Journal of Pension Economics and Finance (2023), 1–23
doi:10.1017/S1474747223000203

CAMBRIDGE UNIVERSITY PRESS

ARTICLE

Understanding demand for flexible pension payouts: evidence from the Netherlands

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(Received 21 March 2022; revised 19 September 2023; accepted 19 September 2023)

Abstract

This study examines the interest in different pension payout schemes when full annuitization is the default. We focus on three possible pension payout schemes: a flat-rate annuity, a high/low annuity-based profile, and a partial lump sum at retirement with a lower flat-rate annuity after that. We make use of a vignette study and find substantial interest in each of the three payout schemes. Interest in the lump sum scheme increases when a higher percentage can be taken out as a lump sum or when interest rates or replacement rates are lower. Interest in a high/low annuity-based profile increases when the high annuity is valid for a shorter period.

Keywords: annuities; consumer choice; lump sum; pension; survey experiment

JEL Classification: D14; G41; H31; J32

1. Introduction

Annuitized pensions provide insurance against longevity risk. In many countries, individuals and households tend to under-annuitize. The Netherlands is an outlier combining record-high pension savings[1] with mandatory full annuitization for a large part of its workforce. However, full annuitization – just like no annuitization – will not be optimal for everyone. To allow for a more optimal lifetime consumption path, the Dutch government introduced a bill that will increase flexibility in the pension payout phase. We investigate whether Dutch pension participants are interested in the proposed options for (partially) de-annuitizing their pension wealth at retirement and to what extent this interest depends on the specifics of the draw-down options from which they can choose.

In general, annuity demand at retirement tends to be lower than expected based on rational optimization models, given the insurance annuities provide against the longevity risk. A large body of literature discusses this so-called annuity puzzle (e.g., Benartzi *et al.*, 2011; Beshears *et al.*, 2014; Horneff *et al.*, 2014; Brown *et al.*, 2022).[2] Rational arguments against (full) annuitization of pension wealth include bequest motives, institutional constraints, uncertain future healthcare expenditures, a below-average life expectancy, means-tested government benefits, incomplete annuity markets, and the potential availability of other annuities, such as the one embedded in Social Security.

There are also behavioral mechanisms that may affect annuitization decisions. Beshears *et al.* (2008) identify five factors that increase the likelihood of discrepancies between someone's actions and actual interests: complexity, passive choice (i.e., the default effect), limited personal experience, third-party marketing, and inter-temporal choice. These factors are particularly relevant in the pension domain.

[1]The Netherlands had the highest ratio of pension assets to GDP (166%) in the world in 2022, according to the Global Pension Assets Study by the Thinking Ahead Institute (2023).

[2]See Alexandrova and Gatzert (2019) for a broader literature review on annuitization decisions.

Indeed, Brown *et al.* (2021) find that increasing the complexity of the annuity choice reduces the respondent's ability to value the annuity, measured by the difference between the sell and buy values that respondents assign to the annuity. Furthermore, Clark and Pelletier (2022) provide an extensive review of the literature examining the impact of defaults in supplemental retirement saving plans (SRP). They add to this literature by showing that defaults can substantially increase enrollment in SRP among public employees already covered by a defined benefit (DB) retirement plan, even without employers matching the SRP contributions.

In environments in which annuitization is more common, a higher uptake of lump sums is related to institutional factors such as taxation (Bütler and Ramsden, 2022) or the presence of means-tested social benefits (Bütler *et al.*, 2017), but also the financial situation of the individual, such as the accrued pension wealth (Bütler and Teppa, 2007).

The presentation of choice options can also influence annuity choice in either direction. Bockweg *et al.* (2018) used a survey-based experiment among participants of a large Dutch pension fund to study the impact of framing on the annuitization decision. They find strong evidence of joint effects of combining investment and consumption frames with gain and loss frames. These framing effects are heterogeneous among participants, for example, with respect to risk aversion, time preference, and trust in the pension fund. They also find indications that the precise effect that framing may have depends on the institutional environment.

Regulating a certain level of annuitization of pension wealth has potential advantages and disadvantages. Horneff *et al.* (2014) describe how mandatory full annuitization at retirement comes at the cost of substantial welfare losses for rational individuals. However, it might benefit behaviorally restricted individuals, even though they also prefer more flexibility. At the same time, Bütler *et al.* (2017) show that entirely abandoning mandatory annuitization might not be socially optimal in a system with means-tested benefits.

The Netherlands is a particular case by international comparison, given the high level of mandatory annuitization. The Dutch institutional setting aims to insure participants against a range of potential retirement risks by limiting their risk of contribution inadequacies, compelling them to cover their longevity risk, and regulating the investment risks that pension funds and insurers can take on their behalf. The Dutch universal health insurance, with limited co-payments, further restricts the risks of potentially large future healthcare expenditures. Within this setting, with relatively strict and narrow margins, retirees can trade off a limited amount of income now with income later without substantially increasing their exposure to the risks mentioned above.

In a long-running debate about remodeling the pension system, much attention has been given to the options for increasing the freedom of choice, both in the accrual and the benefit phases. In the benefit phase, the current default payout pattern is a lifelong flat-rate monthly annuity, but retirees can also opt for a high/low annuity-based profile. A new legislative proposal adds the extra option of taking up to 10 percent of accrued retirement benefits as a partial lump sum at the retirement date.

In this study, we examine to what extent the currently available payout schemes in the Netherlands – a constant or a high/low annuity-based profile – appeal to people and how this compares to the appeal of the announced option of a partial lump sum. We add to the literature on pension payout preferences (see, e.g., Van der Cruijsen and Jonker, 2019) by measuring the causal impact of several aspects of the choice options, such as the relative prices depending on the relevant interest rate and the percentage of the available pension capital that can be distributed over time. Finally, we study which demographic and personal characteristics are correlated with pension payout preferences.

While a constant payout pattern is most popular, there is also substantial interest in the alternative schemes, with both the high/low and the lump sum scheme being chosen in almost 30 percent of the choice scenarios. Our regression results indicate that interest in the lump sum scheme is higher when a higher percentage can be taken out as a lump sum and when interest rates or replacement rates are lower. Interest in a high/low annuity-based profile is higher when the high annuity is valid for a shorter period.

The remainder of this paper is organized as follows. Section 2 presents a short overview of the Dutch pension system. Section 3 introduces the data and the hypothetical choice experiment. In Section 4, we first show the aggregated choices that respondents make. We then analyze the causal effects of the randomized design and economic background variables and how the choices correlate with individual characteristics, such as demographics and economic preferences and attitudes. Finally, in Section 5, we discuss the implications of our findings.

2. Institutional setting: the Dutch pension system

The Dutch pension system consists of three pillars. The first pillar – introduced in 1957 – is a pay-as-you-go state allowance that is not related to income but proportionally depends on the years a person lived (or worked) in the Netherlands in the 50 years before his or her statutory retirement age. The allowance level is linked to the minimum wage and adjusted for inflation twice a year. A full allowance amounts to about 70 percent of the net minimum wage for singles. In the case of couples, each partner receives about 50 percent of the net minimum wage for singles. At the time of writing, July 2023, the corresponding amounts are about 1,379 euro for singles and 939 euro per person for couples. There is no flexibility in the timing of the benefit phase; the first pillar allowance starts at the statutory retirement age. Historically, this was set at 65, but since 2013 it has been steadily increasing, and it will reach 67 in 2024. After that, further increases are linked to the projected remaining life expectancy at 65. When this rises with (at least) 4.5 months, the statutory retirement age rises by three months.[3]

The second pillar is capital-based and employment-related and only concerns the portion of income that exceeds the social minimum, considering that the first pillar is already supposed to replace that first part of a person's income. The second pillar pension premiums are tax-deferred; the received benefits are subjected to income tax at payout.[4] The employer and the employee pay a monthly pension premium, primarily into a DB scheme, although defined contribution (DC) schemes are becoming more common (Bovenberg and Nijman, 2019). A typical DB scheme currently aims at a 'partial' gross replacement rate of 75 percent. It is a 'partial' replacement rate in that it only concerns the part of the average wage over one's career that exceeds the social minimum, given that the first pillar pension already provides the social minimum. However, low interest rates have put pension goals under increasing pressure. Most current DB pensions are more like 'conditional defined benefit'. In extreme circumstances, pension benefits may be cut in nominal terms. Pension funds aim to index the nominal entitlements to inflation, but this is conditional on the fund's financial position. Participants bear the risks of the collective scheme. Since the financial crisis in 2008 and up to the moment we conducted our survey in December 2019, most pensions have been not at all or only partially indexed or have even been cut. In 2023, average indexation has been more substantial but still lagged behind record inflation rates. Consequently, pensions are, on average, still slowly but steadily declining in real terms.

