The Demand for Retirement Products: The Role of Withdrawal Flexibility and Administrative Burden (De vraag naar pensioenproducten: de rol van flexibele opname en administratieve lasten)

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Abstract

Many people save too little for retirement. In the Netherlands this is particularly the case with self-employed workers. In this paper we study – using a stated choice experiment – whether increasing the flexibility of withdrawals and reducing the administrative burden can increase the demand for retirement products. We find that the self-employed are willing to give up 8% of post-retirement benefits for a lower administrative burden. In addition, they are willing to give up 14% in order to have the option to withdraw money to augment low income or to make mortgage payments. In contrast, the willingness to pay (WTP) for flexibility and a lower administrative burden is much less evident among employees. Employees are willing to give up only 4% for flexible retirement products and are not willing to pay for a lower administrative burden. Our results show that increasing flexibility and reducing the administrative burden associated with acquiring a fiscally attractive pension product will increase demand for such products, especially for self-employed workers.

Samenvatting

Er is een substantiële groep zelfstandigen van zo'n 40% die na pensionering waarschijnlijk een inkomen heeft dat lager is dan 70% van hun huidige inkomen (Knoef et al. 2017, Zwinkels et al. 2017a en b). Ten opzichte van werknemers bouwen vooral zelfstandigen met middeninkomens relatief weinig vermogen op voor de oude dag. Tegelijkertijd zien we dat zelfstandigen wel relatief veel vrije besparingen en woningvermogen hebben. Er lijkt dus (bij een deel van de zelfstandigen) wel ruimte om te sparen, maar ook belemmeringen om dat in de tweede of derde pijler te doen.

Diverse redenen kunnen hieraan ten grondslag liggen, zoals een lage financiële en/of pensioengeletterdheid, complexiteit, uitstelgedrag en verliesaversie, maar ook administratieve lasten en flexibiliteit (Bruggen en Knoef, 2017). In dit artikel onderzoeken we de rol van administratieve lasten en flexibiliteit met behulp van een vignettenanalyse. We hebben ruim 800 zelfstandigen en 900 werknemers keuzes voorgelegd tussen pensioenproducten met meer en minder administratieve lasten, meer en minder flexibiliteit, en met een verschillende uitk- eringshoogte (bij gegeven premie).

Eerder onderzoek laat zien dat veel ZZP-ers niet weten wat de fiscale jaarruimte is (GfK 2017). Dit kan een drempel vormen bij de opbouw van pensioen in de derde pijler. In de tweede pijler leiden fiscale regels tot kosten en rompslomp, omdat een pensioenuitvoerder informatie bij ZZP-ers moet opvragen (bijvoorbeeld inkomen en urenregistraties van 3 jaar geleden). Onze resultaten laten zien dat zelfstandigen bereid zijn om maar liefst 8% van hun uitkering op te geven als zij niet meer een jaarruimte hoeven te berekenen of niet meer hun inkomenshistorie hoeven door te geven. Administratieve lasten vormen dus een substanti¨ele drempel voor ZZP-ers. Deze resultaten suggereren dat het zou helpen als zelfstandigen een basisruimte krijgen, waarbij ze tot een zeker bedrage fiscaal vriendelijk pensioen kunnen sparen zonder dat er een berekening hoeft te worden gemaakt. Dit is vooral behulpzaam voor ZZP-ers met een laag en middeninkomen helpen. We vinden dat de administratieve drempel minder hoog is voor mensen met een hoog inkomen. Zij kunnen alsnog hun jaar- ruimte berekenen volgens de bestaande regels als zij meer pensioen willen sparen.

Ten aanzien van flexibiliteit onderzoeken we in hoeverre het een drempel is voor ZZP-ers om vermogen vast te zetten in een pensioenproduct. We onderzoeken de mogelijkheid om pensioengeld te onttrekken met een boete (zoals nu in de derde pijler het geval is) en mogelijkheden om pensioengeld te onttrekken onder bepaalde

condities: bij een laag inkomen, voor studie of investeringen, of voor een eigen woning. De resultaten laten zien dat vooral

ZZP-ers behoefte hebben aan flexibiliteit bij een tegenvallend inkomen en voor studie en investeringen. Zij zouden daarvoor zelfs bereid zijn om 12-14% van hun uitkering in te leveren. Werknemers hebben geen behoefte aan flexibiliteit voor investeringen of studie, en willen maar 3% opgeven voor flexibiliteit bij een tegenvallend inkomen. Mensen die een tegenvallend inkomen vanwege Covid verwachtten zijn meer bereid om te betalen voor flexibiliteit bij een tegenvallend inkomen. Verder zien we dat mensen behoefte hebben aan commitment: ze houden niet van de optie om met een boete geld uit hun pensioen te kunnen onttrekken. Een huis is ook een commitment device, in die zin dat je het niet zomaar kan gebruiken voor een vakantie. We zien dat ZZP-ers bereid zijn om 14% van hun uitkering op te geven om pensioengeld te kunnen onttrekken voor een huis, onder werknemers is dit gemiddeld 5%. Dit geldt vooral voor huurders, die het zouden kunnen gebruiken voor de aankoop van een huis. Flexibiliteit is ook meer gewild onder mensen bij wie we gemeten hebben dat zij het heden overwaarderen. Dit kan een valkuil zijn. Flexibiliteit kan dus tot meer pensioenopbouw leiden omdat zelfstandigen dan minder een drempel ervaren om het geld vast te zetten. Echter de condities waaronder een onttrekking mogelijk is moeten goed vormgegeven worden om een te grote onttrekking van het pensioenvermogen te voorkomen.

1. Introduction

In western countries many workers have limited retirement savings. This is particularly the case among the self-employed (SE; OECD [2019]). The low level of savings among the self-employed is mainly due to relatively low savings through annuities. In the literature this is called the annuity puzzle (Benartzi et al. [2011]). A recent publication has identified the administrative burden – i.e., the effort it takes to look up information and fill out forms as well as a lack of flexibility when it comes to withdrawals as key explanations for low annuity take-up rates (see e.g., Lusardi and Mitchell [2007]; Galiani et al. [2020]).[1]

In this paper we investigate to what extent more flexible pension products and a lower administrative burden can help to increase the demand for pension annuities. We use a stated choice experiment, which allows us to estimate the willingness to pay (WTP) for flexibility and a reduced administrative burden using a large sample of Dutch workers. We implement the degree of flexibility by reviewing early withdrawal options from pension funds. The administrative burden is decreased by reducing the amount of financial information that needs to be provided to purchase a fiscally attractive pension annuity.

Throughout this paper we focus in particular on self-employed workers' demand for pension products. The reason for this is twofold. First, self-employed workers typically have lower retirement savings and fewer retirement savings products. Zwinkels, Knoef, Caminada, et al. [2017] show that, in the Netherlands, 43% of the self-employed are not able to receive 70% of their current income after retirement, while this figure is 31% for employees. This is likely to be due to institutional differences. For example, employees are much more often covered by mandatory pension schemes. Second, both a lack of flexibility and the administrative burden may have a bigger impact on self-employed workers. The preference for flexibility may be higher among the self-employed because of their higher income volatility. Furthermore, the self-employed may be more aware of the administrative burden involved with tax-facilitated pension products, and the administrative burden may be higher for them than for employees because of their higher income volatility. Therefore, providing products that are both more flexible and reduce the administrative burden on

1 The Covid-19 pandemic has also increased interest in retirement products with withdrawal flexibility. Several countries have temporarily introduced additional flexibility in retirement products. For example, in France, independent self-employed workers facing financial difficulties can take up (at most) 800 dollars from their retirement accounts.

the worker may increase product take-up for the self-employed and thus help restore equivalence in the pension accumulation of self-employed workers and employees. The theoretical literature has provided extensive evidence on demand for a lower administrative burden and more flexibility when it comes to withdrawals during the accumulation phase. Flexibility can increase contributions for people who prefer liquidity. Amador et al. [2006], Davidoff et al. [2005] and Horneff et al. [2015] show that offering liquidity can be optimal and that it increases annuity take-up. On the other hand, flexibility (in the accumulation phase) can reduce retirement wealth because people withdraw their savings before retirement. Empirical evidence is rather limited. We build upon Amromin and Smith [2003], who highlight the demand for willingness to cover liquidity shocks, Beshears et al. [2014], who show that early money withdrawal options as well as framing increase annuity take-up rates, and Beshears et al. [2020], who show that there is demand for commitment (i.e., products with withdrawal penalties). To the best of our knowledge, this is the first paper that directly quantifies the demand for more flexible retirement products with a lower administrative burden. Note that offering pension products with a lower administrative burden and options for early withdrawal – as we propose in our experiment – are currently not permitted in most developed countries including the Netherlands (Beshears et al. [2015]).

The key contributions of this paper to the literature are twofold. First, we estimate the willingness to pay for a lower administrative burden and the demand for flexibility in the accumulation phase, using a stated choice experiment. As far as we know, we are the first to distinguish between four types of withdrawal options: 1) withdrawals with a penalty for any reason (as in Beshears et al. [2020]), 2) withdrawals without a penalty that are conditional on low incomes, 3) withdrawals for educational and investment purposes, and 4) withdrawals used to make mortgage down payments. These options have diverse characteristics: whereas retirement savings become liquid under the first option, mortgage down payments are still rather illiquid. Withdrawals for those with a low income help to smooth consumption over time, and education and investments may increase future income. Second, we distinguish between self-employed workers and employees, as there are large institutional differences between these two groups in the Netherlands. We study heterogeneous results for different characteristics and circumstances of people to obtain a better understanding why flexibility and a low administrative burden are more important for some people than for others.

