



Network for Studies on Pensions, Aging and Retirement

Differences in retirement preferences between the self-employed and employees: Do job characteristics play an explanatory role?

*Marleen Damman, Dieuwke Zwier
en Swenne G. van den Heuvel*

DESIGN PAPER 154

NETSPAR INDUSTRY SERIES

DESIGN PAPERS are part of the **refereed Industry Paper Series**, which are refereed by the Netspar Editorial Board. Design Papers discuss the design of a component of a pension system or product. A Netspar Design Paper analyzes the objective of a component and the possibilities for improving its efficacy. These papers are easily accessible for industry specialists who are responsible for designing the component being discussed. Authors are allowed to give their personal opinion in a separate section. Design Papers are presented for discussion at Netspar events. Representatives of academic and private sector partners, are invited to these events. Design Papers are published at the Netspar website.

Colophon

Netspar Design Paper 154, June 2020

Editorial Board

Rob Alessie – University of Groningen
Iwan van den Berg – AEGON Netherlands
Mark-Jan Boes – VU Amsterdam
Marijke Colly – MN
Kees Goudswaard – Leiden University
Arjen Hussem – PGGM
Bert Kramer – University of Groningen & Ortec Finance
Fieke van der Lecq (Chair) – VU Amsterdam
Raymond Montizaan – Maastricht University
Alwin Oerlemans – APG
Maarten van Rooij – De Nederlandsche Bank
Peter Schotman – Maastricht University
Koen Vaassen – Achmea
Mieke van Westing – Nationale Nederlanden
Peter Wijn – APG
Jeroen Wirschell – PGGM
Marianne Zweers – a.s.r.

Design

B-more Design

Lay-out

Bladvulling, Tilburg

Editors

Frans Kooymans, Frans Kooymans–Text and Translation
Netspar

Design Papers are publications by Netspar. No reproduction of any part of this publication may take place without permission of the authors.

CONTENTS

<i>Abstract</i>	4
<i>Samenvatting</i>	5
1. <i>Introduction</i>	6
2. <i>Theoretical framework</i>	11
3. <i>Data and methods</i>	16
4. <i>Results: full sample</i>	20
5. <i>Results: by educational level</i>	26
6. <i>Discussion</i>	31
<i>Reference list</i>	35
<i>Descriptive appendix</i>	38
<i>Technical appendix</i>	40

Funding

This work was supported by the Netherlands Organization for Scientific Research NWO [VENI Grant 451-17-005 to M.D.] and Netspar.

Affiliations

Marleen Damman – Radboud University Nijmegen and Netherlands Interdisciplinary Demographic Institute (NIDI-KNAW)

Dieuwke Zwier – University of Amsterdam

Swenne G. van den Heuvel – Netherlands Organisation for Applied Scientific Research (TNO)

Abstract

Differences in retirement preferences between the self-employed and employees: Do job characteristics play an explanatory role?

Prior research has shown that self-employed workers are on average more likely than employees to expect to retire relatively late and to actually do so, and to report uncertainty about their envisioned retirement timing. Aside from frequently mentioned explanations that focus on financial resources and institutional structures, these differences in retirement processes may relate to the job characteristics of the self-employed and employees. The central question of this study is: To what extent and how can differences in self-reported retirement timing preferences between self-employed workers and employees in the Netherlands be explained by differences in their job characteristics (i.e., flexibility, autonomy, skills-job match, and job security)? This study involved analysis of 8,192 employees and 626 self-employed respondents without personnel (age 45–64) who participated in 2016 in the Study on Transitions in Employment, Ability and Motivation (STREAM). Retirement timing preferences are measured by means of a question that asked respondents until what age they would like to continue working. The self-employed workers studied prefer on average to retire 2.2 years later than employees. The outcome variable of this study distinguished between early (< age 65), on-time (≥ 65 and ≤ 67), late (> 67), and uncertain ("don't know") retirement preferences. Multinomial logistic regression analysis shows that the self-employed are more likely than employees to prefer late retirement (vs. on-time) and to report uncertainty about their preferred retirement age. Mediation analysis based on the Karlson–Holm–Breen (KHB) method shows that the job characteristics studied mediate 16% of the relationship between self-employment and late retirement preferences. When interpreting the study findings, it should be noted that the current study focuses on differences in retirement timing preferences between the self-employed and employees. For future research it would be relevant as well to study how retirement timing preferences differ within the highly diverse group of the self-employed.