There is no general obligation in the Netherlands to participate in a second pillar pension scheme. However, participation in a second pillar pension fund is mandatory for many employers and sectors and some specific (primarily medical) professions. Consequently, most employees (about 90%) and some specific groups of self-employed professionals (e.g., physicians, but also painters or plasterers) are *de facto* obliged to participate in the second pillar pension scheme of their company, sector, or profession.

Using a large administrative data set, Knoef *et al.* (2016) estimated the actual median gross and net replacement rates in the Netherlands to be 71 and 84 percent, respectively, for the combination of the

[3]In 2019, Statistics Netherlands estimated the remaining life expectancy at 65 to be 20.64 years in 2024. Each year they publish a new estimate for five years in the future. In November 2022, they estimated the remaining life expectancy at 65 to be 21.05 years in 2028, which means the statutory retirement age will be raised to 67 years and three months in 2028.

[4]Income taxes are lower after the statutory retirement age since a specific premium that partly finances the first pillar pensions is only levied on the working-age population. The progressiveness of the Dutch tax system also reduces average taxes in retirement.

first and second pension pillar income. The contribution of both pillars is roughly equal in size but with sizable underlying heterogeneity. People with lower incomes or limited participation in the second pillar will receive their pension income mainly or entirely from the first pension pillar.

The third pillar is also capital-based and income-related. It offers all workers who do not make (full) use of the second pillar the opportunity to accrue (additional) tax-deferred pension rights voluntarily. The third pillar is relatively small in the Netherlands. Of the total yearly pension payouts, the first pillar holds roughly 50 percent, the second pillar 45 percent, and the third pillar 5 percent (Molenaar-Cox and Woestenburg, 2018).

Our study focuses on the payout phase of the accrued pension wealth in the second (and, if applicable, the third) pillar. In the accrual phase, someone's employment status and specific job determine if, how, how much, and at which pension fund they accrue second pillar pension wealth. The payout phase does offer some choice options. Both the second pillar pension wealth – accrued under a DB or a DC scheme – and the third pillar pension wealth are currently fully annuitized at retirement.[5] Depending on the specific scheme, participants can opt for early or late retirement within a certain bandwidth, with an actuarially fair impact on the resulting annuities.

A flat-rate annuity, that is, constant nominal monthly payments plus a conditional indexation for inflation throughout retirement, is the general default payout scheme. Alternatively, retirees can opt for a high/low annuity-based profile, starting with a period of relatively higher monthly pension payouts, followed by a period of lower payouts. This scheme needs to be specifically requested and is less frequently used than the constant payout scheme.[6] The maximal difference between the high and the low payment is regulated by law. The low payment (pre-tax) has to amount to at least 75 percent of the high payment (pre-tax).[7]

A third payout scheme – taking out a partial lump sum at retirement – has been publicly announced but is not yet available.[8] Similar to the high/low scheme, tax law regulates the lump sum (in this case by setting an upper limit to the one-time payout) to ensure that the tax-deferred pension savings are primarily used for a lifetime annuity. The currently proposed bill stipulates that no more than 10 percent of the total pension wealth can be extracted as a lump sum payment at the start of retirement and that this lump sum cannot be combined with a high/low profile.

3. Data

We conducted a survey experiment involving hypothetical retirement choice scenarios to learn more about the interest in different pension payout schemes. We focus on the most immediately affected age groups by making use of a specific subset of the respondents of the representative Dutch LISS online panel (Longitudinal Internet studies for the Social Sciences)[9] that are around retirement age. Our survey was conducted in December 2019, targeting LISS respondents between the ages of 55 and 75. Out of the 1,250 invited individuals,[10] 1,064 completed the questionnaire, leading to a response rate of 85 percent.

[5]Full annuitization is a legal requirement for making use of the tax deferral. The second pillar only offers lifelong annuities, while the third pillar also offers the option of a temporary annuity for at least 5 years.

[6]Currently, the high/low scheme is mainly used by individuals who retire early to smooth income before and after the statutory retirement age. The choice of a high/low payout scheme after retirement at the statutory retirement age is relatively rare (Lever *et al.*, 2018).

[7]There are no general statutory limitations to the length of the high-payment period. However, the ratio limit effectively makes extended high-payment periods less meaningful. In practice, several pension funds limit the duration choice, typically to a maximum of 10 years.

[8]The bill to make the lump sum scheme available is still under debate in the Dutch parliament as of July 2023, with 1 July 2024, as the intended effective date. The bill's current state foresees allowing those who retire at their statutory retirement age to shift the uptake of the lump sum to the next fiscal year to avoid having to pay first pillar premiums over their lump sum.

[9]The LISS panel is an online panel comprising 5,000 representative households, with approximately 7,500 individual respondents. If a participant cannot access a computer or the internet, LISS provides this access. Each respondent fills out a paid questionnaire once per month. These questionnaires consist of topic-specific and LISS-core questions. More information about the LISS panel can be found at www.lissdata.nl.

[10]This sample randomly selects LISS participants in the defined age range.

The core of our survey consisted of eliciting the participant's preference for a specific pension payout scheme and how this preference depends on the design of the different schemes and other characteristics of the choice environment, such as the interest rate or the replacement rate. The three pension payout schemes we consider are a flat-rate annuity, a high/low annuity-based profile, and a partial lump sum, followed by a lower annuity, as described in section 2. While we elicit the respondents' preferences in the form of advice to a similar household, we will use the term 'choice' for the advice the respondents selected. The 'choice' in the survey experiment should be distinct from the payout decision they have made or would prefer for their own pension, which we discuss in section 3.3.

3.1 Survey experiment design

We use a vignette study to elicit the pension payout preferences, in line with Samek *et al.* (2022). Asking respondents to advise a hypothetical person allows us to manipulate better the specific choice setting, such as the (joined) retirement age. The respondents are asked to give advice on the choice between the three payout schemes to a person with the same characteristics.[11] It is mentioned explicitly that the advisee has the same pre-pension income and family status as the respondent. We use the respondents' own net household income category to provide them with an estimated monthly net pension income in euros per pension scheme.[12]

The high/low and the lump sum payout schemes are calibrated to be actuarially equivalent to the constant payout.[13] All payout schemes are based on the retirement age 67, which is also explicit in the survey question.[14]

The respondents are asked to advise on six different scenarios randomly drawn with equal probability from a set of 24 scenarios. Each scenario is a unique combination of different calibrations for the partial replacement rate, the (implicit) interest rate, the duration of the high benefit payout in the high/low scheme, and the size of the lump sum in the partial lump sum scheme. In each scenario, the same parameters apply for all three payout schemes (i.e., we provide all three payout schemes under the assumption of, for example, a low interest rate and a 100% replacement rate). For each scheme, the respondents receive information on the monthly payouts, the size of the lump sum payout, and the duration of the high and low periods in the high/low scheme. The different assumptions regarding the economic environment are implicit and only reflected in the realization of the net monthly payout values; in other words, the interest rate is not explicitly mentioned, but it affects the payout amounts in the high/low and lump sum profiles. We present respondents with nominal amounts without discussing inflation and the possibility of indexation so as not to complicate matters further.[15]

The four variables we use to calculate the expected values in each scenario vary as follows.

[11]The screenshots in the appendix, section A1, display the precise instructions the respondents received.

[12]The exact wording of the income question as well as all other relevant survey questions is provided in the web appendix. While we tried to provide the respondents with examples of pension payouts that they could easily relate to, our goal was not to accurately estimate their own pension outcomes. We used the reported income brackets (the respective middle of the reported 500 euros income bracket) as the 100 percent net replacement rate income after retirement. For those with a reported income below a certain threshold, we used the minimum income needed for accumulating second pillar pension income (on top of the basic public pension level). This way, some pension income could be redistributed during retirement. Individuals in single households who report a pre-retirement income below 1,500 euros are placed in the 1,500–2,000 euros income group, and individuals in couples households with a household income below 2,000 euros are placed in the 2,000–2,500 euros income group. For those who did not report their income, we used the median income for the vignettes; this amounts to 2,500–3,000 euros for individuals in single households and 4,000–4,500 euros for individuals who live with a partner.

[13]While the constant payout is determined by the replacement rate, for the high/low and the lump sum, a few additional assumptions are necessary to provide actuarial fair alternatives. For simplicity, we use a term annuity of 20 years, in combination with a constant mortality rate of 2 percent (see the technical note in the web appendix for more details). We use the tax rates and brackets that apply in 2020 to calculate the net values of possible pension payouts.

[14]See Van Soest and Vonkova (2014) for a similar experiment that investigates flexibility as to the retirement age.

[15]Few respondents expect substantial indexation on their future pension; see appendix Table A1.

3.1.1 Partial replacement rate

The pension payout values that the respondents see for each of the three schemes consist of a first pillar allowance (corresponding to their household composition) plus a second pillar pension amount that is based on a random draw for their 'partial' gross replacement rate of either 60, 80, or 100 percent,[16] minus taxes. So, respondents are not explicitly informed about the replacement rate used for a specific scenario. This parameter is only shown implicitly by its effect on the payout sums. The replacement rate affects all three payout schemes in the same way, such that they remain actuarially equivalent. Therefore, the predicted effect of a change in the replacement rate is ambiguous.