Our paper relates to the numerous publications on the retirement savings and annuity puzzle, which entails workers not annuitizing for retirement despite the fact

that this is optimal – and one of the potential solutions to this puzzle. One reason that people don't annuitize more is behavioral biases; see Thaler and Benartzi [2007] and Benartzi and Thaler [2007] for an overview. For instance, inertia Chetty et al. [2014]; Bu¨tler and Teppa [2007], procrastination Beshears et al. [2014], the present bias (Linde [2019]), and a lack of skills Brown et al. [2017]; Shu et al. [2016] and Galiani et al. [2020]. In addition workers with lower financial literacy annuitize less, see Lusardi and Mitchell [2007] and Hershey et al. [2017]. Finally, preferences play a role. For instance (unanticipated) health shocks may be a reason for a low annuitization rate, see e.g. Peijnenburg et al. [2017], a preference to retire later (Parker and Rougier [2007]; Garcıa et al. [2019]), and a preference for lower income during retirement (see Selin [2012] and Joulfaian [2018]). Framing (the text of) pension products has been successfully used to increase annuitization, see e.g. Agnew et al. [2008]; Beshears et al. [2014]; Brown, Kling, et al. [2008]. We contribute to this literature by studying how attributes of pension products affect the demand for these products.

Our main findings are the following. Self-employed workers have a WTP of 8% of post -retirement benefit for not having to provide fiscal information in order to purchase a pension product, while employees have a WTP close to zero. The WTP for flexibility is on average much larger. The self-employed are willing to pay up to 14% of post-retirement benefit. The WTP for withdrawing money in cases where there is low income and for mortgage payments is the highest. Employees are also willing to pay for increased withdrawal flexibility, although less. In this case, employees have a WTP of at most 4%. This difference in WTP for flexibility may be explained by a difference in income uncertainty.

The rest of this paper is organized as follows. Section 2 describes the Dutch retirement system. In section 3, we explain our stated choice experiment design. Section 4 discusses the data, followed by section 5, in which we present and discuss our results. Finally, section 6 concludes the paper.

2. Institutional setting

This section describes how the Dutch retirement system is organized and how it differs between employees and the self-employed. One can categorize three sources of retirement contributions in the Netherlands, which we call the three pillars. The first entails state-funded flat rate benefits on a pay-as-you-go basis. These benefits equal 50% to 100% of the net minimum wage, depending on one's living situation (Dutch Law [2020]). Residents of the Netherlands accrue 2% of their state pension every year, for 50 years until they reach the statutory retirement age, irrespective of their work history. Under current plans, the age of entitlement to the state retirement pension (AOW) will increase to 67 years in 2024, and thereafter it will be linked to developments related to life expectancy.

The second pillar entails retirement benefits funded through one's employer. As many as 90% of Dutch employees are compulsorily enrolled in such a pension plan. Most self-employed workers are not in a position to receive these benefits. They can, however, save on a voluntary basis for a maximum of ten years after quitting their job at their last employer. A consequence of the second pillar being employer-provided is that the self-employed typically do not have as many second pillar arrangements. One important feature of the second pillar is that contributions cannot be withdrawn before retirement.

The third pillar entails voluntary individual pension arrangements. As opposed to sec- ond pillar savings, third-pillar pension contributions can be withdrawn after paying income tax and a 20% penalty over the withdrawn amount. There is an exception to this rule when individuals become disabled. In that case, up to €40,000 can be withdrawn with only income tax having to be paid over this amount.

The Dutch pension system is designed to encourage retirement savings in the second and third pillars by offering a tax deduction and such retirement contributions – up to a certain threshold – can be deducted from one's taxable income. The Dutch pension system also has an unofficial fourth pillar. This is comprised of private possessions such as savings, stocks, and the home.

The attributes of our products are embedded in the current Dutch system in the follow- ing way. Our administrative burden attribute simplifies the information that needs to be provided in order to purchase an annuity which receives a tax break related to second and third-pillar baselines. In the second pillar, the burden is reduced by not having to report one's income over the past three years. In the third pillar workers have to compute their tax deductibility thresholds, which requires workers to look up their income over the past year. The flexibility component adds additional exemptions from paying the fine that comes with early money withdrawals in the third pillar.

3. Vignette design

This section describes the trade-offs respondents have to make in our stated choice exper- iment. Using sixteen vignettes, respondents are offered hypothetical retire- ment products which replace any pending pension contributions. To this end, we show two sets of eight vignettes.

In the first set of vignettes respondents choose between two hypothetical annu- ities. We ask respondents to assign probabilities of buying each product (replacing their existing pension contributions) that sum up to 100% in each vignette. We explicitly make clear that these products replace any current retirement products that the respondent may have.

In the second set of vignettes we offer one product and have respondents assign a prob- ability of buying the said annuity, again making it explicitly clear that this product replaces any current retirement products that the respondent may have. This approach allows us to identify whether demand for our hypothetical retirement products is present.

We prefer this two-step procedure over a design in which one has three options per vignette, where the third option is buying no product. That is because this pro- cedure allows us to estimate the preference between two products, even for respon- dents who prefer not to buy any product.

Our products vary on three attribute levels. The administrative effort that is needed to purchase a tax-facilitated pension annuity, i.e. the administrative burden, the flexibility to withdraw (part of) the funds early, and the price of the pension product, which is expressed in the form of an annual retirement annuity. The vignettes are constructed such that products with a lesser administrative burden and/or more early withdrawal options entail a lower annuity. An example of a vignette can be found in Appendix 2.

3.1 Attribute Levels

Administrative Burden

We base the attribute levels on the existing retirement system. Our administrative burden attribute entails the administrative duties that the purchaser has to fulfill in order to purchase the product with tax breaks. For our baseline attribute levels, individuals do not have to provide any fiscal information to buy a product. For our second alternative, they have to provide their income history over the past three years to purchase the product in question. This attribute is based on the second pillar of the

Dutch retirement system[2]. For our last alternative, which is based on the current Dutch third-pillar retirement system, individuals have to compute their annual contribution limit: the maximum amount of pension contributions that can be deducted from their taxable income (Lusardi and Mitchell [2007]).

Flexibility

For flexibility we use the status quo of not being able to withdraw savings as the base level, which is based on the current (lack of) flexibility in the second pillar. For the other four attribute levels, we introduce situations in which individuals can withdraw part of their pension contributions. The first alternative allows individuals to withdraw as many retirement contributions as they wish, albeit with a 20% early withdrawal penalty[3]. We additionally introduce three alternatives in which respondents are allowed to withdraw their contributions without any penalty in specific situations. These specific situations are chosen to introduce a commitment mechanism (Beshears et al. [2020]). The alternatives and their conditions are as follows:

- The first alternative allows individuals to supplement their income up to the minimum wage by withdrawing pension savings when their income falls below the minimum wage over a three-month period. We add this attribute level because the self-employed typically have more variable income than employees, in addition to having a lower degree of social insurance to soften the effects of income shocks. This option helps to smooth consumption over the life cycle.
- In contrast with this, the second alternative instead allows individuals to withdraw €15,000 of their retirement savings every five years for investments in education and training. We opt for this attribute level as employees are typically compensated for education and training whereas the self-employed are not.[4]
- Finally, the third alternative allows individuals to withdraw up to €15,000 of their retirement savings every five years to pay off their mortgage. We introduce this attribute as the self-employed tend to save for retirement through the fourth pillar (Zwinkels, Knoef, Caminada, et al. [2017]). In recent decades, there has been strong growth in both pension savings and mortgage debts in the Netherlands. It has often been argued that these long balance sheets have an amplifying effect on the

2 Note that these attribute levels measure whether making it easier to purchase a product increases product demand. We do not alter the fiscal stimulus that is behind the current system.

3 This alternative is the third pillar in the status quo.

4 Note that all workers, including the self-employed, will have the option to receive up to €1000 from the government for educational purposes as of March 2022 (Dutch Central Government [2021]).

cyclicality of the Dutch economy (Parlevliet et al. [2015]). That is because the longer balance sheets have made households more vulnerable to fluctuations in interest rates and asset prices. Furthermore, the growth of the mortgage portfolio has increased the financial risks for banks. When individuals are allowed to withdraw part of their retirement wealth to pay off their mortgage, this shortens an individual's balance sheet and reduces vulnerability. On the other hand, wealth becomes somewhat more liquid, as people can sell their house.

Price

For the price we first compute an annuity based on a one-time retirement contribution of €1000. This annuity is based on investments in a portfolio of 50% in stocks and 50% government bonds, with said portfolio delivering an annual rate of return of 3.5% (Dijsselbloem et al. [2019]). To construct the annuity, the total value of the investments at retirement are then divided by the discounted life expectation post-retirement, discounted at 1% per year. This annuity then has continuous deviations ranging from -7.5% to 7.5% of the baseline annuity. The consequent annuity closely resembles annuities currently offered by Dutch private pension providers. The vignettes show respondents the annual pension benefit they receive when they become 67 in exchange for a one-time €1.000 contribution now.

3.2 Design Characteristics

We use Ngene[5] to translate the attribute levels into vignettes. We use a Bayesian Efficient design to estimate the WTP for flexibility and a lower administrative burden with as few observations as necessary. To this end, we set positive Bayesian priors on the reduced administrative burden, withdrawal options, and the post-retirement benefit.

The experimental design contains three blocks with eight vignettes each. Our sample consisting of 1,741 workers – 822 self-employed workers and 919 employees – was separately randomized into blocks. Subsequently, respondents were shown the eight vignettes within their block in a randomized order. In addition, the order of the attribute levels shown is randomized per respondent.

