0.05)	(0.03)
Wealth: high	0.08*	-0.01	0.02
	(0.05)	(0.06)	(0.03)
Homeowner	0.03	-0.04	0.07**
	(0.05)	(0.06)	(0.03)
Income: high	0.10**	-0.01	0.07**
	(0.04)	(0.05)	(0.03)
Income: unknown	0.16*	0.05	
	(0.09)	(0.12)	
Manage: hard	-0.22**	-0.10	0.10**
	(0.09)	(0.08)	(0.04)
Manage: very easy	0.01	0.04	-0.13*
	(0.06)	(0.08)	(0.07)

Table 6. Preferences for pension pay-out: Logit regressions (continued)

	Employees with pension rights		Pensioners with pension rights
	(1) *preference high/low*	(2) *preference lump sum*	(3) *preference lump sum*
Bequest motive			
Children	0.09*	0.05	0.00
	(0.04)	(0.06)	(0.03)
Save to leave wealth	-0.03***	-0.00	0.00
	(0.01)	(0.01)	(0.01)
Information about pensions			
Information: newspaper	-0.03	-0.12**	-0.00
	(0.05)	(0.05)	(0.03)
Information: own pension	0.05	-0.00	0.05*
	(0.04)	(0.05)	(0.03)
Controls			
34 and below	0.10*	0.02	
	(0.06)	(0.08)	
Between 55 and 64	-0.06	-0.14**	0.00
	(0.04)	(0.05)	(0.04)
Education: bachelor degree or higher	-0.02	-0.03	-0.04
	(0.04)	(0.05)	(0.03)
Degree of urbanisation	-0.02*	-0.03*	0.00
	(0.01)	(0.02)	(0.01)
Observations	778	581	564
Pseudo R-squared	0.11	0.12	0.22
Log pseudolikelihood	-406.3	-336.8	-112.8
Wald χ^2	99.8	66.2	81.5
Prob > χ^2	0.00	0.09	0.00

Note:. The table reports marginal effects for logit regressions. Standard errors are clustered by household and shown in parentheses In column 1 the dependent variable is *preference high/low* (0=flat, 1=high/low). In column 2 and 3 the dependent variable is *preference lump sum* (0=no lump sum, 1=partial or full lump sum). Employees with pension rights are included in (1) and (2), pensioners with pension rights in (3). The reference person is someone who expects to become as old, stay as healthy and have 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: pension fund, 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 2 and 3 of Table 6). In particular, we now find a 7 percentage point effect on expectations about car expenses. The trust effect is strong. The lower the level of trust in one's own pension fund, the higher the likelihood of wanting a lump sum pension. In other words, if trust is absent people would 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 different pension pay-outs in the newspaper are less likely to prefer a lump sum pension benefit than employees who have not read about it in newspaper articles. We furthermore find that mortality risks play a role; employees who expect to have higher healthcare costs than others 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 also 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. Employees who think they are knowledgeable with respect to financial matters are 15 percentage points more likely to prefer a lump sum than employees who think they are not knowledgeable. Preferences of employees also depend on other controls, like age and urbanisation degree.

The results for pensioners (column 3) 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. We also find indications that budget constraints are a motive to prefer a lump sum payment. Pensioners who find it hard to manage with their household income and have a low level of wealth are relatively 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. Pensioners with a high level of income are more likely to opt for a lump sum than pensioners with a medium level of income. This seems plausible, as the higher the income, the easier it is to still manage with your income if you lower your benefits in exchange for a partial lump sum. We also find that pensioners who 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

We show that increasing freedom of choice regarding pension profiles fulfils a need. The most popular pattern is a high/low annuity-based profile, followed by a partial lump sum payment at retirement in exchange for a lower annuity pension. We also contribute to literature on pension profile preferences by showing that it is important to include expected expenditure patterns and trust as drivers of these preferences.

One of the underlying reasons why workers prefer a particular pattern is their expected expenditures during retirement. Our survey shows that the commonest reason workers mention for preferring a high/low pension pattern is that they expect expenditures to decrease during retirement. Our regressions reveal that workers who expect declining expenses during retirement are indeed more likely to prefer a high/low pension and/or lump sum payment than workers who expect stable expenses. This holds especially for car-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-rate one.