Samenvatting

Verschillen in pensioneringspreferenties tussen zzp'ers en werknemers:

Spelen werkkenmerken een verklarende rol?

Eerder onderzoek heeft laten zien dat zzp'ers gemiddeld genomen later met pensioen (verwachten te) gaan dan werknemers in loondienst en vaker onzeker zijn over hun toekomstige leeftijd van pensionering. Naast vaak genoemde verklaringen die zich richten op financiële middelen en institutionele structuren, zou dit verschil in pensioneringsprocessen ook kunnen samenhangen met de werkkenmerken van zzp'ers en werknemers. De centrale vraag van dit onderzoek is: In hoeverre en hoe kunnen verschillen in zelf-gerapporteerde pensioneringspreferenties tussen zzp'ers en werknemers in Nederland worden verklaard door verschillen in werkkenmerken (flexibiliteit, autonomie, match tussen kennis/vaardigheden en werk, en werkzekerheid)? Om deze vraag te beantwoorden worden data geanalyseerd van 8,192 werknemers en 626 zzp'ers (45-64 jaar) die in 2016 deelnamen aan de Study on Transitions in Employment, Ability and Motivation (STREAM). Pensioneringspreferenties zijn gemeten aan de hand van de vraag: Tot welke leeftijd wilt u doorgaan met werken? De bestudeerde zzp'ers willen gemiddeld genomen 2,2 jaar later met pensioen dan werknemers. Als uitkomstvariabele van deze studie zijn pensioneringspreferenties ingedeeld in de categorieën vroeg (< 65), tussen leeftijd 65 en 67, en laat (> 67) willen stoppen met werken. Ook is er een "weet niet"-categorie. Multinomiale logistische regressieanalyse laat zien dat zzp'ers meer geneigd zijn dan werknemers om laat met pensioen te willen gaan (vs. tussen leeftijd 65 en 67) en tot onzekerheid over hun geprefereerde pensioenleeftijd. Mediatieanalyses op basis van de Karlson-Holm-Breen (KHB)-methode laten zien dat ongeveer 16 procent van het effect van zzp'erschap op late pensioneringspreferenties samenhangt met de bestudeerde werkkenmerken. Bij de interpretatie van deze bevindingen is het belangrijk om in acht te nemen dat in deze studie de vergelijking tussen zzp'ers en werknemers centraal staat. Voor toekomstig onderzoek zou het relevant zijn om ook te bestuderen hoe de pensioneringspreferenties verschillen binnen de zeer diverse zzp-groep.

1. Introduction

Over the past two decades, the number of self-employed individuals without personnel has grown rapidly in various European countries (Hershey, Van Dalen, Conen, & Henkens, 2017). Despite public concerns around population aging, the sustainability of pension systems, and flexibilization of the labor market, relatively little is known about the retirement processes of self-employed workers. The literature on the retirement decision-making process focuses mainly on employees (for retirement studies among Dutch employees see, e.g., Damman, Henkens, & Kalmijn, 2011; De Wind et al., 2014; Montizaan, de Grip, & Fouarge, 2015; Van Solinge & Henkens, 2014). Prior studies that *do* look at differences between employees and self-employed workers have consistently shown that the self-employed are more likely to expect to (Lee, 2008) and to actually retire later than employees (e.g., Lee & Lee, 2013; Radl, 2013; Visser, Gesthuizen, Kraaykamp, & Wolbers, 2016), and suggest that a longer career in self-employment is associated with a higher likelihood of working for pay while also receiving a pension income (Dingemans & Möhring, 2018). Additionally, self-employed workers are more likely to report uncertainty about their future retirement age compared to employees (Cobb-Clark & Stillman, 2009; Ekerdt, Hackney, Kosloski, & DeViney, 2001).