Our stated choice experiment involved first showing the eight vignettes to respondents, asking them to assign probabilities to two hypothetical retirement products that must add up to 100%. The price is annuitized to an annual retirement benefit. This annuitization distributes the total discounted value of pension contributions

5 ChoiceMetrics (2012) Ngene 1.1.1 User Manual Reference Guide, Australia. [2019]

over post-retirement life, conditional on the probability of survival. This is to say that the expected benefit payout equals the total retirement buildup when working. For post-retirement life, we discount using a 1% discount rate per year.

We also use eight randomly drawn hypothetical products (out of each set of products) from our vignettes. Respondents then assign a probability to buying these products as opposed to not buying a retirement product at all. This allows us to test whether respondents who stated a preference for a product would also actually consider buying that product.

Prior to showing the vignettes, we ask questions on background characteristics, financial literacy and whether respondents are currently building up retirement funds. After the vignettes, we ask questions regarding respondents' preferences. Respondents are asked how many hours a week they work, how long they have been self-employed, in which sector they work, individual and household income, their net liquid assets, and whether they bought or rented their house.

We elicit risk and time preferences in addition to subjective life expectancy to tie into our flexibility attribute. We ask respondents for their choice in Dave et al. [2010]'s Eckel- Grossman gamble, albeit with the payouts multiplied by 10. Subsequently, respondents are asked to choose which payout they want in 1 or 10 years, and this makes them indifferent between said payout and receiving €1000 in the present. For time preference, we follow Wang et al. [2016] by giving respondents a hypothetical choice between €1.000 now and €X in 1 and 10 years, respectively, asking how large X should be such that respondents are indifferent between these two choices in both cases. From this, we compute both a long-term discount rate and a present bias. We ask for bequest motives by letting respondents allocate €3000 and €9000, respectively between themselves and their inheritance. Finally, we take the financial literacy questions from Lusardi and Mitchell [2007].[6] In Appendix 1 we describe the model we use to estimate WTP.

6 Note that we have translated all the questions and administered the entire survey in Dutch.

Table 1: Demographic characteristics of respondents. Diff compares self-employed workers with employees.

	Full sample		Self-employed		Employees		Diff
	Mean	SD	Mean	SD	Mean	SD	P-value
Age	43.06	9.96	44.20	9.84	42.04	9.95	0.00***
Female	0.38	0.48	0.50	0.50	0.26	0.44	0.00***
Homeowner	0.73	0.45	0.71	0.45	0.74	0.44	0.10
Works 32 or more hours a week	0.99	0.12	0.97	0.18	1.00	0.00	0.00***
Works 28 to 32 hours a week	0.01	0.12	0.03	0.18	0.00	0.00	0.00***
Low education level	0.12	0.32	0.09	0.29	0.14	0.34	0.00***
Intermediate education level	0.40	0.49	0.37	0.48	0.43	0.49	0.01**
High education level	0.49	0.50	0.54	0.50	0.44	0.50	0.00***
Observations	1741		822		919		1741

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

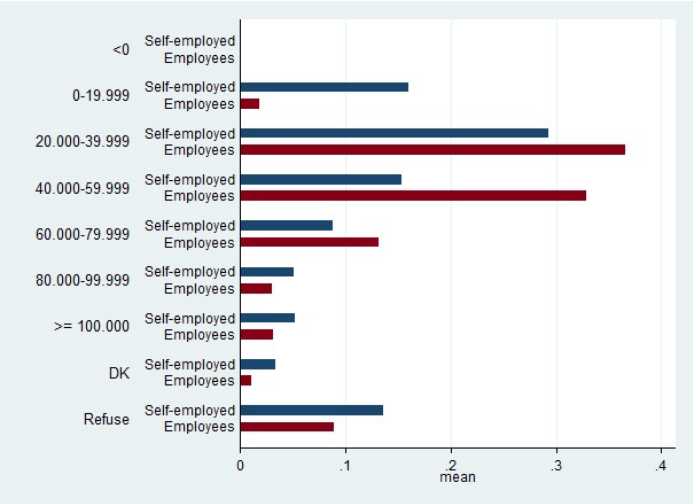
4. Data

This section provides an overview of the data used for the analysis and shows descriptive statistics. We created a survey and targeted individuals who worked at least 28 hours a week and were between 25 and 60 years old.[7] The hour criterion is chosen so as to solely measure effects for workers who participate substantially on the labor market and whose main source of income is from employment of self-employment. The survey was then administered to a sample of self-employed workers and a sample of employees of about the same size. These restrictions leave us with 1,741 respondents, 822 self-employed workers and 919 employees. (Note that the self-employed are oversampled).

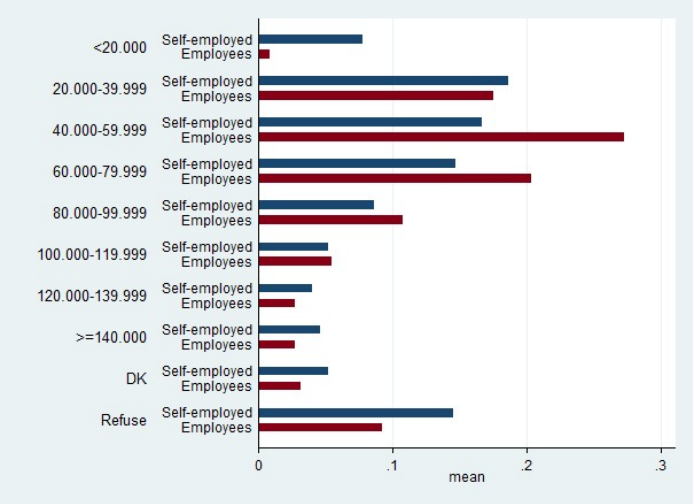
Table 1 presents demographic characteristics of respondents. Respondents are on aver- age 43 years old, 38% are female, nearly three out of four own a house, and nearly everyone works more than 32 hours a week. We see some minor differences between the self-employed workers and employees in terms of home ownership, hours worked and education level. There is a sizable difference in the fraction of female workers between the self-employed and employees. Only 26% of employees in our sample are female, while half of the self-employed workers are female. However, this difference matches fairly closely with the gender distribution of employees and self-employed workers conditional who work 28 hours a week or more, as found by Torre et al. [2019] (they show that conditional on working at least four days a week, 48% of the SE are female). Other demographic characteristics in our sample also fairly

7 The survey was administered by Kien Wizard.

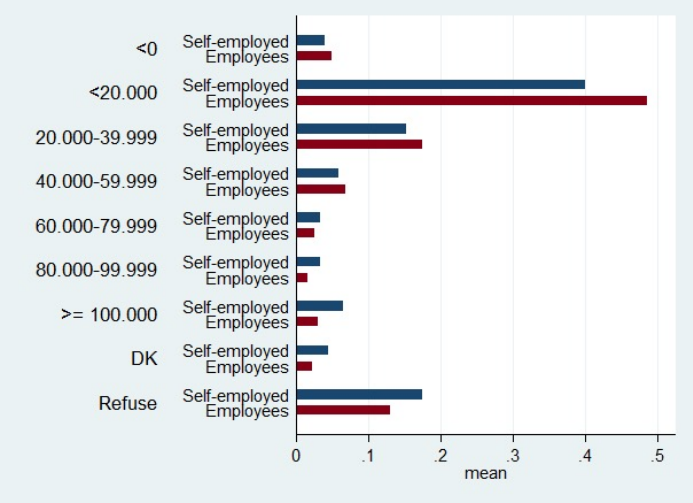
Figure 1: Distribution of income and assets for the self-employed and employees. DK denotes Don't Know, while Refuse denotes that the respondent refused to answer the question.



a) Personal income



b) Household income



c) Net liquid assets

Table 2: Descriptive statistics: Anticipated income fluctuations. Diff compares self-employed workers to employees.

	Full sample		Self-employed		Employees		Diff
	Mean	SD	Mean	SD	Mean	SD	P-value
Strongly disagrees anticipated income fluctuations for the next five years	0.16	0.37	0.04	0.20	0.28	0.45	0.00***
Disagrees anticipated income fluctuations for the next five years	0.32	0.47	0.21	0.41	0.42	0.49	0.00***
Neutral anticipated income fluctuations for the next five years	0.18	0.38	0.23	0.42	0.13	0.34	0.00***
Agrees anticipated income fluctuations for the next five years	0.23	0.42	0.35	0.48	0.12	0.33	0.00***
Strongly agrees anticipated income fluctuations for the next five years	0.09	0.29	0.14	0.35	0.05	0.21	0.00***
No opinion on anticipated income fluctuations for the next five years	0.01	0.11	0.02	0.14	0.01	0.07	0.00***
Strongly disagrees income fluctuations due to Covid	0.13	0.33	0.05	0.23	0.19	0.39	0.00***
Disagrees income fluctuations due to Covid	0.29	0.45	0.15	0.36	0.42	0.49	0.00***
Neutral on income fluctuations due to Covid	0.21	0.41	0.21	0.41	0.21	0.41	0.96
Agrees income fluctuations due to Covid	0.22	0.41	0.32	0.47	0.13	0.33	0.00***
Strongly agrees income fluctuations due to Covid	0.14	0.35	0.25	0.43	0.04	0.21	0.00***
No opinion on income fluctuations due to Covid	0.01	0.11	0.02	0.13	0.01	0.10	0.19
Observations	1741		822		919		1741

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

closely match those found in Torre et al. [2019]. It is worth noting, however, that 54% of our self-employed sample are highly educated whereas (unconditionally on hours worked) 47% of Dutch SE are highly educated according to Torre et al. [2019].