We also find that trust in one's pension fund influences preferences. Workers and pensioners 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 affect the likelihood of preferring a high/low annuity-based pension.

The influence of trust suggests that preferences for pension arrangements may shift during financial crises, when pension funds funding ratios worsen. A higher share of pensioners may opt for lump sum payments because they want to secure their pension rights at the start of their retirement. Our results indicate that this especially holds when pension funds need to take recovery measures which lower the value of pension benefits.

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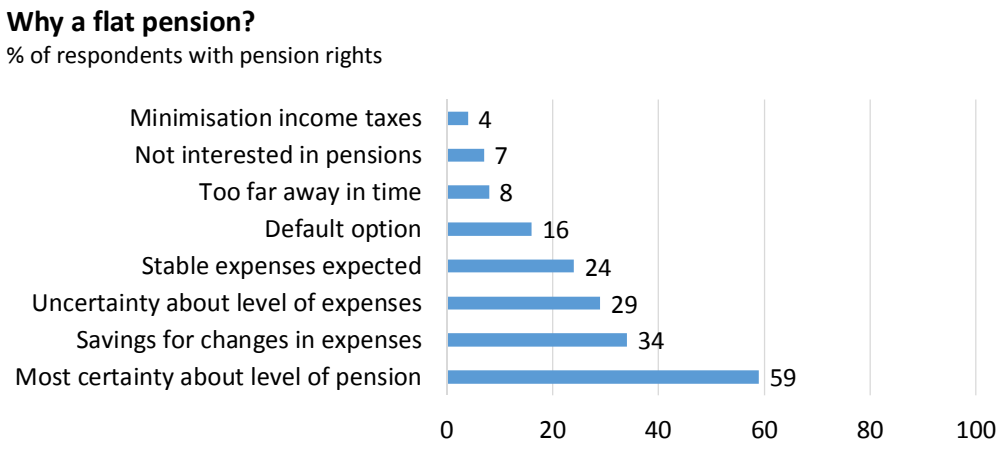
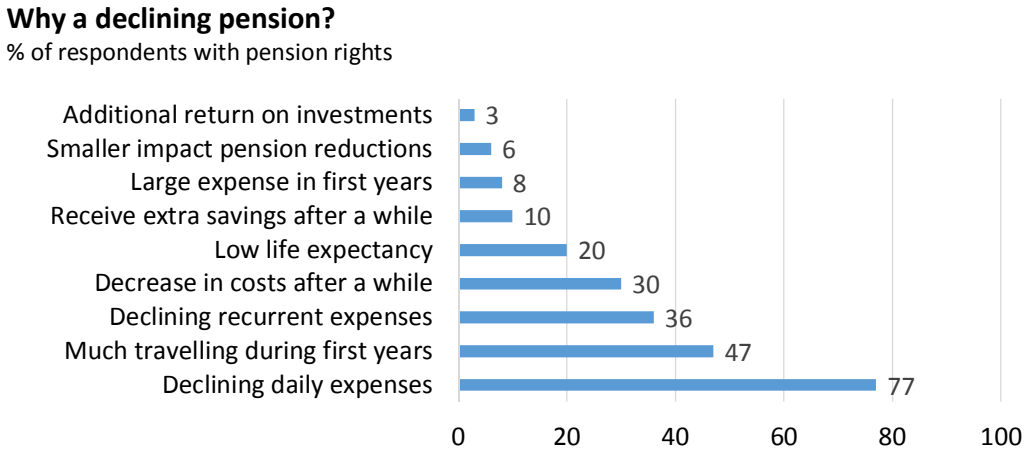
Appendix A. Drivers of pay-out preferences