A high replacement rate could increase interest in the lump sum, given that the remaining annuity would be high enough to maintain the current standard of living. Conversely, a low replacement rate might induce choosing the lump sum or the high/low payment scheme to maintain the current standard of living during the initial years of retirement at the cost of an even lower annuity for the remaining retirement years.

3.1.2 Interest rate

We need to make assumptions on the interest rate to calculate the high/low and lump sum payouts such that they are actuarially equivalent to the constant payout scheme. We randomly assign an interest rate of 2 or 6 percent.[17] Again, this parameter is implicit and not obvious to the respondent. A higher interest rate makes the early payout of pension savings look more costly relative to the unaffected constant payout scheme. The two possible rates do not correspond to interest rates at the time of the survey, which were much lower. However, the difference between the high and the low interest rate allows us to investigate the impact of an increase in interest rates.

Because the interest rate is not communicated to the respondents, they cannot take into account the possible higher yields to alternative investments in the high-interest scenarios. Thus, in our setting, a high interest rate makes the earlier payout of the pension savings less attractive. This effect should be even more pronounced in the lump sum, where the surplus payout occurs immediately upon retirement.

3.1.3 Duration of the high versus low payout period in the high/low scheme

We randomize between two designs of the high/low scheme, which differ in the duration of the high and the low payment period, respectively. The *short* option foresees five years of higher payments followed by lower payments thereafter.[18] The *long* option consists of 10 years of high payments, with lower payments thereafter.[19] In both specifications, we maximize the difference between the high and the low payment within the legally allowed range of 100/75. While both the high and the low payment amounts are slightly higher in the *short* option, also the difference between the high and the low payment is mostly larger in this payout scheme.

3.1.4 Size of the one-time lump sum in the partial lump sum scheme

The partial lump sum scheme offers the payout of a fraction of the total pension savings at the start of retirement. We vary the size of this fraction, assigning it to be either 5 or 10 percent of the total

[16]The partial gross replacement rate applies only to the second pillar part of the pension payout. Given that the first pillar pension fully replaces one's income up to the assistance level (70% of the net minimum wage for singles, or two times 50% in the case of couples), the average overall replacement rate of the total retirement income for the lower income categories in our study will be approximately 80, 90, or 100 percent. For higher income levels, the relative weight of the first pillar pension will be lower, and the overall replacement rates will be closer to 60, 80, or 100 percent. An overall net replacement rate of 60 percent is close to the OECD average for average earners with a full career (OECD, 2019). An overall net replacement rate of 80 percent corresponds to the respective level that the OECD reports for the Netherlands. A 100 percent net replacement rate represents a situation where retirement does not change a worker's financial situation.

[17]The precise interest rate used to calculate the high interest rate state was 6.34 percent.

[18]A part of the high payment may fall into a higher tax bracket. Where this occurs, the reported monetary values take the higher taxes into account.

[19]There are no legal limitations for the duration of the high-payment period, but it is not uncommon for a pension fund to set a limit of 10 years.

pension savings. The subsequent monthly payments are adjusted such that the accumulated gross pension rights are equal to the constant payout scheme. We account for the higher marginal taxes that apply to the lump sum.[20] Both the lump sum and the monthly payment presented in the survey are net values. While the larger lump sum is, on average, more costly due to higher tax rates in the first period, it can also lead to lower tax rates in later periods. In specific cases, the lower annuities can make retirees eligible for subsidies they would not be entitled to on their regular flat-rate annuity. In addition, it allows for a higher degree of flexibility. Suppose a retiree wishes to use the partial lump sum payout for a large expenditure at the start of retirement (e.g., to pay down a mortgage or to buy a caravan). In that case, taking out a larger share might be preferable despite the higher costs.

3.1.5 Experiment layout and ranking of payout schemes

Each participant sees six draws of the 24 possible scenarios. The order in which the pension schemes (constant, high/low, or lump sum) are shown in each draw differs across but not within individuals. Therefore, the decision screens an individual sees across the six rounds only differ in monetary values and the specifics of the lump sum and high/low scheme. The random variation in the order of the specific payout schemes across individuals, however, allows us to control that the order in which the payout schemes are presented in the survey does not influence the respondents, for example, by suggesting that the first payout scheme on the left is the reference pension scheme.

To gauge whether individuals value the payout schemes differently or randomly pick one out of three evenly good or bad payout schemes, we asked the respondents to rate each payout scheme in each of the six draws. They have to assign a grade to each of the payout schemes, based on their own preferences, from 1 ('not interesting at all') to 10 ('ideal'). In only 6 percent of all choices, the chosen scheme does not correspond to the payout scheme that receives the highest rating from the respondent.[21]

3.2 Control variables

3.2.1 Demographics and financial situation

Demographic variables like age and gender are retrieved from the LISS core study. The left panel of appendix Figure A1 in the shows the age distribution of the respondents to our survey. The sample is balanced with respect to gender, with 50.5 percent female and 49.5 percent male respondents.

The survey elicited additional information on the respondents' financial situation and health, their attitude toward and knowledge of the pension system, and their economic preferences, such as risk attitudes and discount rates. Appendix Table A1 provides detailed descriptive information for the sample.

The right panel of appendix Figure A1 shows the distribution of net household income before retirement. Individuals between 55 and 66 years of age were asked to report their current monthly net household income (consisting of labor and wealth income as well as subsidies), while individuals above retirement age were asked to report the income they received just before retirement age. Of the respondents, 15 percent do not disclose their household income. The median net household income lies between 2,500 and 3,000 euros per month among the respondents who do report their income.[22]

Seventy percent of the respondents live with a partner, and 73 percent own their house. The respondents also have a significant amount of private household savings: 67 percent of the individuals

[20]We assume the tax rates that apply to retirees, even though the lump sum may factually fall into the last year of active labor market participation. The timing and rate of taxation is a complex problem for the announced lump sum payout scheme in the Dutch pension system and an important reason why the introduction has been delayed from 2022 to 2024.

[21]We use all observations for our main analyses, also those with inconsistencies in the rating. Excluding all inconsistent choices (6% of observations) or, more strictly, all individuals who are inconsistent at least once (20% of all respondents) does not alter our results. We provide the results with the restricted samples in the web appendix.

[22]The incomes were reported in 500-euro income brackets.

have several months of net household income or more worth of private household savings, and at least 83 percent have pension savings in one or several pension funds.

3.2.2 Economic preferences and attitudes

When asked about their trust in the Dutch pension system, approximately one-fourth of the respondents answered that they had little or no trust in the system, while about one-fifth indicated that they trusted it much or very much. Most individuals report having 'some' trust in the Dutch pension system. Individuals who are already retired trust the pension system more than those who are not yet retired. The level of trust is very low among individuals who do not have a pension fund; half of this group has little or no trust in the system.

We measured the risk attitude of respondents by asking them to rate their willingness to take risks – in general, and in the financial domain – on a scale from 0 to 10. The distribution of risk preference is comparable to earlier findings for this age group (Dohmen *et al.*, 2011). To understand whether preferences depend on the individuals' knowledge about the payout schemes and the financial system in general, we included questions on financial literacy[23] and two direct questions on their familiarity with the concept of a high/low and a lump sum scheme. Finally, we also measured the respondents' time preference with a hypothetical question that measures the equivalence between an amount of money now versus the return one year later (see Wang *et al.*, 2016). We grouped the responses into three categories: negative discount rate, low discount rate (0–6%), and high discount rate (>6%). Appendix Figure A2 provides an overview of the distribution of answers for the economic preference and attitude variables.

3.3 Own pension decisions and preferences

After the individuals had advised on other households' pension payout schemes, we asked them about their own realized or expected pension payout decision. The responses to these questions are, however, not necessarily revealing their true preferences but are also dependent on an individual's circumstances and the specifics of the pension schemes that existed at the time of their retirement. However, the answers to those questions provide insight into individuals' (planned) actions, given their actual and more complex circumstances.

Respondents who were already retired were first asked about their actual decision concerning the high/low payout scheme: 'Did you choose to have your pension paid out based on a high-low arrangement, with higher payments in the first years of your retirement and a lower payment in the later years of your retirement?' They could answer with 'yes', 'no', 'I don't know', or 'I don't want to say'. They were then asked a hypothetical question about the lump sum payout scheme, which was not available to them at the time of their retirement: 'Would you, had it been possible, have preferred a lump sum payment upon retirement: in other words, a sum of money paid out immediately upon retirement, with lower pension payments after that?' The answer categories are similar but allow for uncertainty to the yes and no responses: 'Probably or almost certainly yes' and 'Probably or almost certainly no'.