Figure 1 shows income and pension characteristics of our sample. Figure 1 shows that self-employed workers are more represented than employees in the tails of the income and liquidity distributions. Most self-employed respondents have personal incomes between e0 and €60.000, whereas most employees have incomes between €20.000 and €80.000. The pattern for household income is similar, although household incomes are somewhat larger than individual incomes, which indicates that most people also have a working spouse. Both groups have relatively few net liquid assets (see Panel c). The self-employed also seem to not know and more often refuse to state their income and net liquid assets. This is in line with the fact that the income of the self-employed is typically more volatile and less predictable.

Table 3: Descriptive statistics: preferences for retirement savings. Diff compares self-employed workers to employees.

	Full sample		Self-employed		Employees		Diff
	Mean	SD	Mean	SD	Mean	SD	P-value
Strongly wishes to save more for retirement	0.04	0.21	0.05	0.22	0.04	0.19	0.23
Wishes to save more for retirement	0.15	0.36	0.12	0.33	0.18	0.39	0.00***
Neutral with respect to saving more for retirement	0.33	0.47	0.30	0.46	0.36	0.48	0.02**
Does not wish to save more for retirement	0.35	0.48	0.38	0.49	0.32	0.47	0.01**
Strongly does not wish to save more for retirement	0.10	0.29	0.12	0.32	0.08	0.26	0.00***
Does not know if wishes to save more for retirement	0.03	0.16	0.03	0.16	0.03	0.16	0.82
Strongly disagrees with procrastinates retirement savings	0.06	0.23	0.06	0.23	0.04	0.19	0.48
Disagrees with procrastinates retirement savings	0.13	0.33	0.12	0.33	0.14	0.35	0.66
Neutral on procrastinates retirement savings	0.24	0.42	0.23	0.42	0.29	0.46	0.19
Agrees with procrastinates retirement savings	0.37	0.48	0.38	0.48	0.31	0.46	0.24
Strongly agrees with procrastinates retirement savings	0.17	0.37	0.16	0.37	0.19	0.40	0.52
Does not know if procrastinates retirement savings	0.05	0.22	0.05	0.22	0.03	0.16	0.30
Strongly disagrees anticipated income fluctuations for the next five years	0.16	0.37	0.04	0.20	0.28	0.45	0.00***
Disagrees anticipated income fluctuations for the next five years	0.32	0.47	0.21	0.41	0.42	0.49	0.00***
Neutral anticipated income fluctuations for the next five years	0.18	0.38	0.23	0.42	0.13	0.34	0.00***
Agrees anticipated income fluctuations for the next five years	0.23	0.42	0.35	0.48	0.12	0.33	0.00***
Strongly agrees anticipated income fluctuations for the next five years	0.09	0.29	0.14	0.35	0.05	0.21	0.00***
No opinion on anticipated income fluctuations for the next five years	0.01	0.11	0.02	0.14	0.01	0.07	0.00***
Strongly disagrees income fluctuations due to Covid	0.13	0.33	0.05	0.23	0.19	0.39	0.00***
Disagrees income fluctuations due to Covid	0.29	0.45	0.15	0.36	0.42	0.49	0.00***
Neutral on income fluctuations due to Covid	0.21	0.41	0.21	0.41	0.21	0.41	0.96
Agrees income fluctuations due to Covid	0.22	0.41	0.32	0.47	0.13	0.33	0.00***
Strongly agrees income fluctuations due to Covid	0.14	0.35	0.25	0.43	0.04	0.21	0.00***
No opinion on income fluctuations due to Covid	0.01	0.11	0.02	0.13	0.01	0.10	0.19
Observations	1741		822		919		1741

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2 shows anticipated income shocks of workers over the next five years as well as as a result of the Covid-19 pandemic. As expected, self-employed workers anticipate much more income uncertainty than employees. This income uncertainty may in turn lead this group to have a higher demand for liquidity.

Table 3 describes workers' preferences for retirement savings. One fifth of our sample (strongly) wishes to save more for retirement than they are currently saving, and this preference is similar for the self-employed workers and employees. Also roughly one in five reports postponing the decision to save more for retirement.

Table 4 shows the preferences of respondents.[8] We find that most respondents are risk averse. Risk preferences vary little between self-employed workers and employees, with the majority of respondents being risk averse. These risk aversion related results are somewhat surprising, as self-employed workers are typically found to be less risk averse than employees (S. Brown et al. [2006]; Masclet et al. [2009]). Respondents overall choose safer gambles than in Dave et al. [2010], which likely stems from the fact that our games have higher stakes. Present bias and discount factors are estimated following Wang et al. [2016]. Most workers are present-biased, but there is no difference in present bias and the long-term discount factor between self-employed workers and employees. Both the degree of present bias and the long-term discount factor are similar to those found in Wang et al. [2016] for a sample of Dutch students. Most respondents have a bequest motive. On average they would spend €2200 themselves if they would receive €3000, and more than €5100 if they would receive €9000. The bequest motives of self-employed workers and employees do not differ. Self-employed workers seem to have a slightly higher subjective life expectancy, but this difference is not statistically significant. Trust in pension funds and insurers is overall neutral to negative. Finally, both self-employed workers and employees consider themselves fairly financially literate. Moreover, around 80% of the sample provided the correct answer to the question regarding inflation as described in Lusardi and Mitchell [2007]. However, less than half of the sample correctly answered what annual fiscal contribution room entails, with self-employed workers providing the correct answer relatively more often.

Respondents are asked to fill in the probability that they will buy a given product in each vignette. Some respondents round all their answers by 5 or 10 percent. This rounding behavior is shown in Appendix 3. Table A2 shows the rounding patterns in

8 The questions behind risk preference, present bias and bequest motives can be found in Appendix 4.

Table 4: Preferences and expectations of respondents. One-year and 10-year discount rates are winsorized at the 5th and 95th percentile. Diff compares self-employed workers to employees.

	Full sample		Self-employed		Employees		Diff
	Mean	SD	Mean	SD	Mean	SD	P-value
Risk Preference							
RRA coefficient larger than 3.46	0.41	0.49	0.42	0.49	0.40	0.49	0.31
RRA coefficient between 1.16 and 3.46	0.19	0.39	0.17	0.38	0.20	0.40	0.16
RRA coefficient between 0.71 and 1.16	0.17	0.37	0.16	0.37	0.17	0.37	0.70
RRA coefficient between 0.5 and 0.71	0.08	0.28	0.07	0.26	0.09	0.29	0.20
RRA coefficient between 0 and 0.5	0.06	0.24	0.06	0.24	0.06	0.24	0.70
RRA coefficient smaller than 0	0.09	0.29	0.10	0.30	0.08	0.27	0.12
Time Preference							
Present bias	0.91	0.23	0.91	0.24	0.91	0.23	0.95
Long-term discount factor	0.91	0.08	0.91	0.08	0.91	0.08	0.75
Life Expectancy							
Probability live to 70	0.72	0.23	0.72	0.24	0.72	0.22	0.85
Probability live to 80	0.52	0.26	0.53	0.28	0.51	0.25	0.20
Probability live to 90	0.30	0.26	0.33	0.28	0.28	0.23	0.00***
Bequest Motives Amount Spent When €3000 Available	2174.56	811.23	2161.05	838.52	2186.64	786.27	0.51
Amount spent when €9000 is available	5121.00	2874.03	5126.23	2956.18	5116.32	2800.12	0.94
Financial Literacy							
Perceived financial literacy (score out of 10)	7.55	1.45	7.52	1.52	7.57	1.38	0.47
Correct answer to financial literacy question	0.79	0.41	0.77	0.42	0.81	0.39	0.02**
Correct answer annual contribution question	0.46	0.50	0.52	0.50	0.40	0.49	0.00***
Pension Funds And Insurers							
Strongly distrusts pension funds and insurers	0.15	0.36	0.17	0.38	0.13	0.34	0.03**
Distrusts pension funds and insurers	0.28	0.45	0.29	0.45	0.28	0.45	0.55
Does not trust or distrust pension funds and insurers	0.37	0.48	0.36	0.48	0.37	0.48	0.82
Trusts pension funds and insurers	0.16	0.36	0.11	0.32	0.19	0.39	0.00***
Strongly trusts pension funds and insurers	0.03	0.16	0.04	0.19	0.02	0.13	0.01***
No opinion on trust in pension funds and insurers	0.02	0.14	0.03	0.17	0.01	0.12	0.04**
Observations	1741		822		919		1741

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

our data. A total of 40% of answers from self-employed workers are multiples of 5 or 10 percent.

A potential concern is that respondents may wish to purchase neither of the retirement products in our first set of vignettes and that we hence falsely attribute the choice for either of the products to the willingness to purchase a product. To rule this concern out, Table A2 shows – using the second set of vignettes – that only a small proportion indicate that they are not interested in purchasing an annuity.[9] This indicates that respondents are not averse to the hypothetical retirement products and may be interested in purchasing such products in practice.

9 Removing these responses from the data yields similar estimates.

5. Results

5.1 Main Results

This section presents estimates using the model discussed in Appendix 1.
Table 5) shows that the demand for retirement products increases when the administrative burden is lower. The size of the effect is similar for both types of administrative burden. Notably, the entire effect comes from self-employed workers. The self-employed have demand that is 5% higher when they do not need to calculate their annual contribution limit or provide their income history. Employees, on the other hand, do not appear to be interested in a lower administrative burden. This can be explained by the higher complexity of the calculations needed for self-employed workers. In other words, the current administrative burden is larger for the self-employed. Taking this burden away increases the demand for retirement products.