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



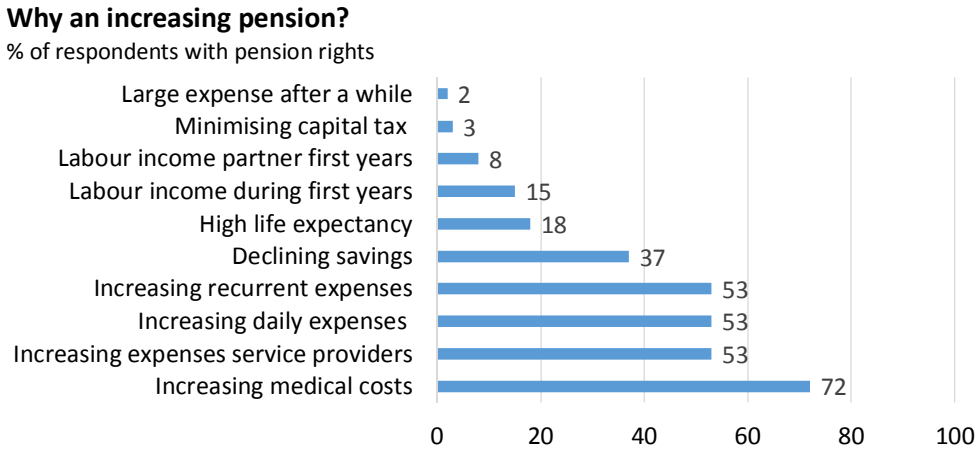
Source: CentERpanel, November 2015.
Note: The sample includes 1216 respondents, all with pension rights.

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



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



Source: CentERpanel, November 2015.
Note: The sample includes 93 respondents, all with pension rights.

Appendix B. Description of variables

Table B.1. Description of variables in pension pattern preference regressions

Variable	Description	Mean	Sd	Min	Max	N
Dependent variables						
Preference pension pattern	Measures the extent to which one wants to receive higher pension benefits in the beginning of retirement than later at the end of retirement (0 = flat, 1 = high/low).	0.28	0.45	0	1	778
Preference lump sum	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
Expected expenses during retirement						
Expected expenditure pattern during retirement for consumption category : c	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 consumption 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
Trust in pension funds						
Trust pension funds	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	1396
Financial literacy						
Responsible for finances	Measures 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	1396
Financial ability: unable	Binary dummy (1 = self-assessed financial ability is unable, 0 = else). Reference category.	0.15	0.36	0	1	1396
Financial ability: more or less able	Binary dummy (1 = self-assessed financial ability is more or less able, 0 = else).	0.58	0.49	0	1	1396
Financial ability: able	Binary dummy (1 = self-assessed financial ability is able, 0 = else).	0.24	0.43	0	1	1396
Financial ability: very able	Binary dummy (1 = self-assessed financial ability is very able, 0 = else).	0.02	0.15	0	1	1396

Table B.1. Description of variables in pension pattern preference regressions (continued)

Variable	Description	Mean	Sd	Min	Max	N
Risk-aversion						
Risk taker: low	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	1396
Risk taker: middle	Binary dummy (1=respondents who answer 4 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). Reference category.	0.30	0.46	0	1	1396
Risk taker: high	Binary dummy (1=respondents who answer 5, 6 or 7 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).	0.07	0.25	0	1	1396
Time rate of preference						
Time rate of preference	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 have 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.	-0.04	0.99	-2.73	4.31	1396
Mortality risk						
Younger	Binary dummy (1 = (completely) disagree with "Compared to people of the same age, I expect to become older.", 0 = else).	0.16	0.37	0	1	1396
More health care	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	1396
Less active	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	1396
Older	Binary dummy (1 = (completely) agree with "Compared to people of the same age, I expect to become older.", 0 = else).	0.14	0.34	0	1	1396
Less health care	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	1396
More active	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	0.45	0	1	1396
Same age	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	0.46	0	1	1396
Same health care	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	1396
Same degree of activity	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	1396
Chance 75	The likelihood that one reaches age 75 or beyond indicated on a range from 0 to 10 (0 = absolutely no chance, 10 = absolutely certain).	7.07	1.89	0	10	832
Liquidity constraints						
Wealth: low	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	1396
Wealth: middle	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	1396
Wealth: high	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	1396