As employment status is usually not the focus of these earlier studies but is merely included as a control variable, there is still little knowledge about the theoretical mechanisms that can explain these differences between employees and the self-employed in terms of retirement processes. This study aims to fill this gap, by focusing on the role of job characteristics (flexibility, autonomy, skills-job match, and job insecurity) in explaining the differences in self-reported retirement timing preferences between self-employed individuals without personnel and employees in the Netherlands. The term "retirement timing preferences" refers here to the age up to which respondents indicate that they would like to continue working. As such, when talking about preferences in this study, we mean self-reported retirement preferences. The difference in retirement timing preferences between the self-employed and employees will be studied for all older workers together, and for the lower/middle educated and higher educated separately.

1.1 Theoretical mechanisms as suggested in the literature

One theoretical explanation for differences in retirement processes between employees and the self-employed that has often been mentioned in the literature emphasizes the relatively limited pension savings of the self-employed, which may

restrict their ability to consider timely retirement. The self-employed bear much more personal responsibility to save for retirement than employees (Hochguertel, 2010; Mastrogiacomo, 2016; Parker & Rougier, 2007; Van der Lecq & Oerlemans, 2009). In the Netherlands, the first pillar state pension scheme ("AOW") covers all Dutch residents who have reached the statutory retirement age. With regard to the second pillar pension, 91% of employees are covered on a quasi-mandatory basis by some form of collective occupational pension (OECD, 2015). The self-employed are generally not eligible for participation in these pensions (although they may have second pillar pensions from prior work as an employee) and may have to rely more on third pillar (private savings) and fourth pillar (personal assets, home ownership) sources (Zwinkels, Knoef, Been, Caminada, & Goudswaard, 2017). About one-third of Dutch self-employed individuals perceive that their pension savings and other income sources are not sufficient to live comfortably after retirement (Conen, Schippers, & Schulze Buschoff, 2016; Hershey et al., 2017). Recent studies based on Dutch administrative data have shown that among households consisting of self-employed individuals, the share that does not achieve an adequate pension (i.e., a replacement rate of 70%) is higher than among employee households (Zwinkels, Knoef, Been, et al., 2017; Zwinkels, Knoef, Caminada, Goudswaard, & Been, 2017). Hence, the self-employed may well be more likely to be financially unable to consider retirement than employees, and may consequently be inclined to continue working until a higher age or to report greater uncertainty about future retirement timing.

Another important theoretical explanation for differences in retirement processes between employees and the self-employed pertains to institutional structures. For employees the formal barrier of a mandatory retirement age is often stipulated in employment contracts or collective labor agreements (Bijlsma, Fouarge, & Montizaan, 2017). This implies that employees must retire at a given age (unless the employer wishes them to stay). If an employee wishes to continue to work beyond the mandatory retirement age, he/she would generally need to sign a new employment contract, which is frequently a fixed-term contract (Oude Mulders, Henkens, & Van Dalen, 2018). Furthermore, even among employees who were not formally confronted with mandatory retirement, there appear to be informal barriers that prevent prolonged employment (Oude Mulders et al., 2018). This institutional situation may provide the self-employed – who are not obliged to retire at a specific age – with more possibilities to continue working until a higher age than employees. It may, however, also result in relatively more uncertainty about future retirement timing among the self-employed, given that they are less on an institutionalized 'pathway' towards retirement than employees (Ekerdt et al., 2001).

Aside from these two explanations that have been frequently mentioned in the literature (i.e., financial resources and institutional structures), the self-employed also differ in other ways from employees, such as in terms of their job characteristics. Research has shown that the self-employed experience on average more self-directedness and flexibility in their work than employees (e.g., Hundley, 2002) but may also experience more job insecurity (Millán, Hessels, Thurik, & Aguado, 2013). As job characteristics such as these are among the main predictors of retirement processes (Fisher, Chaffee, & Sonnega, 2016; Wang & Schultz, 2010), we argue that job characteristics may partly explain the observed differences in retirement timing preferences between the self-employed and employees.