We see a strong demand for flexibility. Being able to withdraw funds in case of an income below the minimum wage and to pay off a mortgage increases demand strongly. This is the case for both the self-employed and for employees. Among self-employed workers there is also a sizable demand for a lower administrative burden. Workers do not have such demand. A possible explanation for this is that most training and education taken up by workers is paid for by their employer. Neither self-employed workers nor employees show any demand for the option to withdraw income when there is a fiscal penalty. Finally, as expected, demand increases when benefits are higher conditional on the administrative burden and flexibility attribute levels.

Our results contrast with those of Thaler and Benartzi [2007]: Only self-employed workers, for whom it is typically much more difficult to compute fiscal information, have a WTP for reducing the administrative burden. In addition to being in line with earlier literature on the demand for early money withdrawal options as in Amromin and Smith [2003] and Beshears et al. [2014], our results highlight the fact that workers with uncertain fiscal positions are willing to give up a substantial amount of their retirement benefits for early money withdrawal options. Furthermore, the aversion toward withdrawing money with a fiscal penalty provides further evidence of a desire for commitment, as found by Beshears et al. [2020]. Withdrawal penalties make respondents less likely to acquire retirement products: Respondents prefer products that do not entail fiscal penalties but rather have certain conditions for early money withdrawal.

To rule out potential concerns as a result of the jittering procedure applied to the data, we repeat our Least Absolute Deviation (LAD) estimates with different amounts of

Table 5: LAD estimates. Standard errors are clustered at the individual level and in parentheses.

VARIABLES	(1) Full sample	(2) Self-employed	(3) Employees
Benefit deviation %	0.0251***	0.00671***	0.0504***
	(0.00250)	(0.00176)	(0.00454)
Compute annual contribution limit	-0.0612***	-0.0545***	-0.00768
	(0.0121)	(0.0159)	(0.0265)
Provide income history	-0.0638***	-0.0511***	-0.0309
	(0.0144)	(0.0164)	(0.0293)
Withdraw with penalty	-0.0146	-0.000695	-0.180***
	(0.0174)	(0.0224)	(0.0434)
Withdraw low income	0.168***	0.0943***	0.174***
	(0.0217)	(0.0227)	(0.0368)
Withdraw for investments	0.0993***	0.0793***	-0.0866**
	(0.0176)	(0.0193)	(0.0344)
Withdraw for mortgage	0.228***	0.0947***	0.236***
	(0.0236)	(0.0243)	(0.0463)
Constant	0.00919	0.00531	0.0564***
	(0.00851)	(0.0103)	(0.0200)
Observations	27,856	13,152	14,704
R-squared	0.019	0.015	0.039

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

noise applied to the choice probabilities. Appendix 6 shows that halving or doubling the amount of noise we jitter the data with does not change the sign or the rough order of magnitude of our estimates.

Table 6 shows the WTPs for product attributes as compared to a baseline of not having to provide fiscal information (the smallest administrative burden) and not being able to withdraw contributions, respectively.

We find an overall WTP of -2.5% of the post-retirement annuity for having to compute one's annual contribution limit and having to provide one's income history in the full sample. This means that respondents are willing to give up 2.5% of their post-retirement benefit in order to avoid having to compute their own annual contribution limit or to provide an income history. Dividing estimates based on whether respondents are self-employed shows that the entire effect is driven by the self-employed. Self-employed workers have a WTP of 8%, while the WTP for employees is precisely estimated as 0%.

A likely explanation for this finding is that it is more difficult for self-employed workers to find out their past income than for employees. Payrolls are often stored by the employer for employees whereas self-employed workers typically have more uncertain incomes from multiple sources.

Table 6: WTP estimates measured as a percentage of the post-retirement annuity. Standard errors are clustered at the individual level and in parentheses. WTPs are relative to a pension annuity which does not require any fiscal information and has no early money withdrawal options.

VARIABLES	(1) Full sample	(2) Self-employed	(3) Employees
Compute annual contribution limit	-2.443***	-8.121**	-0.152
	(0.545)	(2.972)	(0.526)
Provide income history	-2.545***	-7.625**	-0.612
	(0.576)	(2.785)	(0.580)
Withdraw with penalty	-0.583	-0.104	-3.579***
	(0.711)	(3.348)	(0.904)
Withdraw low income	6.721***	14.06***	3.456***
	(0.689)	(4.236)	(0.711)
Withdraw for investments	3.962***	11.82**	-1.717*
	(0.619)	(3.747)	(0.707)
Withdraw for mortgage	9.101***	14.12***	4.681***
	(0.788)	(4.050)	(0.829)
Observations	27856	13152	14704

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

We find positive WTPs for flexibility, with the exception of the option to withdraw money with a fiscal penalty, for which the WTP is not significantly different from zero. For employees WTP estimates for early money withdrawal options with a fiscal penalty are even negative. This finding reveals that some employees like commitment more than flexibility in the form of options to withdraw money with a penalty. This finding is in line with Beshears et al. [2020], who find – using an online experiment – that some people prefer saving accounts with high withdrawal penalties over accounts with lower withdrawal penalties. This indicates that some of the respondents are partially or fully sophisticated present-biased agents.

Among self-employed workers, a WTP of approximately 14% of the annuity is found for the option to withdraw when income is low and for mortgage payments. Likewise, self- employed workers are willing to give up 12% of their retirement benefits for the option to withdraw for investments. Among employees, WTPs of 3.5% and 4.5% of their post-retirement annuity is found for the option to withdraw money when income is low and to withdraw money for mortgage payments, respectively. As such, both self-employed workers and employees seem to prefer more flexible retirement products, but the effect is much more pronounced for self-employed workers.

These results with respect to flexibility may be driven by self-employed workers facing larger income shocks than employees. As such, the option to supplement income or reduce one's mortgage is probably more valuable for self-employed

Table 7: WTP estimates measured as a percentage of the post-retirement annuity separated by demographic characteristics. Standard errors are clustered at the individual level and in parentheses. Younger and older people are defined as aged between 25 and 40 and aged between 41 and 60, respectively. WTPs are relative to a pension annuity which does not require any fiscal information and has no early money withdrawal options.

	(1) Younger	(2) Older	(3) Male	(4) Female	(5) Renter	(6) Home owner
Compute annual contribution limit	-2.311**	-2.481	-1.155*	-8.498	-12.80*	-2.954***
	(0.814)	(1.825)	(0.532)	(4.605)	(5.102)	(0.713)
Provide income history	-1.986**	-2.987	-1.618***	-7.310	-7.883*	-1.919**
	(0.723)	(1.726)	(0.487)	(4.067)	(3.682)	(0.602)
Withdraw with penalty	-1.891	-2.675	-1.703*	-6.851	-0.616	-1.705*
	(1.026)	(2.631)	(0.757)	(5.661)	(4.533)	(0.836)
Withdraw to compensate for low income	5.170***	7.014**	3.622***	14.66*	19.75**	5.354***
	(0.943)	(2.484)	(0.678)	(6.451)	(6.286)	(0.721)
Withdraw for investments	3.856***	2.476	1.151	9.782	12.61*	1.897**
	(0.950)	(2.087)	(0.777)	(5.430)	(5.156)	(0.723)
Withdraw for mortgage	8.229***	7.779**	5.525***	14.31*	15.72**	8.803***
	(1.146)	(2.584)	(0.828)	(5.999)	(5.347)	(0.887)
Observations	11888	15968	17392	10464	7296	20272

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

respondents. This explanation is further compounded by the self-employed workers in our sample generally being risk averse. For investments, as self-employed workers are responsible for their own training, this may explain why self-employed workers have a positive WTP for investment-related withdrawals whereas employees do not.

5.2 Heterogeneity

In order to better understand what drives the differences in demand for retirement products – in particular, between the self-employed and workers – we now estimate heterogeneous effects with respect to demographic characteristics, financial position, and preferences.

Table 7 shows the WTPs separated by demographic characteristics. Younger and older workers have similar WTPs for all product attributes. Comparing men and women shows that women have much larger WTPs for reducing the administrative burden, withdrawals when income is low and withdrawals for mortgage payments. These effects may be driven by our sample of self-employed respondents containing more women.

Finally, renters have much larger WTPs for not having to provide fiscal information as well as low-income withdrawals and mortgage payment withdrawals than homeowners, although WTPs for renters are imprecisely estimated. Renters in our sample generally have less income, are less financially literate, and have fewer net liquid assets. With the increase in housing prices it has become difficult for renters to buy a house. Early withdrawal options may help renters purchase a house.

Table 8 shows the WTPs separated by respondents' financial position. As expected, low-income respondents have a much higher WTP for the option to withdraw money when income is low than high-income respondents. Low-income respondents also have a stronger distaste for having to provide fiscal information and a more pronounced taste for investment- related withdrawals. A similar pattern with respect to the flexibility attributes is found when comparing low and high-liquidity workers. A potential explanation for these findings is that low-income and low-liquidity workers are more affected by financial shocks. Workers who saved for retirement in 2019 have higher WTPs for all attributes except withdrawals with a fiscal penalty. Workers who want to save more for retirement have more pronounced WTPs than workers who do not. Surprisingly, WTPs for flexibility among workers who anticipate income fluctuations do not significantly differ from those for workers who do not anticipate income fluctuations. Moreover, respondents who are uncertain about their income as a result of Covid-19 and therefore consider early money withdrawal options have larger WTPs than those who are not.