The respondents who were not yet retired were asked if they expected to choose the respective payout scheme. They could answer using the same response categories explained above for the hypothetical questions on the lump sum for retired respondents.

If respondents indicated that they were considering or would have considered the lump sum or the high/low payout scheme, they were asked what they would use (or have used) the lump sum or high/low for. Appendix Table A2 displays the possible answers to this question by payout scheme and retirement status. Respondents were allowed to choose multiple payout schemes.

We further asked respondents whether they find such a payout scheme important in the Netherlands.[24] We discuss the answers to these questions in the first part of the results section (4.1).

[23]We use the three standard questions (see Lusardi and Mitchell, 2011 and Alessie *et al.*, 2011), augmented with an advanced financial literacy question on the relation between interest rates and bonds (see Van Rooij *et al.*, 2012).

[24]The exact questions and response categories are provided in the web appendix.

4. Results

We first provide an overview of how popular the respective pension schemes is and how the choice in the experiment (the advice given to a fictional household) relates to the rating of these schemes. We also discuss the actual own pension payout decisions that the individuals have already made or plan to make for themselves. In the second step, we provide causal evidence on how the financial environment and specifics of the pension payout schemes impact the respondents' preferences. Finally, we provide descriptive evidence on how the respondents' choices relate to their personal characteristics, demographic and socioeconomic background, and economic preferences and financial literacy.

4.1 Interest in the pension payout schemes

The constant pension payout scheme is the most popular. If we aggregate all vignette choices across draws and individuals, we see that the constant payout is chosen in 45 percent of all cases, while the high/low and the lump sum schemes are chosen in 29 and 27 percent of all cases, respectively. The distribution of choices between the three payout schemes reflects not only different preferences between respondents but also a significant variance of choice within individuals, dependent on the specific scenario. Only 36 percent of all respondents make the same choice across all six draws. Forty-three percent of the respondents switched between two schemes in their choices, while 20 percent of the individuals chose each scheme at least once.[25] This suggests that a significant share of individuals adjust their pension preference to the specifics and circumstances at the time of their retirement rather than having a fixed preference that is constant across all circumstances. This finding is in line with the results from previous studies, which find a link between the uptake of annuities and recent market experiences of the individuals (Previtero, 2014; Agnew *et al.*, 2015). Further, we find that many of the respondents who are not yet retired remain undecided about their own upcoming pension decisions.

Figure 1 illustrates the distribution of the respondents' ratings for each realization of the pension payout schemes. Each respondent rates every scheme six times in light of the specific circumstances of the respective vignette scenario of the draw. Respondents rate the two schemes that they do not choose on average more than two points lower: the average rating for the chosen scheme is 7.8, while the average over the two payout schemes that are not chosen is significantly lower, with 5.2. Conditional on being the chosen payout scheme, there is no difference in the average rating between the three payout schemes. However, this does not hold for the payout schemes that are not chosen. Among the payout schemes that are not chosen, the constant pension payout scheme receives a higher rating than the other two schemes, with an average of 5.9 for the constant payout compared to 5.2 for the high/low payout scheme and even 4.8 for the lump sum scheme.

Most already retired respondents report that they have chosen the constant payout scheme for their own pension payout scheme. However, we cannot control for their own situation and the environment they faced upon their own retirement (such as the offered payout schemes, the financial, but also informational setting). Appendix Figure A3 provides the distribution of the answers to the respondents' own realized, expected, or hypothetical pension payout decisions. An important motive for choosing the lump sum or high/low payout scheme is the wish to have more precautionary savings due to uncertainty about the pension system or future healthcare costs[26] (Table A2). Other relevant motives are paying off loans (such as a mortgage loan) or the wish to travel. Van der Cruijsen and Jonker (2019) discuss the motives for choosing pension payout schemes in more detail.

When asked whether they find it important that a payout scheme for a high/low scheme exists, 45 percent of all respondents agree. Similarly, 44 percent find it important that retirees can receive part of their pension savings as a lump sum at the start of their retirement.

[25]Appendix Figure A4 displays the shares of respondents in more detail, by scheme or combination of schemes.

[26]The Netherlands has universal health insurance, with relatively low and income-related co-payments and deductibles. However, aging can increase the (perceived) risk of higher personal contributions in the future.

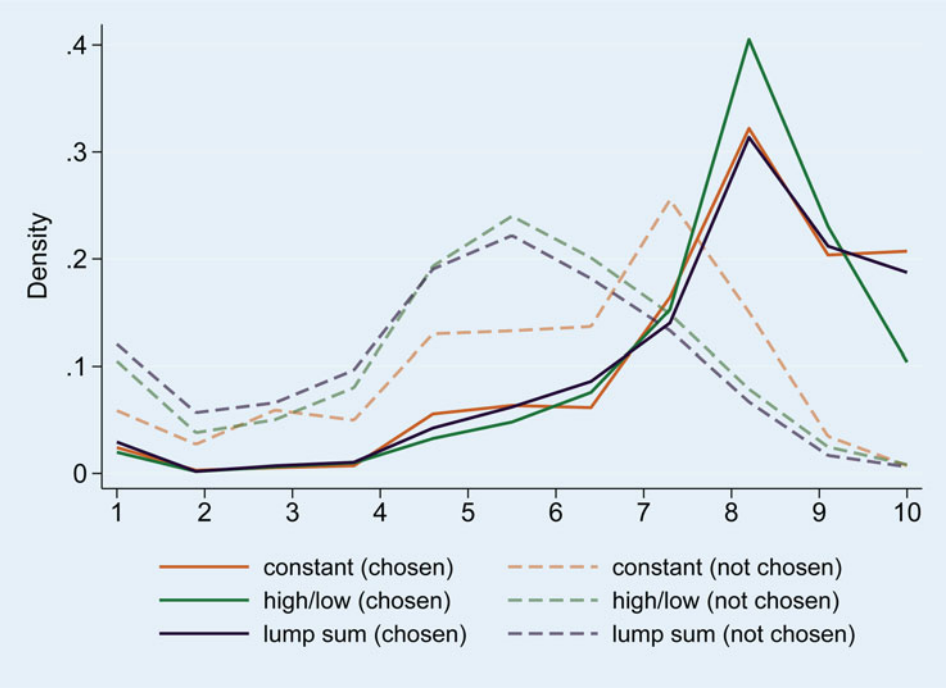

Figure 1. Rating of all payout schemes (chosen and not chosen). Respondents rate each payout scheme on a scale of 1, 'not interesting at all' to 10, 'ideal'.

4.2 Exogenous determinants

In this section, we investigate how external factors influence individuals' hypothetical choices. As described in the data section, we randomly varied the choice environments in six vignettes that the respondents received. We varied the replacement rate, interest rate, and the specifics of the high/low payout scheme and the lump sum payout scheme.

For each of the three pension payout schemes (Y), we calculate the probability that it is chosen using a linear random-effects probability model:[27]

$$p(Y_{ij}) = \beta X_{ij} + \gamma j + \delta Z_i + c_i + u_{ij},$$

where X_{ij} is the specific scenario that individual i receives in the draw number j, that is, the randomly assigned parameters of the choice environment for each experiment round. γ captures a learning effect, that is, how the choice is influenced by the number of previous choices an individual has made. Additionally, we control for the order in which a respondent sees the payout schemes (e.g., lump sum, constant, high/low), Z_i.[28] The experimental set-up of the vignettes secures that any unobserved individual specific variation (c_i) is independent of the environmental variables captured in X, with

$$cov(X_{ij}|c_i + u_{ij}) = 0.$$

[27]We choose a simple linear probability model for our main analyses for ease of interpretation and to alternatively provide fixed-effects results. However, estimating a random-effects multinomial model instead of a linear probability model yields similar marginal effects. The results of the multinomial estimation are provided in the web appendix.

[28]We add binary variables for the six possible permutations of the payout schemes. There is no indication of significant and systematic differences due to the order of payout schemes. However, the 'constant–lump sum–high/low' arrangement relates to a significantly lower probability of choosing the constant payout scheme.