1.2 Contributions of current study

This study contributes to the literature in three main ways. First, we connect studies on differences between the self-employed and employees regarding job characteristics (e.g., Hundley, 2002; Millán et al., 2013) to the literature on retirement timing (e.g., Fisher et al., 2016; Wang & Schultz, 2010). As such, we will develop and test new theoretical expectations on the role of *specific* job characteristics in explaining differences in preferred retirement timing between employees and the self-employed. Relatively few studies have attended to the explanatory role of job characteristics. Exceptions include two South-Korean studies (Lee, 2008; Lee & Lee, 2013) and a Finnish study (Kautonen, Hytti, Bögenhold, & Heinonen, 2012); these show that differences in job satisfaction between employees and the self-employed partly explain why the self-employed are more likely to retire later. However, by focusing on overall job satisfaction, these studies cannot shed light on how *specific* job characteristics that are typically different for the self-employed and employees may contribute to differing retirement preferences. Furthermore, these studies were conducted in other country contexts than the Netherlands, and the findings cannot necessarily be generalized to the Dutch context. Hence, we will study the extent to which specific job characteristics – that is, flexibility, autonomy, and skills-job match – can explain differences between the self-employed and employees in preferred late retirement timing in the Netherlands.

Second, we focus on the role of uncertainty around prospective retirement. Specifically, anticipating the age at which one expects to leave the labor market tends to be easier for employees than for the self-employed. Empirical research conducted in the United States (Ekerdt et al., 2001) and Australia (Cobb-Clark & Stillman, 2009) has shown that the self-employed are more likely to report uncertainty about their envisioned age of retirement than employees. Nonetheless, most prior studies on

ideas about retirement timing pay relatively little attention to feelings of uncertainty. Frequently the “don't know” category is coded to missing by default. Also, little attention is paid to factors that explain differences in experienced uncertainty between the self-employed and employees. We treat uncertainty as a substantive category of interest. We will examine for the Dutch context whether the self-employed are more likely to report uncertainty about their preferred retirement age than employees. In addition, we introduce job insecurity as a potential mediator for the relationship between self-employment and uncertain retirement preferences.

Third, the self-employed can be found in different segments of the labor market and are known to be a highly diverse group (e.g., Conen et al., 2016). This raises the question whether differences between the self-employed and employees in terms of retirement preferences can be found across the entire employment spectrum. To improve our understanding of this question, we will not only study differences in retirement preferences between the self-employed and employees among all older workers together, but also explore the educational gradient, by performing the analyses separately for lower/middle and higher educated individuals. By taking this approach we aim to explore whether differences in (1) retirement preferences and (2) job characteristics between the self-employed and employees can be found among both lower/middle and higher educated older workers, and (3) whether the differences in terms of job characteristics can partly explain differences in retirement preferences among both lower/middle and higher educated individuals.

1.3 Data and context

For this study, Dutch survey data from the Study on Transitions in Employment, Ability and Motivation (STREAM) collected in 2016 are used (see Ybema et al., 2014); these include information about both self-employed workers and employees. We specifically focus on retirement preferences of the self-employed without personnel (versus employees), because our theoretical expectations about flexibility, autonomy, skills-job match, and job insecurity are expected to apply most directly to this group. Merging the self-employed with and without personnel would therefore blur our research findings. The STREAM data do not contain enough self-employed respondents with personnel to examine them separately. This reflects the current situation on the Dutch labor market, where about 75% of the self-employed do not employ personnel (Statistics Netherlands, 2019).

The Netherlands is an interesting case for studying the group of self-employed workers without personnel. The percentage of these self-employed workers in the Dutch working population is presently close to the European average. However,

hardly any other European country has shown as large an increase in the number of self-employed without personnel over the past several decades (Conen et al., 2016). More specifically, within the Dutch labor force, the percentage of self-employed without personnel increased from 8% in 2003 to approximately 12% in 2018 (Statistics Netherlands, 2019). For the sake of brevity, in the remainder of this paper we use the term “self-employed” to refer to self-employed individuals without personnel.