Table 9 shows WTPs separated by the preferences of respondents. Risk averse workers have a higher WTP to reduce investment-related withdrawals than workers with low risk aversion, whereas other WTPs are similar. Present-biased respondents as well as respondents with a high discount rate have stronger distastes for having to provide fiscal information and exhibit higher WTPs for low-income, investment-related and mortgage-related withdrawals. Respondents with a self-assessed probability to live to 80 or older are more interested in investment-related withdrawals, but otherwise do not differ substantially from those with a low perceived probability of living to 80 or older. Workers who distrust pension funds have a higher WTP for investment-related withdrawals. Finally, estimates on the basis of annual contribution room are too imprecisely estimated to conclude any differences between the groups.

In order to investigate whether the role of demographic characteristics, preferences, and financial situation in the preferences for flexibility and a lower administrative burden differs for the self-employed as compared to employees, we also carry out the heterogeneity analysis for the self-employed workers separately. Tables A3,

Table 8: WTP estimates measured as a percentage of the post-retirement annuity separated by income and pension characteristics. Standard errors are clustered at the individual level and in parentheses. Low (High) income is defined as household income being less than (equal to or more than €60.000. Low (High) liquidity defined as less than (equal to or more than) €20.000. (No)Save defined as whether someone saved (did not save) for retirement in 2019. (No)save more defined as answering neutrally or positively (negatively) to whether a respondent wants to save more for retirement. (Dis)Trusts pensionfunds defined as answering neutrally or positively (negatively) to question whether one trusts pension funds. (No)Covid defined as answering neutrally or positively (negatively) as to whether the Covid-19 pandemic makes the respondent's income uncertain. (No)Income fluc defined as answering neutrally or positively (negatively) as to whether the respondent anticipates income fluctuations over the next five years. WTPs are relative to a pension annuity which does not require any fiscal information and has no early money withdrawal options.

	(1) Low income	(2) High income	(3) Low liquidity	(4) High liquidity	(5) No save	(6) Save
Compute annual contribution limit	-3.050*	-1.853**	-2.295**	-1.290	-0.991	-10.73*
	(1.260)	(0.713)	(0.859)	(0.665)	(0.554)	(4.687)
Provide income history	-4.580***	-0.617	-1.513	-1.745**	-1.045*	-7.943*
	(1.332)	(0.617)	(0.819)	(0.665)	(0.515)	(3.904)
Withdraw with penalty	-1.269	-2.676**	-1.451	-1.803	-2.336**	-5.259
	(1.827)	(0.851)	(1.047)	(0.978)	(0.762)	(5.075)
Withdraw to compensate for low income	8.350***	3.494***	7.638***	3.425***	3.622***	16.70**
	(1.815)	(0.787)	(1.087)	(0.835)	(0.727)	(6.335)
Withdraw for investments	4.569**	1.174	4.277***	1.506	-0.0555	11.77*
	(1.588)	(0.718)	(0.961)	(0.777)	(0.774)	(5.140)
Withdraw for mortgage	8.396***	6.905***	9.564***	6.209***	5.361***	16.10**
	(1.840)	(1.005)	(1.219)	(1.062)	(0.862)	(5.882)
Observations	12368	10928	13632	10032	17792	10064

	(7) No save more	(8) Save more	(9) No Covid	(10) Covid	(11) Income fluc	(12) Noin-comefluc
Compute annual contribution limit	-2.887*	-3.098***	-1.806**	-2.879	-5.179*	-4.255
	(1.142)	(0.750)	(0.669)	(2.002)	(2.244)	(2.779)
Provide income history	-0.997	-2.867***	-1.269	-3.588	-6.198**	-6.281*
	(1.267)	(0.651)	(0.715)	(1.990)	(2.090)	(3.040)
Withdraw with penalty	-4.825*	-0.901	-3.868***	-4.229	0.509	-0.0802
	(2.096)	(0.885)	(1.050)	(2.999)	(2.814)	(3.880)
Withdraw to compensate for low income	3.389**	6.956***	3.438***	7.896**	11.31***	11.44**
	(1.244)	(0.818)	(0.801)	(2.837)	(3.158)	(4.257)
Withdraw for investments	-1.691	5.081***	-1.179	6.116*	11.09***	9.723*
	(1.467)	(0.888)	(0.811)	(2.537)	(3.156)	(3.999)
Withdraw for mortgage	6.317***	9.564***	6.571***	9.101**	11.48***	11.09**
	(1.461)	(0.974)	(0.923)	(2.917)	(3.226)	(3.987)
Observations	5504	21632	11616	15872	9360	14320

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: WTP estimates measured as a percentage of the post-retirement annuity separated by personal preferences. Standard errors are clustered at the individual level and in parentheses. Low risk defined as a relative risk aversion coefficient between 1.16 and 3.46 (and 1.16). Present-biased (Time-consistent) defined as a hyperbolic discounting parameter of less than (more than) 0.9. Low discount (High discount) defined as a discount factor of more than (less than) 0.9. Low prob80 (High prob80) defined as 50% or less (more than 50%) perceived probability of living to 80. Trust in pension funds measured for in both pension funds and private insurers. Annual Contribution defined as answering correctly when asked what the annual contribution limit is, No Annual Contribution defined as answering incorrectly when asked what the annual contribution limit is. WTPs are relative to a pension annuity which does not require any fiscal information and has no early money withdrawal options.

	(1) Low risk	(2) High risk	(3) Time-consistent	(4) Present-biased	(5) Low discount	(6) High discount
Compute annual contribution limit	-2.500***	-2.054	-1.650**	-2.982*	-1.225*	-4.384**
	(0.711)	(1.926)	(0.613)	(1.185)	(0.568)	(1.370)
Provide income history	-1.649*	-3.912*	-1.358*	-4.721***	-1.067	-4.350***
	(0.665)	(1.852)	(0.640)	(1.193)	(0.650)	(1.267)
Withdraw with penalty	-2.312**	1.188	-1.705	-1.510	-1.946*	-3.626*
	(0.897)	(2.713)	(0.903)	(1.560)	(0.916)	(1.731)
Withdraw to compensate for low income	6.153***	7.217**	5.354***	10.01***	5.348***	7.684***
	(0.774)	(2.529)	(0.801)	(1.637)	(0.824)	(1.510)
Withdraw for investments	3.935***	3.338	1.703*	5.756***	1.220	7.774***
	(0.744)	(2.140)	(0.789)	(1.347)	(0.767)	(1.569)
Withdraw for mortgage	8.832***	8.865***	6.892***	11.44***	6.458***	11.71***
	(0.903)	(2.573)	(1.020)	(1.696)	(0.986)	(1.745)
Observations	21280	6576	18560	9296	18112	9744

	(7) Low prob80	(8) High prob80	(9) Trust	(10) Distrust	(11) Annual Contribution	(12) No Annual Contribution
Compute annual contribution limit	-1.572	-2.936***	-0.981	-3.203***	-0.651	-4.175
	(2.116)	(0.731)	(1.721)	(0.761)	(0.553)	(3.454)
Provide income history	-2.681	-1.258	-3.421	-1.960**	-1.353	-3.539
	(1.904)	(0.754)	(1.812)	(0.654)	(0.700)	(3.007)
Withdraw with penalty	-3.321	-2.546*	-19.69***	0.703	-1.902*	-3.626
	(3.007)	(1.087)	(5.901)	(0.750)	(0.905)	(4.485)
Withdraw to compensate for low income	7.312*	5.510***	8.828***	5.145***	5.970***	5.872
	(3.024)	(0.840)	(2.625)	(0.723)	(0.793)	(4.358)
Withdraw for investments	2.134	4.277***	1.686	4.277***	1.677*	5.622
	(2.457)	(0.804)	(2.019)	(0.830)	(0.717)	(3.902)
Withdraw for mortgage	8.048**	8.923***	8.286**	9.092***	6.687***	10.37*
	(3.091)	(0.989)	(2.529)	(1.021)	(0.901)	(4.826)
Observations	14736	13120	12048	15296	12832	15024

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

A4, A7 show that roughly similar heterogeneity patterns hold among the subsample of self-employed workers, albeit with higher standard errors: Present bias and high discount rates remain major factors in the demand for a lower administrative burden, whereas income fluctuations and liquidity remain major factors in the demand for early withdrawal options.

All in all, our results suggest certain groups have substantial WTPs for having to reduce the administrative burden. WTPs are more pronounced for self-employed workers but negligible for employees. These results may be driven by the self-employed not having an employer-based income administration and working in several workplaces, thus making it more difficult for them to provide fiscal information. For the option to withdraw retirement savings early, we find sizable effects for both types of workers, although the WTP is more pronounced for self-employed workers. Options to withdraw when income is low and to withdraw for mortgages are especially associated with large WTPs.

6. Discussion and conclusion

In this paper we estimate the demand for pension products containing more flexibility and a lower administrative burden. Using a stated choice experiment, we compute the WTP for early flexibility when it comes to withdrawal options and a lower administrative burden when purchasing retirement products. We focus on self-employed workers and compare their demand with a representative group of employees. To account for individual uncertainty in individuals' choices, we follow (Manski [2004]) in eliciting choice probabilities as opposed to purely discrete choices. To this end, we estimate the median WTP of respondents while accounting for tied values that may arise as a result of rounding. Furthermore, we offer single retirement products as opposed to choices between two retirement products in half of our vignettes, so that we can take into account whether respondents are willing to buy retirement products in the first place.