Table 1. Impact of environment and design of options

Variables	*p* (Constant)	*p* (High/low)	*p* (Lump sum)
Partial replacement rate			
Medium (80%)	0.026**	0.026**	−0.052***
	(0.011)	(0.011)	(0.011)
High (100%)	0.072***	0.006	−0.080***
	(0.013)	(0.012)	(0.012)
Interest rate			
High (6%)	0.057***	0.002	−0.059***
	(0.009)	(0.009)	(0.010)
Duration of high period			
Long (10 years)	0.021**	−0.023**	0.003
	(0.009)	(0.009)	(0.008)
Size of lump sum			
Large (10%)	−0.026***	−0.047***	0.071***
	(0.009)	(0.010)	(0.010)
Draw number	−0.008***	−0.007***	0.016***
	(0.003)	(0.003)	(0.003)
Constant	0.435***	0.324***	0.241***
	(0.030)	(0.027)	(0.025)
Observations	6,384	6,384	6,384
Number of individuals	1,064	1,064	1,064

Note: Linear probability random-effects estimates for the probability of choosing a specific pension payout scheme over the other two options. The base group for the partial replacement rate is 60%, for interest rate it is low (2%), for duration of high in high/low the base group is short (5 years), and for the size of the lump sum it is small (5%). We additionally control for the order in which the individual sees the options. Standard errors are in parentheses, clustered at household level, significant at ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

To test whether this assumption holds, we run an over-identification test. Our choice of a random-effects model is mostly supported by the Sargan–Hansen statistic. The null hypothesis that the random-effects model is appropriate is not rejected for the payout schemes lump sum and high/low and only weakly rejected for the payout scheme constant, with a *p*-value of 0.045. We provide the results for the fixed-effects model in the web appendix.

Table 1 shows the regression results for the three possible pension payout schemes. We find the following baseline probabilities of choosing a specific pension payout scheme: a probability of 41 percent to choose the constant payout scheme, a 33 percent probability to opt for the high/low payout scheme, and a 26 percent probability to choose the lump sum. The baseline probability is set at the partial replacement rate of 60 percent, the low interest rate of 2 percent, the short duration of the high/low payout scheme of 5 years, and the smaller amount of the initial lump sum payout of 5 percent of the total pension savings.

4.2.1 Partial replacement rate

The base category for the partial replacement rate in this analysis is 60 percent, the smallest of the three possible values for the replacement rate in the experiment. The constant pension payout scheme becomes more popular the higher the replacement rate is, with a 7 percentage points higher probability of being chosen if the replacement rate is 100 percent. This finding is in line with a preference for consumption smoothing as predicted by the life cycle model (Ando and Modigliani, 1963), with the respondents sticking to the constant payout scheme if it offers a smooth transition into retirement. Inversely, the interest in the lump sum scheme is higher at the 60 percent replacement rate and drops with higher values of the replacement rate, with a 5 percentage points decrease at an 80 percent replacement rate and 8 percentage points lower probability of being chosen at a 100 percent replacement rate. Such a behavior can be explained by quasi-hyperbolic discounting (Beshears *et al.*, 2008), where respondents who face an income drop focus on smoothing the immediate consumption and discount the future one. The interest in the high/low scheme is less affected, with a slight increase in interest at the 80 percent replacement rate and no effect for the 100 percent replacement rate.

4.2.2 Interest rate

An increase in the interest rate of 4 percentage points, from 2 to 6 percent, increases the probability of choosing a constant pension payout scheme by about 6 percentage points and reduces the probability of choosing a scheme with an initial lump sum payment by the same amount. On the other hand, the interest in the high/low pension payout scheme does not appear to be affected by the interest rate. The shift toward a constant pension payout in a high interest rate scenario is not surprising since in the scenario with a high interest rate, an early payout of the pension savings (i.e., the withdrawal of a lump sum payment) appears more costly to the respondents than in an environment with low interest rates (Horneff *et al.*, 2008). Hence, in the current economic situation with rising interest rates, the lump sum scheme might be somewhat less interesting to pension fund participants than it would have been when introducing the new schemes was first discussed (and the interest rates were close to zero).

4.2.3 Duration high/low

We compare a baseline system, in which the system is set up for a *short* period of high pension payments (5 years) and lower pension payments in the years that follow, to a setting of a *long* high/low scheme, that is, 10 years of high pension payments and lower pension payments thereafter. On average, the values of both the high payout and the low payout differ more strongly from the constant payout for the baseline *short* (5 years) high/low design than for the *long* (10 years) high/low design. In the *long* (10 years) high/low design, the payout difference between high/low and constant can be as small as 20 euros, depending on the other choice parameters and the respondent's income group. Accordingly, the results show that, as the high/low payout scheme approaches the constant payout scheme, the interest in the high/low scheme decreases by the same amount as the interest in the constant payout scheme grows. The change in the duration of the high/low scheme from *short* to *long* does not affect the probability that respondents choose the lump sum payout scheme.

4.2.4 Size lump sum

A higher percentage of the total pension savings that can be paid out as a one-time payment at the start of retirement – with the consequence of lower constant payments during retirement – makes the lump sum payout scheme more popular. The lump sum pension scheme with a 10 percent one-time payout at the beginning has a 7 percentage points higher probability of being chosen than when the initial payout is only 5 percent of the total accrued pension wealth. Thus, a small initial payment, which makes the lump sum scheme more similar to the constant payout scheme, seems less attractive. However, we cannot extrapolate from this finding that initial payouts larger than 10 percent would be preferred. Further research is needed to say more about when the interest in a lump sum is at its maximum and about the optimal ratio between the initial payout and the remaining regular monthly payouts. The increased interest in the 'higher' lump sum scheme is balanced by a shift away from both the constant and the high/low scheme. However, with a reduction of about 5 percentage points in the probability of being chosen, the decrease in interest is more substantial for the high/low payout scheme than for the constant payout scheme (with a decrease of 3 percentage points).

4.2.5 Draw number (learning effect)

We also observe a learning effect in our vignette study. The lump sum payout scheme is not yet available in the Dutch pension system, and the familiarity with this scheme is consequently also lower.[29] However, we see that the more decisions a respondent makes, the more likely the respondent is to go for the lump sum payout scheme. At the same time, the two better-known payout schemes become less likely to be chosen with every new decision. While this learning effect is based on repeated decision-making in an experiment, it is in line with evidence from the field, where the interest in

[29]Only 25 percent of the respondents answer that they are aware of the lump sum payout scheme that the government announced, while 49 percent of the respondents are familiar with the high/low payout scheme.

alternative payout schemes grows in the years after their introduction and the individuals' exposure to them (Hagen, 2015).

4.3 Personal characteristics

How does the interest in a specific pension payout scheme relate to the personal characteristics of individuals? In this section, we provide correlational evidence for the link between specific choices and individuals' demographic characteristics, environment, knowledge about the pension system, and economic preferences.

Figure 2 provides a first descriptive overview of the relationship between key demographic, financial, and health characteristics and the stated preferences on pension payout schemes. In these graphs, we pool all answers over all draws and respondents. We find that individuals who are already retired choose to advise the constant payout scheme in more than half of all cases. In contrast, the group of not yet retired respondents only chooses the constant payout scheme in 39 percent of the choice situations. The theory of cognitive dissonance (Akerlof and Dickens, 1982) could partly explain the fact that retirees are more likely to advise the constant payout scheme. Most retirees have consciously or not taken out a flat-rate annuity at retirement. They might want to reassure themselves that their own choice at the time was the optimal choice, whatever the alternatives. However, it could also signal that many are satisfied with their experience with the constant payout. There seems to be only a very marginal gender difference in pension payout preferences in our sample. Women are slightly more likely to choose a constant pension payout, with a statistically significant 3 percentage points difference.

Household income (for retirees, the last pre-retirement income) is an important predictor of the payout scheme chosen. The higher the pre-retirement income, the more likely the respondent is to choose the high/low construction. This comes mainly at the cost of the constant pension payout scheme. In contrast, the differences in interest in the lump sum payout scheme are not statistically significant between the various income groups. The finding that high-income households tend to deviate more frequently from the default constant annuity might be consistent with a buffer stock model, where higher lifetime income participants feel more capable of bearing retirement income volatility (Carroll, 1997). Finally, we see a slight shift away from the constant payout scheme and toward the lump sum for individuals who had, or expect to have, lower-than-average health when entering retirement. Such a pattern is in line with what we would expect if individuals with poorer health hold private information on shorter life expectancy and prefer to shift the consumption of their pension savings to an earlier date.

Next, we regress individual characteristics on the probability of choosing each of the three payout schemes using a random-effects linear probability model. For each payout scheme, we provide two sets of estimates: firstly, we regress demographic characteristics, as well as the financial environment and health at retirement, on the probability of choosing the respective payout scheme. Secondly, we also add controls for economic preferences, financial literacy, and trust in the pension system. We include the discrete variables health, financial literacy, risk, and trust in the pension system as continuous variables in our analysis, to keep the tables readable. Including the categories separately results in similar findings.[30] While we include the most important individual characteristics, we cannot entirely exclude the possibility that unobserved characteristics are biasing our results. Therefore, we cannot interpret the regression results by personal characteristics in Table 2 causally, in contrast to the results in Table 1. However, they provide valuable insight into differences between relevant groups of individuals.

The regression results in Table 2 confirm the most notable patterns from the bivariate findings above. While controlling for other individual characteristics, we still find that retired respondents are likelier to choose the constant pension payout scheme. This relation remains stable when including risk preferences or trust in the pension system. The age coefficient is not significant for any of the

[30]Appendix Table 9 provides the results of adding financial literacy and trust as categorical variables.