Retirement policies have undergone major changes in the Netherlands in recent years. In response to the aging of the population, early exit routes have been abolished, and the state pension age has been increased and is being linked to life expectancy, in order to keep the pension system financially sustainable. In 2012 it was decided to gradually raise the state pension age from 65 to 67 by the year 2023. In 2015 it was agreed to speed up this process from 2016 onwards, so that the state pension age of 67 would be reached in 2021. However, in the 2019 Pension Agreement it was decided to slow down this process. The state pension age will now be age 67 in 2024, and it is less strongly attached to increases in life expectancy than before (a one-year increment in life expectancy results in eight months' increase of the state pension age). The data analyzed in this study were collected in 2016; at that time the state pension age was still planned to be 67 years by 2021.

The policy reforms that discouraged early retirement have driven an increase in labor force participation among older individuals (Visser, 2017). Whereas in 2003 the net labor market participation in the 60–64 years age category was 22%, this increased to 58% by 2018. The net labor market participation has been increasing also in the 65–69 years age category, although it still remains a relatively small group (about 17% in 2018). Among individuals who continue working until a relatively older age, a considerable percentage is self-employed. Whereas among those 55–59 years old about 14% are self-employed, this is 36% in the 65–69 years age category and 48% in the 70–74 years age category (Statistics Netherlands, 2019). These Dutch statistics do not necessarily imply, however, that the self-employed work until a much higher age than employees, because these statistics also capture employees who re-enter the labor market after retirement on a self-employed basis (e.g., see Van Solinge, 2014). By focusing on retirement timing preferences of workers in the 45–64 years age category who do not receive any pension benefits, this study examines whether and why the self-employed on average prefer to continue working until a higher age than employees.

2. Theoretical framework

In this section, study hypotheses are deduced by linking theoretical ideas and empirical findings from the retirement literature, with empirical insights from the literature on job characteristics.

2.1 Retirement timing and its predictors

As mentioned in the classic work by Beehr (1986), individuals first think about retirement (preference) and then make the decision to retire (intention), all this happening before they actually retire (behavior). Also in more recent studies, such as that by Solem et al. (2016), ideas about retirement timing are conceptualized before actual behavior takes place. These authors distinguish between different levels of firmness of ideas about retirement timing: considerations about continued work, preferences for a self-specified retirement age, and decisions to retire at a specific age. Our study focuses on one aspect of the retirement decision-making process, namely retirement timing preferences, indicating the age up to which individuals would like to continue working. Given that individuals may not always be able to realize their preferred or even intended retirement age due to unexpected changes in late-career opportunity structures (resulting, for example, in involuntary retirement, see Van Solinge & Henkens, 2007), it can be expected that “the typical predictors of retirement might have greater power in explaining the preference to retire than in explaining the actual act of retirement” (Beehr, 1986, p.46).

In the retirement literature, preferred retirement timing is often implicitly or explicitly conceptualized as the outcome of an informed decision-making process (Van Solinge & Henkens, 2014). Older workers are assumed to evaluate the costs and benefits (or push and pull factors) of their current work situation as well as of their expected non-work situation after retirement. Based on a comparison of the overall utility of retirement relative to work – thereby taking constraining factors into account – individuals form their ideas about whether and when they would prefer to retire (Wang & Schultz, 2010). Different factors are theorized to affect the retirement decision-making process (Fisher et al., 2016; Wang & Schultz, 2010): 1) individual antecedents (e.g., health, economic status), 2) job antecedents (e.g., job characteristics, training opportunities), 3) family antecedents (e.g., marital status, caregiving responsibilities), and 4) macroeconomic antecedents (e.g., labor market opportunities). In this study, the main focus lies on job antecedents, while controlling for various individual and family antecedents.

2.2 The explanatory role of job characteristics

Job factors are among the main predictors of retirement processes (Fisher et al., 2016; Wang & Schultz, 2010). In simple terms, the general idea is that desirable job factors will motivate workers to continue working, while undesirable job factors will push workers toward retirement (Fisher et al., 2016). This rational choice framework generally assumes that workers have comprehensive and adequate information about themselves and their work situation when forming retirement preferences (Wang & Schultz, 2010). However, it is likely that only when workers can, to some extent, over-see their future work situation and think (and plan) ahead, will they be able to orient themselves about a specific age at which to retire (Ekerdt et al., 2001). Hence, certain job features – such as job insecurity – may relate to uncertainty around retirement or the absence of specific retirement timing preferences.