We find that there is significant demand to lower the administrative burden for self-employed workers. Self-employed workers demand an 8% higher post-retirement benefit in exchange for having to provide fiscal information, be it having to compute one's tax- deductible retirement contribution or one's three-year income history, whereas employees are not keen to provide fiscal information. In fact, they are clearly not willing to give up a higher post-retirement benefit in exchange for a lower administrative burden.

The WTP for flexibility attributes is more striking. Both the option to withdraw money contributions to make mortgage payments and withdrawing money when income is low show significant and precisely estimated WTPs. For the option to withdraw money when income is low, WTP estimates range from 3% for employees to 14% of the post-retirement annuity for self-employed workers. For mortgage payments, these WTPs range from 5% to 14% of the post-retirement annuity. For investments, a WTP of 12% of the post-retirement annuity is found for self-employed workers with small positive WTPs. A negative WTP for withdrawals with a penalty is found among employees, indicating that these workers respond to conditions on withdrawing money.

There is substantial heterogeneity in WTPs among other groups. Workers who distrust pension funds, as well as workers who are present-biased and/or have high discount rates have high WTPs for a lower administrative burden. Respondents with few savings, younger respondents and homeowners in particular have a strong demand for liquidity. The willingness to withdraw money when income is low is strongly heterogeneous, with workers who have low incomes valuing this option

most. Finally, present-biased respondents and respondents with high discount rates have much higher WTPs for early money withdrawal options than those who are not present-biased and have a low discount rate. One concern is that early money withdrawal options facilitate sub-optimal choices, especially for the former group.

All in all, our results provide grounds for both reducing the administrative burden that is needed to save for retirement while offering early money withdrawal options in exchange for a lower annuity. Both employees and self-employed workers stand to benefit from products that offer these characteristics, but effects are particularly pronounced for self-employed workers. In addition, our heterogeneity analysis can be used to inform policy makers on how to increase retirement savings through annuities, especially for groups that need this most. Specifically, since the self-employed and the lower income workers have a high WTP to reduce the administrative burden, one policy recommendation could be to abolish the need to provide financial information needed to purchase annuities for up to a certain amount per year.

Appendix 1: Methodology

In this appendix we explain how we estimate the WTP for more flexible retirement products with a lower administrative burden. Our estimation method closely follows that of Ko¸sar et al. [2021]. We estimate logit models with the following bedrock specification:

$$U_j = B_j\alpha + P_j\beta + A_j\gamma + \xi_j \tag{1}$$

Where *j* denotes the alternative chosen. B_j = *(AnnualContribution*$_j$, *IncomeHistory*$_j$*)* is a row vector with dummy variables describing administrative burden of option *j*, F_j = *(Finej*, *Low Income*$_j$, *Investment*$_j$, *Mortgage*$_j$*)* is a row vector with dummy variables de- scribing flexibility of option *j*, and A_j the annual annuity. α and β denote vectors of coefficients, and ξ_j follows an extreme value type 1 distribution. The baseline for administrative burden is 'not having to provide any financial information'. The baseline of flexibility is 'not being able to withdraw retirement savings.' As such, the assumed utility function is as follows:

$$\begin{aligned} U_j = \alpha_1 AnnualContribution_j + \alpha_2 IncomeHistory_j + \beta_1 Penalty_j \\ +\beta_2 LowIncome_j + \beta_3 Investment_j + \beta_4 Mortgage_j + \gamma Annuity_j + \xi_j \end{aligned} \tag{2}$$

Where Annual Contribution denotes a dummy variable reflection for whether one has to compute one's annual contribution limit, IncomeHistory denotes having to look up one's income over the past three years, Fine denotes the option to withdraw money contributions at a 20% fiscal penalty, *Low Income* denotes the option to withdraw money contributions when one's income falls below the minimum wage for a period of three months, *Investment* denotes the option to withdraw money contributions for investments, *Mortgage* denotes the option to withdraw money for mortgage payments, and Annuity denotes the monthly payout of the annuity after retirement. As our specification is linear and administrative burden and flexibility are measured through dummy variables, the WTP for a given attribute trivially equals the coefficient of said attribute over γ.

Respondents choose between two alternatives. The consequent conditional probability of an individual choosing alternative *j* over alternative *k* equals:

$$p(j) = Pr(j|B,F,A) = \frac{\exp(B_j\alpha + P_j\beta + A_j\gamma)}{\exp(B_j\alpha + P_j\beta + A_j\gamma) + \exp(B_k\alpha + P_k\beta + A_k\gamma)} \tag{3}$$

From (2) we derive the following log odds ratio:

$$\ln(\frac{p_j}{p_k}) = (B_j - B_k)\alpha + (P_j - P_k)\beta + (A_j - A_k)\gamma + (\xi_j - \xi_k) \ \forall \ j \neq k \quad (4)$$

Notice that respondents tend to round their choice probabilities to the nearest 5% or 10% (Manski [2004]). To take this into account we follow the literature and introduce measurement error into the model. We assume that our observed probabilities are measured with error such that

$$\ln(\frac{\tilde{p_j}}{\tilde{p_k}}) = (B_j - B_k)\alpha + (P_j - P_k)\beta + (A_j - A_k)\gamma + \eta_{jk} \ \forall \ j \neq k \quad (5)$$

where η_{jk} captures (the difference in) measurement errors. Following Blass et al. [2010] we use median regression. Median regression is more robust to outliers, and this is helpful for choice probabilities close to 0 or 1 (which occur in 12% of cases and 9% of cases, respectively), which yield log odds ratios of minus infinity and infinity. Assuming η_{jk} is symmetrically distributed around 0 (conditional on *B*, *F*, and *A*), the following equation is estimated using Least Absolute Deviation (LAD):

$$M\Big[\ln(\frac{\tilde{p_j}}{\tilde{p_k}})|B, F, A\Big] = (B_j - B_k)\alpha + (P_j - P_k)\beta + (A_j - A_k)\gamma \ \forall \ j \neq k \quad (6)$$

Rounding, however, remains an issue to some extent, and is common in surveys (Klein- jans and Soest [2014]). First, quantile regression performs poorly when there are many (rounding-induced) tied values (Wilcox and Clark [2013]). While LAD estimation solves the problem of the estimates being strongly influenced by rounding, probabilities of 0 and 1 still need to be adjusted to allow for estimation of (8). To this end, we convert choice probabilities of 0 to 0.001 and choice probabilities of 1 to 0.999. Tied values as a result of rounding continue to cause issues in the median regression model. We follow Machado and Silva [2005] by jittering our data to break the aforementioned ties. We adjust the choice probabilities of respondents who round all of their choice probabilities to multiples of 5% by a uniform distribution between −2.5% and 2.5% and the probabilities of respondents who round all of their probabilities to multiples of 10% (but not 5%) by a uniform distribution between −5% and 5%. Note that adding this uniform noise does not violate the key identifying assumption of our model. Furthermore, different degrees of uniform noise as well as OLS yield roughly the same results as those presented in the results section.

Appendix 2: Example of a vignette

Figure A1: Example of a vignette

Product	A	B
For every 1000-euro gross contribution you will receive this benefit from age 67 until you pass away:	€161 before taxes a year	€177 before taxes a year
To contribute money to this product:	You have to provide your taxable income over the past three years.	You do not need to provide any fiscal information.
Flexibility: some products allow for early money withdrawal.	You may withdraw up to 15.000 euros every 5 years for mortgage payments.	If your gross income over the past three months equals less than 5.000 euros, then you may supplement your gross income up to 5.000 euros by withdrawing pension contributions.

Appendix 3: Rounding and zero probabilities

Table A1: Rounding behavior of respondents

	Self-employed Mean	Employees Mean
All probabilities multiples of 5%	0.24	0.20
All probabilities multiples of 10%	0.16	0.11
All probabilities multiples of 50%	0.11	0.07
Observations	13152	14704

Table A2: Probabilities of zero in second set of vignettes (before rounding adjustments)

	Self-employed Mean	Employees Mean
Probability of zero to buy product A	0.13	0.09
Observations	6576	7352

Appendix 4: risk preference, present bias and bequest motive questions

Financial Literacy

On a scale from 1 to 10, how financially literate do you believe yourself to be?

– (Input integer ranging from 1 to 10)

Risk preference

Suppose we toss up a coin and you receive money depending on whether the coin lands on heads or tails.