Table B.1. Description of variables in pension pattern preference regressions (continued)

Variable	Description	Mean	Sd	Min	Max	N
Wealth: unknown	Binary dummy (1 = self-reported money on checking accounts, savings account and investments is unknown, 0 = else).	0.12	0.32	0	1	1396
Homeowner	Binary dummy (1 = homeowner, 0 = else).	0.79	0.41	0	1	1396
Income: low	Binary dummy (1 = gross monthly personal income is EUR 1500 or less, 0 = else).	0.20	0.40	0	1	1396
Income: middle	Binary dummy (1 = gross monthly personal income is between EUR 1501 and 3000, 0 = else). Reference category.	0.44	0.50	0	1	1396
Income: high	Binary dummy (1 = gross monthly personal income is EUR 3001 or more, 0 = else).	0.34	0.47	0	1	1396
Income: unknown	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	0.13	0	1	1396
Manage: very hard	Binary dummy (1 = very hard to manage on the total income of the household, 0= else).	0.02	0.12	0	1	1396
Manage: hard	Binary dummy (1 = hard to manage on the total income of the household, 0= else).	0.07	0.26	0	1	1396
Manage: neither hard nor easy	Binary dummy (1 = neither hard nor easy to manage on the total income of the household, 0= else). Reference category.	0.41	0.49	0	1	1396
Manage: easy	Binary dummy (1 = easy to manage on the total income of the household, 0= else).	0.40	0.49	0	1	1396
Manage: very easy	Binary dummy (1 = very easy to manage on the total income of the household, 0= else).	0.10	0.31	0	1	1396
Bequest motive						
Children	Binary dummy (1= children, 0 = no children).	0.71	0.45	0	1	1396
Save to leave wealth	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).	2.97	1.97	1	7	1396
Save to give presents	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).	3.76	2.05	1	7	1396
Information about pensions						
Information: newspaper	Binary dummy (1 = read about flexible pensions in the newspaper, 0 = else).	0.27	0.44	0	1	1396
Information: internet	Binary dummy (1 = read about flexible pensions on the Internet, 0 = else).	0.15	0.36	0	1	1396
Information: television/radio	Binary dummy (1 = heard about flexible pensions on television/radio, 0 = else).	0.18	0.38	0	1	1396
Information: pension fund	Binary dummy (1 = heard about flexible pensions from pension fund, 0 = else).	0.37	0.48	0	1	1396
Information: other	Binary dummy (1 = received information about flexible pensions via magazines, employer, school/university, colleagues, family, friends or other source, 0 = else).	0.20	0.40	0	1	1396
Information: own pension	Binary dummy (1 = information gathered or received about own pension, 0 = else).	0.67	0.47	0	1	1396
Controls						
Male	Binary dummy (1 = male, 0 = female).	0.61	0.49	0	1	1396
Partner	Binary dummy (1 = if household head lives together with a partner, 0 = else).	0.78	0.41	0	1	1396
34 and below	Binary dummy (1 = 34 or below, 0 = else).	0.10	0.30	0	1	832
Between 35 and 44	Binary dummy (1 = between 35 and 44, 0 = else).	0.26	0.44	0	1	832
Between 45 and 54	Binary dummy (1 = between 45 and 54, 0 = else). Reference category in the workers' regressions.	0.27	0.45	0	1	832
Between 55 and 64	Binary dummy (1 = between 55 and 64, 0 = else).	0.23	0.42	0	1	1396
65 and over	Binary dummy (1 = 65 or older, 0 = else). Reference category in the pensioners' regressions.	0.96	0.19	0	1	564
Education: bachelor degree or higher	Successful completion of higher vocational education and/or university education. Binary dummy (1 = graduate level diploma, 0 = else).	0.41	0.49	0	1	1396
Degree of urbanisation	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 urbanised).	2.94	1.30	1	5	1396

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.