As mentioned above, we expect the self-employed to prefer to retire later and experience more uncertainty around their prospective age of retirement than employees (e.g., Cobb-Clark & Stillman, 2009; Ekerdt et al., 2001; Lee, 2008; Visser et al., 2016). In the following paragraphs, expectations are deduced about how these differences in retirement preferences between the self-employed and employees can be partly explained by job characteristics. Specifically, we expect that “desirable” job features – i.e., flexibility, autonomy, and skills-job match – mediate the relationship between self-employment and late retirement preferences, while the lack of job security, which may characterize self-employment, might partly explain the more common uncertain retirement preferences among the self-employed as compared to employees.

2.2.1 Flexibility

Self-employed persons may – on average – prefer to stay longer in the labor force than employees due to the more flexible nature of their work. Workplace flexibility can be conceptualized with three related processes: “the ability of workers to make choices influencing *when*, *where*, and for *how long* they engage in work-related tasks” (Hill et al., 2008, p. 152, emphasis added). The extent of workplace flexibility may differ considerably between employees and the self-employed. The self-employed are generally more in control of their work situation than employees; consequently they will on average have more opportunities to work from home, to work during irregular working hours, and to work more or fewer hours per week (Devaney & Kim, 2003; Lee & Lee, 2013; Radl, 2013). Workers are generally assumed to be more motivated and engaged when they are in a better position to meet their personal needs and to shape the conditions under which they work, by exercising flexibility

(Hill et al., 2008). Consequently, perceived flexibility in terms of work location, schedule, and the number of working hours is likely to promote continued employment (Fisher et al., 2016).

Additionally, high flexibility in the number of working hours among the self-employed can make phased retirement easier for them than for employees. Due to labor market rigidities, it can be difficult for employees to reduce the number of hours that they work in their current job, causing them to retire earlier than they would if gradual retirement were an option (Lee, 2008; Lee & Lee, 2013). Self-employment generally offers more opportunities to adjust one's working hours (Devaney & Kim, 2003; Lee & Lee, 2013; Radl, 2013). Hence, the self-employed may postpone full retirement by gradually reducing their working hours as they grow older, and they may therefore be more likely to consider late retirement compared to employees (Devaney & Kim, 2003). **Hypothesis 1:** *(a) the self-employed perceive their job to be more flexible than employees, which (b) partly explains why the self-employed are more likely to prefer to retire late than employees.*

2.2.2 *Autonomy*

Self-employed individuals generally perceive their jobs to be more "autonomous" than employees (Hundley, 2002). Autonomy is about self-directedness in the content of work-related tasks. Broadly speaking, job autonomy relates to what Benz and Frey (2008a, 2008b) call "procedural utility". This conceptualization of utility differs from the "classic" economic definition in its assumption that not only the outcomes (such as income) are valued, but also the processes and conditions leading to those outcomes. Following this line of reasoning, the self-employed tend to experience high levels of self-determination and freedom in their work, whereas employees – especially those working in large companies – are subject to a hierarchical authority and are expected to obey their supervisors. The autonomy experienced by the self-employed provides them with "procedural utility", resulting in a higher level of job satisfaction. That in turn is an important determinant of retirement preferences (for a meta-analysis see Topa, et al., 2009): if someone enjoys his or her work, it is reasonable to assume that such person prefers to retire relatively late (Kautonen et al., 2012). **Hypothesis 2:** *(a) the self-employed experience more autonomy in their work than employees, which (b) partly explains why the self-employed are more likely to prefer to retire late than employees.*

2.2.3 Skills-job match

The third job characteristic that may be of importance is the degree to which a person's skills are utilized in the current job. There are two forms of skill mismatches: individuals can either experience a) that their current job does not offer them sufficient opportunities to utilize their knowledge and skills (skill underutilization), or b) that they lack some of the skills required to perform well (skill deficits) (Allen & Van der Velden, 2001; Groot & Maassen van den Brink, 1999). Self-employment might provide for a better match between the skills of individuals and the requirements of their jobs. As self-employed workers tend on average to be in a better position to "design" their job in such a way that it matches the skills they possess and wish to use in the labor market (Hundley, 2002), they are less likely to experience skill underutilization and skill deficits than employees. Prior research among American workers finds empirical support for this link, related to one type of skill mismatch (i.e., skill underutilization), and shows that the self-employed are less likely to experience that their skills are unused (Hundley, 2002).