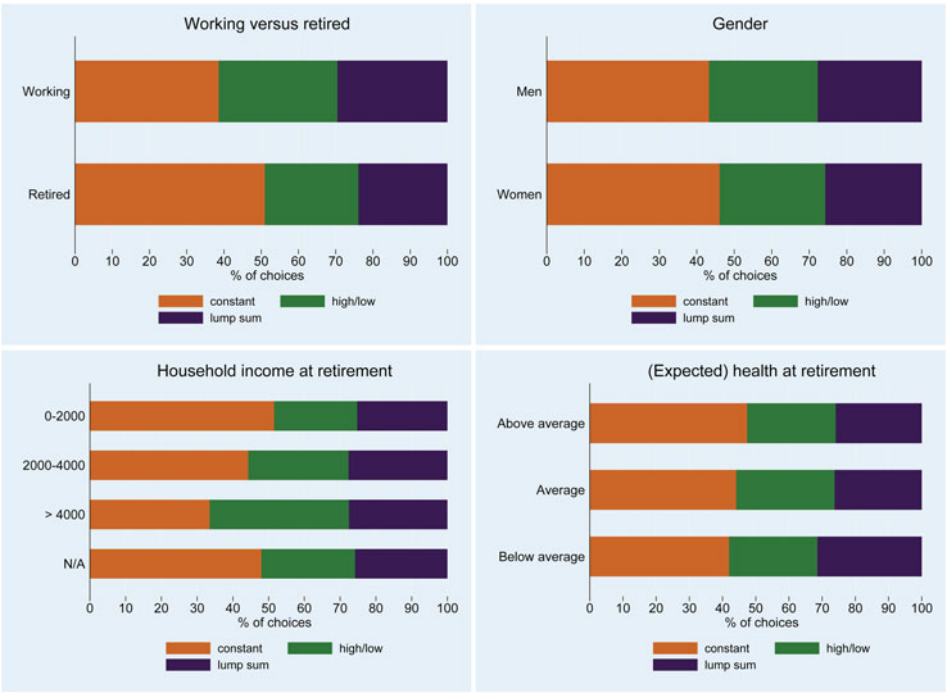

Figure 2. Descriptives – preferences by personal characteristics. Aggregated results of all choices within a demographic group across the six draws.

schemes, which indicates that, within the age brackets of our sample, there are no differences in choices that depend on age once retirement is controlled for. The slight gender differences we observe in the raw data disappear when we account for other individual characteristics. While some studies find a clear gender effect on annuitization (e.g., Agnew *et al.*, 2008), other papers find no effect. On the one hand, women might benefit more from annuities due to higher life expectancy; on the other hand, they might also have alternative sources of income (Hagen, 2015). Further, household composition does not seem to make a difference in the preference patterns.

The positive relationship between income[31] and the preference for the high/low scheme apparent in the raw data also holds in the regression results when controlling for personal characteristics and preferences. Individuals who own their house are less likely to choose a lump sum payout scheme. Although respondents mention (partly) paying off a mortgage loan as a motive to take up a lump sum,[32] this is, outweighed by other considerations. Part of the explanation for this could be that retired homeowners, on average, have relatively low (remaining) mortgages; see appendix Table A1. Accordingly, the average homeowner has a lower need for the precautionary savings that a lump sum could provide due to the fallback option their housing wealth offers them in an emergency (Gan, 2010). However, we find no significant link between having private household savings and the payout choice when we control for income, home ownership, and other individual characteristics.

The different choices based on health that we see in the raw data partially disappear once we control for other personal characteristics. We no longer find a significant relation between poor health and the probability of choosing a lump sum scheme. However, when additionally controlling for

[31]We control with binary variables for missing and low-income groups since the income variable is imputed for those. Additional analyses that exclude these groups (see web appendix) show that this is not changing our results systematically.

[32]See appendix Table A2.

Table 2. Pension payout preferences by personal characteristics

Variables	Constant	High/low	Lump sum	Constant	High/low	Lump sum
Retired	0.102**	−0.043	−0.059*	0.104**	−0.045	−0.059*
	(0.041)	(0.036)	(0.033)	(0.041)	(0.036)	(0.033)
Age	0.003	−0.003	0.000	0.000	−0.002	0.002
	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Female	0.012	0.003	−0.015	−0.025	0.028	−0.002
	(0.024)	(0.020)	(0.019)	(0.024)	(0.020)	(0.020)
Couple	−0.001	−0.033	0.033	−0.016	−0.020	0.036
	(0.029)	(0.024)	(0.024)	(0.029)	(0.024)	(0.024)
Income group	−0.018***	0.014***	0.004	−0.013***	0.011**	0.003
	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
Home ownership	0.019	0.038	−0.058**	0.031	0.023	−0.054**
	(0.032)	(0.025)	(0.027)	(0.032)	(0.024)	(0.027)
Household savings	−0.011	0.026	−0.015	0.004	0.008	−0.012
	(0.035)	(0.030)	(0.030)	(0.035)	(0.030)	(0.031)
Health	0.032	−0.017	−0.015	0.042**	−0.025	−0.017
	(0.020)	(0.017)	(0.017)	(0.020)	(0.017)	(0.017)
Risk				−0.026***	0.012***	0.014***
				(0.005)	(0.004)	(0.004)
Discount rate				−0.027	0.003	0.024
				(0.025)	(0.021)	(0.021)
Financial literacy				−0.043***	0.029***	0.014
				(0.013)	(0.010)	(0.010)
Trust in pension system				0.013	0.018	−0.031**
				(0.015)	(0.013)	(0.013)
Constant	0.268	0.417**	0.315*	0.549**	0.241	0.210
	(0.229)	(0.198)	(0.180)	(0.229)	(0.202)	(0.190)
Observations	6,384	6,384	6,384	6,384	6,384	6,384
Individuals	1,064	1,064	1,064	1,064	1,064	1,064

Note: Linear probability random-effects estimates for the probability of choosing a specific pension payout scheme over the other two options. We additionally include in all specifications binary control variables for missing income information, low income, missing information on savings, and in the extended specifications a control for negative discount rates. Standard errors are in parentheses, clustered at household level, significant at ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

preferences and attitudes, we do find that healthier individuals are more likely to choose the constant payout scheme. The positive relation between health and annuitization is well-established in the literature (Alexandrova and Gatzert, 2019). However, Finkelstein and Poterba (2004) also show that it might be essential for the decision to annuitize at all and less so for the degree of annuitization.

We find that individuals more willing to take risks favor the high/low or the lump sum payout scheme more and are less likely to choose the constant payment. We furthermore see that individuals with a higher degree of financial literacy are more likely to deviate from the simple reference choice of a constant payment and instead choose the high/low payout scheme. Alessie *et al.* (2011) show that individuals with higher financial literacy are better prepared for retirement. Having carefully considered their options, they might be less likely to revert to a reference point. Finally, low or no trust in the pension system relates to an increased interest in the lump sum. By taking out a lump sum, individuals can move some of their pension assets away from a system they do not trust and manage it themselves. Findings by Van der Cruijsen and Jonker (2019) support this result.

5. Conclusion

More flexibility in the pension system can increase the welfare of retirees, assuming the right conditions. The Dutch pension system allows increasing flexibility for retirees to choose how their pension savings are paid out. However, the system also constrains those options, such that retirees still have to take out most of their savings in the form of annuities. In this study, we investigate whether the flexibility that is – or soon will be – provided is of interest to individuals, particularly those who have to make pension choices soon or who have done so recently.

Our results show that each payout scheme receives significant interest, with the default payout scheme of a flat-rate annuity remaining the most popular scheme. Almost half of the respondents also indicate that they find it important that each of the various payout schemes exists. Importantly, our study shows that individuals are sensitive in their choices to the economic environment and the specific design of the payout schemes. The advice given in the vignette scenarios varies significantly within individuals, with 64 percent of all respondents giving different advice at least once. This sensitivity is slightly higher among respondents who are not yet retired. We also observe a learning effect concerning the lump sum payout scheme, in the sense that respondents were more likely to choose the lump sum pension scheme with every new scenario they assessed.

We find that a more generous pension system with a higher replacement rate increases the interest in a flat-rate annuity. In contrast, a lower replacement rate makes an earlier payout of the relatively smaller pension savings amount more attractive. In this case, a higher early payout allows for a smoother transition into retirement, preventing a sudden drop in income at the start of retirement. Higher interest rates lead to a lower probability of choosing payout schemes that foster an early consumption of pension assets. In the real world, we have seen a steady decrease in real replacement rates due to an extended period of lagging indexation. Therefore, we might expect a growing interest in the lump sum payout scheme and, to a lesser degree, also in the high/low payout scheme. However, the recent sharp increase in interest rates could limit the uptake of the lump sum at the introduction.