	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6
Payout if heads	€280	€240	€200	€160	€120	€20
Payout if tails	€280	€360	€440	€520	€600	€700

Welk game would you choose?

o Game 1

Game 1
€280
€280

o Game 2

Game 2
€240
€360

o Game 3

Game 3
€200
€440

o Game 4

Game 4
€160
€520

o Game 5

Game 5
€120
€600

o Game 6

Game 6
€20
€700

Time preference

Enter the amount for which option A and option B are equally appealing.
Assume prices will not change from today's prices (no inflation)

– You receive €1.000 now
– You receive €[input] in 1 year

Enter the amount for which option A and option B are equally appealing.
Assume prices will not change from today's prices (no inflation)

– You receive €1.000 now
– You receive e[input] in 10 years

Bequest motives

You will never face the following choices in real life. We still believe it interesting to know what you would do.
Suppose you're 80 years old. You are healthy and do not have any healthcare costs. You know you will suddenly die within a year.
Suppose you have a net income of €3.000 per month in your final year of life. Assume you have no other income sources or assets.
How much of this €3.000 would you spend yourself and how much would you leave for inheritance every month?
- Spend: €[input] per month
- Leave for inheritance: €[input] per month

You will never face the following choices in real life. We still believe it interesting to know what you would do.
Suppose you're 80 years old. You are healthy and do not have any healthcare costs. You know you will suddenly die within a year.
you have a net income of €9.000 per month in your final year of life. Assume you have no other income sources or assets.
How much of this €9.000 would you spend yourself and how much would you leave for inheritance every month?
- Spend: €[input] per month
- Leave for inheritance: €[input] per month

Trust in pension funds and insurers

Indicate to which degree you agree with the following statement:
- I trust pension funds and insurers
- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree
- Don't know / no opinion

Appendix 5: Heterogeneity among self-employed workers

Table A3: Heterogeneity in demographic characteristics among self-employed workers

	(1) Younger	(2) Older	(3) Male	(4) Female	(5) Renter	(6) Home owner
Compute annual contribution limit	-5.976	-8.497	-4.185*	-12.87	-28.48	-5.356**
	(3.219)	(5.679)	(1.667)	(9.878)	(20.83)	(1.805)
Provide income history	-8.001*	-7.417	-5.759**	-8.803	-14.63	-5.639***
	(3.137)	(5.072)	(1.801)	(7.527)	(11.60)	(1.647)
Withdraw with penalty	-4.963	0.914	1.046	-9.921	-5.434	-0.449
	(4.065)	(6.147)	(2.457)	(11.30)	(10.35)	(2.298)
Withdraw low income	11.68**	15.09	9.052***	19.71	54.42	8.748***
	(4.289)	(8.139)	(2.521)	(13.27)	(35.39)	(2.373)
Withdraw for investments	11.56**	10.60	8.720***	13.97	28.67	7.798***
	(4.077)	(6.584)	(2.333)	(10.29)	(19.97)	(2.147)
Withdraw for mortgage	14.76**	13.42	11.93***	16.60	21.38	13.08***
	(4.680)	(7.377)	(2.717)	(11.19)	(15.06)	(2.752)
Observations	5104	8048	6544	6608	3680	9328

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A4: Heterogeneity in pension characteristics among self-employed workers

	(1) Low income	(2) High income	(3) Low liquidity	(4) High liquidity	(5) No save	(6) Save
Compute annual contribution limit	−11.47**	−3.273*	−12.38***	−3.769	−3.331	−13.87*
	(3.955)	(1.525)	(3.211)	(2.602)	(1.949)	(6.489)
Provide income history	−9.266**	−2.982*	−6.879**	−5.399*	−4.628*	−8.629
	(3.108)	(1.292)	(2.264)	(2.538)	(2.010)	(4.671)
Withdraw with penalty	1.846	0.0245	2.315	−0.641	0.628	−4.890
	(3.416)	(1.957)	(2.503)	(3.541)	(2.498)	(6.175)
Withdraw low income	19.25***	7.398***	20.32***	7.025*	7.217**	20.57*
	(5.495)	(1.986)	(4.898)	(3.295)	(2.638)	(8.642)
Withdraw for investments	13.25**	7.774***	14.27***	6.933*	7.495***	14.12*
	(4.376)	(1.869)	(3.573)	(3.208)	(2.260)	(6.683)
Withdraw for mortgage	16.60***	10.48***	18.86***	10.60**	9.564**	19.21*
	(4.863)	(2.577)	(4.472)	(3.833)	(2.977)	(7.688)
Observations	5664	4720	5776	5088	4336	8816

	(7) No save more	(8) Save more	(9) No Covid	(10) Covid	(11) Income-fluc	(12) Noin-comefluc
Compute annual contribution limit	−11.38*	−8.857***	−6.854	−7.517*	−11.18***	−8.900
	(5.373)	(2.260)	(3.806)	(3.455)	(3.014)	(4.655)
Provide income history	−4.737	−8.187***	−5.064	−7.947*	−9.844***	−9.330*
	(4.056)	(1.925)	(3.478)	(3.421)	(2.370)	(4.738)
Withdraw with penalty	−9.488	0.161	−3.555	0.840	−0.885	−0.381
	(7.199)	(2.326)	(5.188)	(4.033)	(2.884)	(5.304)
Withdraw low income	1.328	15.09***	8.063	14.16**	14.52***	15.09*
	(4.189)	(2.974)	(4.888)	(5.068)	(3.531)	(6.706)
Withdraw for investments	0.502	12.66***	7.940	12.45**	14.40***	13.37*
	(4.319)	(2.613)	(4.214)	(4.657)	(3.390)	(6.185)
Withdraw for mortgage	8.894	14.94***	11.77*	13.82**	13.19***	14.27*
	(5.230)	(2.838)	(5.497)	(4.796)	(3.437)	(6.146)
Observations	2256	10544	2672	10256	6800	9840

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A5: Heterogeneity in demographic characteristics among self-employed workers

	(1) Low risk	(2) High risk	(3) Rational	(4) Na¨ıve	(5) Low discount	(6) High discount
Compute annual contribution limit	-9.603***	-4.175	-7.261	-9.659***	-3.139	-12.04**
	(2.286)	(33.43)	(5.888)	(2.896)	(3.611)	(4.370)
Provide income history	-8.475***	-4.195	-6.163	-8.936***	-4.661	-10.13**
	(1.816)	(35.35)	(5.305)	(2.500)	(3.595)	(3.518)
Withdraw with penalty	-0.0242	-0.185	-0.0907	1.109	-0.652	0.672
	(2.123)	(53.38)	(6.897)	(2.927)	(5.468)	(3.210)
Withdraw low income	14.56***	11.44	8.802	19.70***	10.07	20.72**
	(2.825)	(53.61)	(7.353)	(4.588)	(5.552)	(6.403)
Withdraw for investments	12.60***	8.511	11.31	14.41***	7.473	15.76**
	(2.610)	(43.08)	(7.734)	(3.688)	(4.889)	(5.026)
Withdraw for mortgage	14.59***	13.10	13.17	17.40***	9.736	20.06***
	(2.719)	(52.81)	(8.380)	(3.755)	(5.374)	(5.718)
Observations	9984	3168	8784	4368	8560	4592

	(7) Low prob80	(8) High prob80	(9) Trust	(10) Distrust	(11) Annual Contribu-tion	(12) No Annu-alContri-bution
Compute annual contribution limit	-7.521	-6.506**	-9.294	-5.810	-3.303*	-9.782
	(9.444)	(2.266)	(5.451)	(3.461)	(1.461)	(12.25)
Provide income history	-8.187	-6.433**	-8.670	-5.824	-3.494**	-10.21
	(8.413)	(2.137)	(5.366)	(3.152)	(1.280)	(11.54)
Withdraw with penalty	1.285	-5.893	-30.39	2.623	-5.511*	2.623
	(10.39)	(3.194)	(17.56)	(3.699)	(2.361)	(11.06)
Withdraw low income	14.52	11.67***	21.48*	9.608*	7.097***	18.21
	(14.31)	(2.709)	(9.795)	(4.291)	(1.698)	(18.07)
Withdraw for investments	11.35	11.82***	12.15	10.36*	6.148***	15.14
	(12.32)	(2.614)	(7.167)	(4.323)	(1.551)	(15.99)
Withdraw for mortgage	13.82	13.43***	17.90*	12.84**	9.383***	16.51
	(13.26)	(2.984)	(8.288)	(4.609)	(1.987)	(16.16)
Observations	6944	6208	6032	6848	6880	6272

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix 6: LAD estimates with varying uniform noise applied

Table A6: LAD estimates with half the uniform noise applied to rounders

VARIABLES	(1) Full sample	(2) Self-employed	(3) Employees
Benefit deviation %	0.0238***	0.00339**	0.0491***
	(0.00318)	(0.00168)	(0.00455)
Compute annual contribution limit	-0.0574***	-0.0277*	-0.00371
	(0.0123)	(0.0156)	(0.0256)
Provide income history	-0.0593***	-0.0260	-0.0334
	(0.0161)	(0.0162)	(0.0287)
Withdraw with penalty	-0.0141	-0.000751	-0.179***
	(0.0177)	(0.0224)	(0.0440)
Withdraw low income	0.162*** (	0.0478**	0.178***
	0.0246)	(0.0220)	(0.0371)
Withdraw for investments	0.0936***	0.0401**	-0.0900***
	(0.0213)	(0.0186)	(0.0338)
Withdraw for mortgage	0.217***	0.0480**	0.238***
	(0.0274)	(0.0236)	(0.0450)
Constant	0.00792	0.00278	0.0606***
	(0.00881)	(0.0102)	(0.0197)
Observations	27,856	13,152	14,704
R-squared	0.019	0.015	0.038

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A7: LAD estimates with double the uniform noise applied to rounders

VARIABLES	(1) Full sample	(2) Self-employed	(3) Employees
Benefit deviation %	0.0282***	0.0119***	0.0500***
	(0.00243)	(0.00222)	(0.00437)
Compute annual contribution limit	-0.0665***	-0.0890***	-0.0137
	(0.0154)	(0.0204)	(0.0264)
Provide income history	-0.0704***	-0.0878***	-0.0314
	(0.0152)	(0.0188)	(0.0290)
Withdraw with penalty	-0.0355*	-0.00549	-0.191***
	(0.0203)	(0.0255)	(0.0419)
Withdraw low income	0.194***	0.166***	0.165***
	(0.0220)	(0.0270)	(0.0361)
Withdraw for investments	0.109***	0.141***	-0.0894***
	(0.0186)	(0.0256)	(0.0334)
Withdraw for mortgage	0.257***	0.164***	0.248***
	(0.0242)	(0.0293)	(0.0450)
Constant	0.00794	0.00578	0.0595***
	(0.00947)	(0.0115)	(0.0192)
Observations	27,856	13,152	14,704
R-squared	0.020	0.015	0.039

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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