Table B.2. Description of variables in trust regressions

Variable	Description	Mean	Sd	Min	Max	N
Dependent variable						
Trust pension funds	Binary dummy (1 = respondents who predominantly or completely trust their pension funds, 0 = else). This variable is constructed by using the answers to "Do you trust your pension fund(s) to be able to pay your pension benefit at all times?", which range from 1 (no, not at all) to 5 (yes, completely).	0.80	0.40	0	1	1566
Pension fund in financial problems						
Pension fund in financial problems	Binary dummy (1= respondents who report that their pension fund had financial problems in the past few years, 0 = else).	0.40	0.49	0	1	1566
Recovery measures						
Increase contribution employer	Binary dummy (1 = respondents who report that employer's contributions have increased, 0 = else).	0.07	0.26	0	1	1566
Increase contribution employees	Binary dummy (1 = respondents who report that their own contribution has increased, 0 = else).	0.18	0.38	0	1	1566
Cut pension benefits	Binary dummy (1 = respondents who report that their pension fund has cut pension benefits, 0 = else).	0.33	0.47	0	1	1566
No full indexation pension rights	Binary dummy (1 = respondents who report that their pension fund has not corrected pensions for price increases of products and services, 0 = else).	0.52	0.50	0	1	1566

Note: This table describes the dependent variable and the financial health and recovery measure variables used in the regressions reported in Table 5. 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.1 Logit regressions explaining trust in pension fund's capability to pay pension benefits

	(1) Employees with pension rights		(2) Pensioners with pension rights	
	(1a) *Trust*	(1b) *Trust*	*(2a) Trust*	*(2b) Trust*
Pension fund in financial problems				
Pension fund in financial problems	-0.13***		-0.16***	
	(0.03)		(0.03)	
Recovery measures				
Increase contribution employer		0.03		0.05
		(0.05)		(0.06)
Increase contribution employees		-0.04		-0.06
		(0.03)		(0.06)
Cut pension benefits		-0.11***		-0.14***
		(0.03)		(0.03)
No full indexation pension rights		-0.05		-0.13***
		(0.03)		(0.04)
Other controls				
Financial ability: more or less able	0.05	0.06	0.06	0.07*
	(0.04)	(0.03)	(0.04)	(0.04)
Homeowner	0.00	0.00	0.09***	0.08**
	(0.04)	(0.04)	(0.03)	(0.03)
34 and below	-0.12**	-0.12***		
	(0.05)	(0.05)		
Degree of urbanisation	-0.03**	-0.03**	0.02**	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)
Income: high	0.09**	0.09**	0.05	0.05
	(0.04)	(0.04)	(0.04)	(0.04)
Wealth: low	-0.07*	-0.07**	-0.01	-0.02
	(0.04)	(0.04)	(0.04)	(0.04)
Wealth: unknown	-0.16***	-0.17***	-0.11***	-0.11***
	(0.04)	(0.04)	(0.04)	(0.04)
Information: internet	-0.04	-0.02	-0.10***	-0.07*
	(0.04)	(0.04)	(0.04)	(0.04)
Information: pension fund	0.07**	0.08***	0.03	0.02
	(0.03)	(0.03)	(0.03)	(0.03)
Information: other	-0.01	-0.02	0.08**	0.08*
	(0.04)	(0.03)	(0.04)	(0.04)
Information: own pension	0.07***	0.07**	0.00	0.00
	(0.03)	(0.03)	(0.03)	(0.03)
Observations	962	962	604	604
Pseudo R-squared	0.08	0.09	0.16	0.19
Log pseudolikelihood	-478.5	-475.4	-202.0	-194.5
Wald χ^2	74.9	78.3	53.6	74.5
Prob > χ^2	0.00	0.00	0.00	0.00

Note: The table reports marginal effects for logit regressions. Standard errors are clustered by household and shown 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 person 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. Unreported variables (time rate of preference, risk taker: low, risk taker: high, financial ability: able, financial ability: very able, responsible for finances, education: bachelor degree or higher, income: low, income: unknown, wealth: high, information: newspaper, male, partner, between 35 and 44, between 45 and 64) are insignificant. The variables income: unknown, risk taker: high and financial ability: very able are omitted in the regressions of column (2a) and (2b). A complete table is available upon request. * p<0.1, ** p<0.05, *** p<0.01

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