Payout schemes that deviate stronger from the default,[33] that is, a shorter duration of the high/low payout scheme and a more substantial initial lump sum, generate greater interest. Therefore, it seems reasonable to offer solutions that use of the full range of flexibility allowed within the fiscal framework. The extent to which participants would be interested in flexibility beyond the current fiscal framework – and the associated social costs and benefits – could be a topic for further research. The fact that changes in the parameters of, for example, the high/low payout scheme do impact the interest in this payout scheme but not in the lump sum shows that the two payout schemes are not perfect substitutes and that each has added value compared to the other.

We find that only half of the respondents – even those already retired – are familiar with the current high/low payout scheme, and only a quarter with the anticipated option of a lump sum payout scheme. At the same time, we find a positive learning effect for the lump sum in our vignette study. This finding mirrors the results of Brown *et al.* (2021), who find that financial transactions that are less known and understood are also less popular. In their setting with lump sums as default, this leads to a lower buying and a higher selling price for annuities. When the default is full annuitization, there can be some hesitance regarding the high/low profile or the partial lump sum. This might be called a 'de-annuitization puzzle'.

The interest in a lump sum is relatively constant over subgroups. We find a positive relation between retirement status and the probability of advising the constant payout scheme; this could reflect a positive personal experience or just an *ex-post* rationalization of previously made choices. Furthermore, we find a strong and stable positive correlation with income for the preference for a high/low profile during retirement. This could indicate a lack of selection effects on life expectancy. People with higher incomes tend to have a higher life expectancy, but they nonetheless opt more often for partly de-annuitizing their pension assets. However, we do find some indications that people with a better self-assessed health status opt more often for a constant annuity.

The potential interest that we find in the high/low payout scheme is substantially higher than its current take-up.[34] The low familiarity with current and anticipated payout schemes and the learning effect we find for the lump sum scheme both point to the value of additional information for pension participants, enabling them to make a more reasoned choice among the available payout schemes. This would also be in line with the finding of Debets *et al.* (2022) that pension knowledge has a positive

[33]We only consider payout schemes that are compliant with the Dutch fiscal framework.

[34]Currently, the high/low payout scheme is mainly used by individuals who retire early to smooth income before and after the statutory retirement age. The choice of a high/low payout scheme after retirement is relatively rare (Lever *et al.*, 2018).

causal effect on active pension decision-making. It might thus be helpful to present personalized information with example calculations about the amounts that people could expect under the different payout schemes at retirement, similar to how we have presented our vignettes. This could be done several times in the years before retirement to familiarize participants with their choice options. Further research might inform pension providers about the best ways and moments to communicate with their participants about these topics.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S1474747223000203.

Acknowledgements. The authors thank Frank van Erp for his support in designing the survey experiment. We further thank Eduard Ponds, Luuk Metselaar, and the participants at the Netspar after Lunch seminar, the applied micro session at NED 2021, the CPB research seminar, the M-BEPS 2023, and anonymous referees for valuable comments and suggestions. This project has been partially funded by Netspar.

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Appendix A

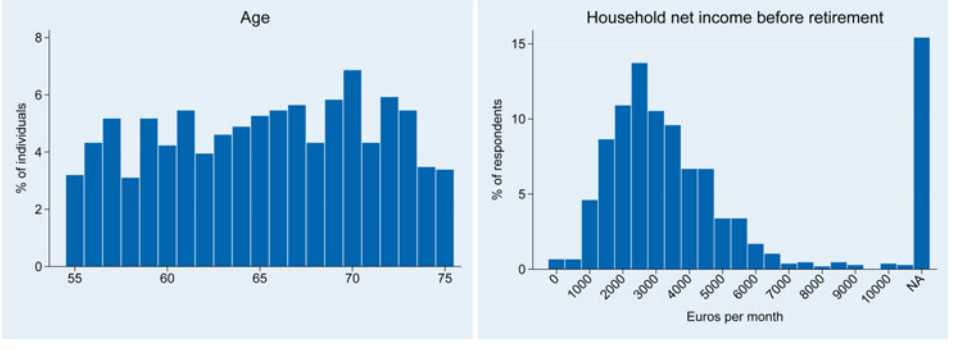


Figure A1. Descriptives – age and income distribution of respondents.

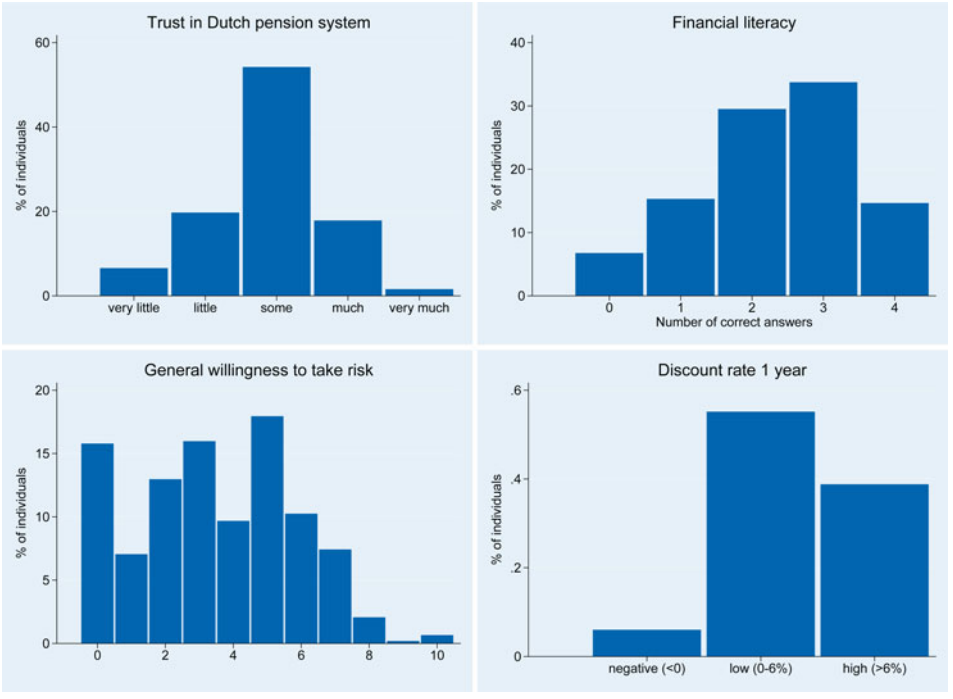


Figure A2. Descriptives – economic preferences and attitudes.

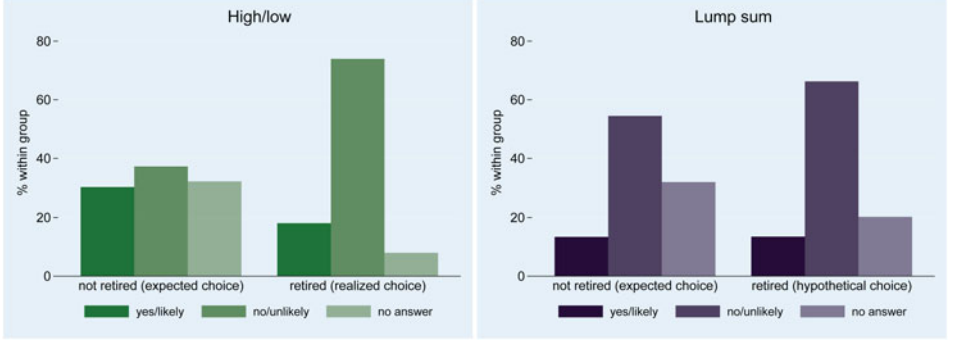


Figure A3. Expected, realized, and hypothetical decisions about own pension payouts.

This figure displays the answers to four questions on the respondents' own pension schemes. Retired respondents were first asked whether they had chosen the high/low construction for their own pension payout and then whether they would have chosen the lump sum payout scheme if it had been available at the time of their retirement. Respondents who are not yet retired were asked in two separate questions whether they considered choosing the high/low payout scheme and whether they considered choosing the lump sum payout scheme. The category 'no answer' contains both the answer 'I don't know' and 'I don't want to answer'; the latter constitutes less than 1 percent of all answers.

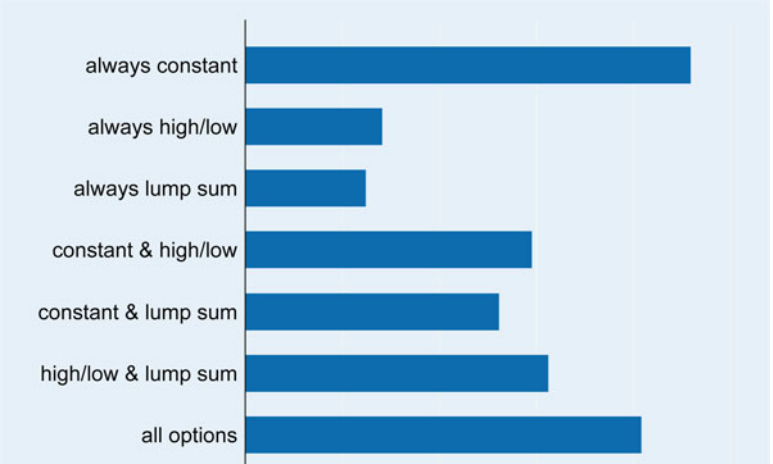


Figure A4. Type of advice given by individuals across all six draws.

Table A1. Descriptive statistics

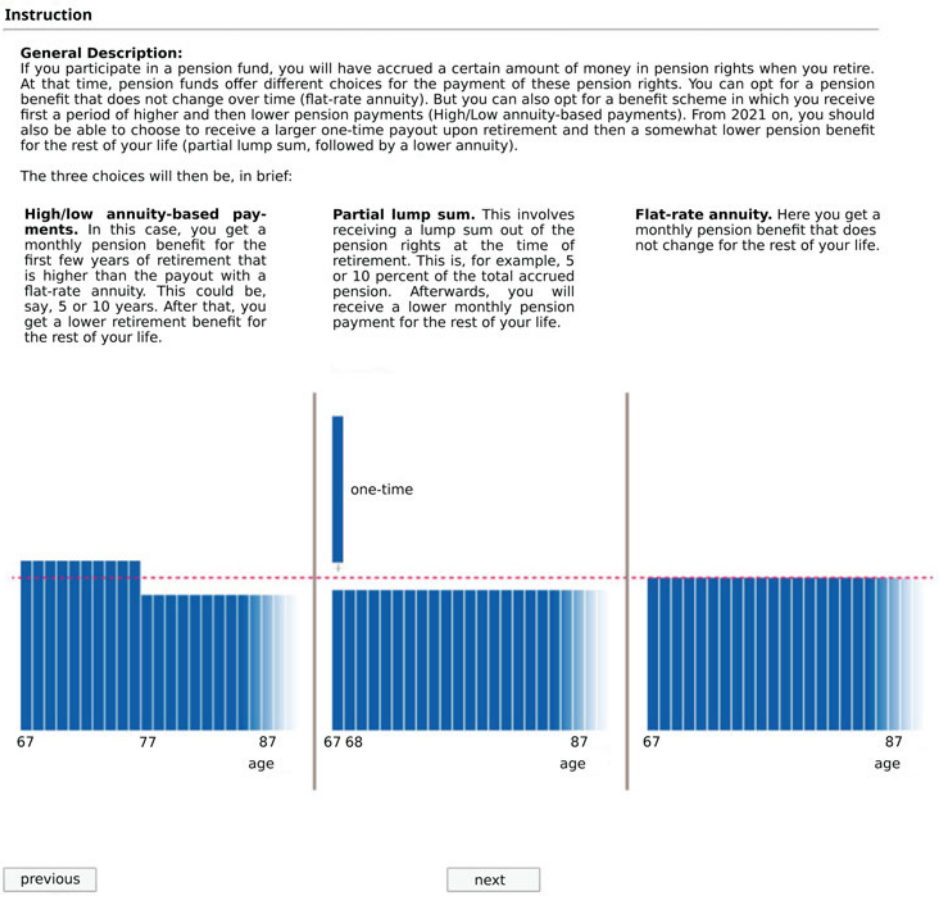
Variable	Category	
Gender	Male	50%
	Female	51%
Household composition	Single	30%
	Couple	70%
Has pension fund	Yes, one	57%
	Yes, several	26%
	No	13%
	Does not know	4%
Expected health at retirement	Above average	25%
	Average	64%
	Below average	11%
Current health	Good	72%
	Average	23%
	Bad	5%
Savings	Little to nothing	17%
	Several months net hh income	22%
	Over 6 months net hh income	45%
	Does not know	6%
	Chooses not to answer	9%
Home owner	Yes	74%
	No	26%
Mortgage at start of retirement	No	49%
	Yes, max. 5 years	4%
	Yes, max. 10 years	6%
	Yes, (partially) interest only	36%
	Does not know	4%
	Chooses not to answer	2%
Knowledge of high/low option	Yes	49%
	No	51%
Knowledge of lump sum option	Yes	25%
	No	75%
Is there need for high/low option	Yes	45%
	No	55%
Is there need for lump sum option	Yes	44%
	No	56%
Trust in pension system	Very much	2%
	Much	18%
	Some	54%
	Little	20%
	Very little	7%
Expected indexation future pension	Not at all	31%
	Partially	16%
	Completely	5%
	Does not know	48%
	Chooses not to answer	1%
Observations		1,064

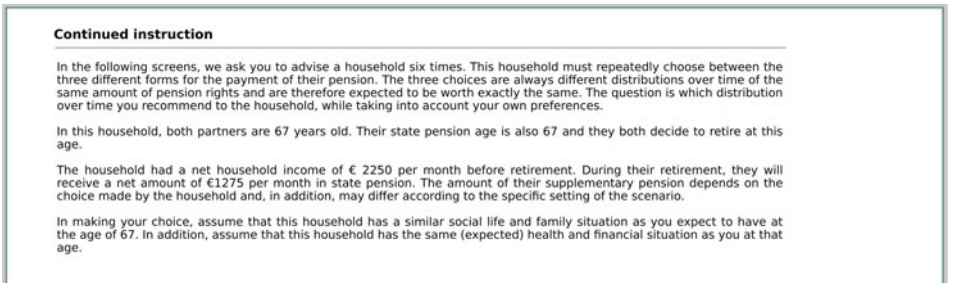
Table A2. Descriptives: motives to choose high/low or lump sum

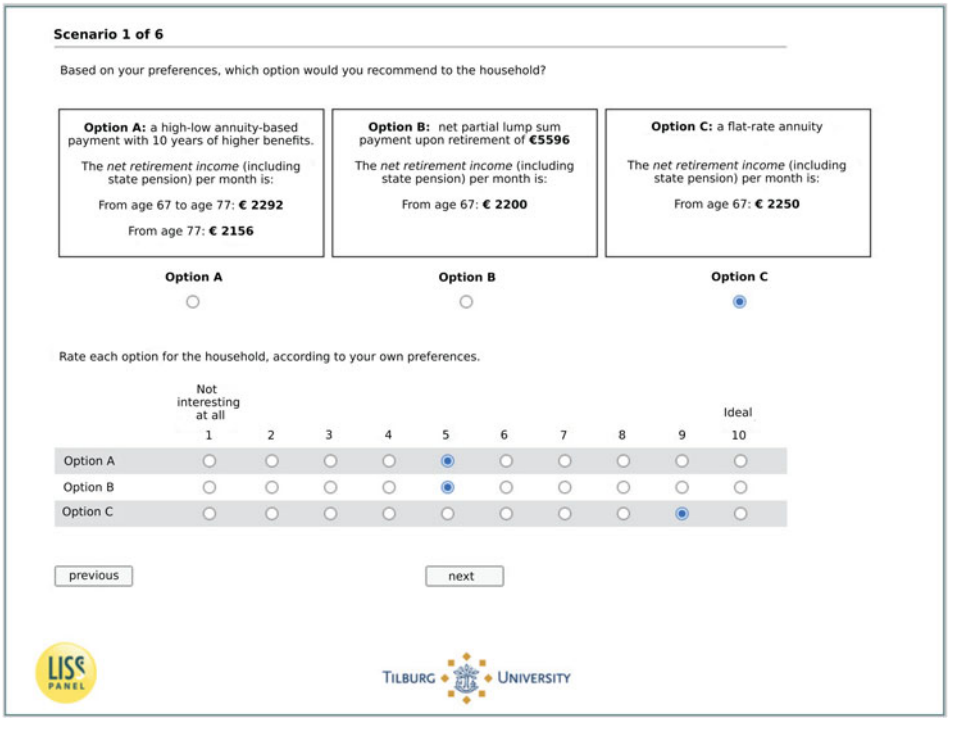
	High/low		Lump sum	
	Not retired Expected choice	Retired Realized choice	Not retired Expected choice	Retired Hypothetical choice
Financial planning				
To pay off a loan	7%	1%	6%	11%
To pay the outstanding mortgage	20%	13%	21%	23%
Consumption				
To take a long and expensive journey	29%	19%	24%	16%
Support of children				
To buy a house	10%	4%	14%	11%
Uncertainty about				
The future of the pension system	30%	23%	37%	25%
Possible future healthcare costs	16%	12%	25%	14%
Other	27%	49%	27%	25%
I don't know	5%	4%	5%	4%
Number of individuals	143	75	63	56

A1. Screenshots hypothetical choice experiment

The instructions were originally in Dutch.







Cite this article: Dillingh R, Zumbuehl M (2023). Understanding demand for flexible pension payouts: evidence from the Netherlands. *Journal of Pension Economics and Finance* 1–23. https://doi.org/10.1017/S1474747223000203