When a worker's skills do not match his or her job, such person tends to become frustrated and less satisfied with the job (Hundley, 2002). Both the experience of skill underutilization and skill deficits have been found to reduce workers' job satisfaction, but the effect of skill deficits appears to be less strong and consistent across studies (Allen & De Weert, 2007; Allen & Van der Velden, 2001; Badillo-Amador & Vila, 2013). Following the general reasoning that desirable job factors will motivate workers to stay in the labor market and to postpone retirement (Fisher et al., 2016), the better skills-job match among the self-employed may partly explain the difference in late retirement preferences between the self-employed and employees. **Hypothesis 3:** *(a) the self-employed experience a better match between their skills and their current job than employees, which (b) partly explains why the self-employed are more likely to prefer to retire late than employees.*

2.2.4 Job security

Job security refers to a person's evaluation of how much he or she feels that his or her current job is at risk (Hundley, 2002). It is commonly presumed that perceived job security is lower among self-employed workers than among employees. Self-employment is associated with lower levels of social security or employment protection, and the risk of business failure for self-employed workers is higher than the risk of becoming unemployed for employees (Millán et al., 2013). Empirical findings, however, are not conclusive on this. While prior cross-national comparative research pointed out that the self-employed are less satisfied with their current job in terms

of job security (Millán et al., 2013), other studies found no difference in job security between employees and the self-employed (Blanchflower, 2004), or showed that, in the United States, self-employed persons even perceive themselves as having greater job security compared to employees (Hundley, 2002). A tentative explanation for the latter finding is that self-employed workers derive a feeling of security from the idea that their future is in their own hands, and that they, unlike employees, cannot lose their job due to decisions made by a supervisor. Moreover, self-employment may attract individuals who score high on self-efficacy and have great confidence in the success of their business (Hundley, 2002). The Dutch labor market differs from the U.S. labor market in that the employment laws for dismissal are highly protective of employees (OECD, 2018). Hence, in this national context, we expect the self-employed to experience less job security than employees.

Prior empirical studies indicate that self-employed workers are more likely to report uncertainty about the age at which they will leave the labor market compared to employees (Cobb-Clark & Stillman, 2009; Ekerdt et al., 2001). However, this difference has not been specifically tested in relation to job security. Ekerdt et al. (2001) theorize that feelings of uncertainty may reflect a lack of "opportunity structures for anticipating retirement" (p. 163): as self-employed workers are less likely to have their career and retirement as strictly regulated and administrated as workers in bureaucratic employment, they tend to orient themselves less towards a specific retirement age. Related to the general argument that a set of circumstances can make future alternatives for retirement more or less conceivable (Ekerdt et al., 2001), we conceptualize job insecurity to be one of the circumstances that make it more difficult for workers to think (and plan) ahead. **Hypothesis 4:** *(a) the self-employed experience less job security than employees, which (b) partly explains why they experience more uncertainty regarding the preferred retirement age than employees.*

3. Data and methods

3.1 Data

We use survey data from the Study on Transitions in Employment, Ability and Motivation (STREAM), a longitudinal prospective cohort study among employees, self-employed workers and non-working people, aged 45 to 64 at baseline (2010), conducted in the Netherlands (for more information see Ybema et al., 2014). The STREAM data were collected via an internet panel; they do not constitute a representative sample of the Dutch population. The sample was stratified by initial employment status (employee, self-employed, non-employed) and age group. Within each of the design cells (employment status by age), the sample was intended to be representative of the Dutch population regarding educational level and gender (Ybema et al., 2014). As such, the sample is highly heterogeneous in terms of age, gender, and education. The current study is based on the wave of data collected in 2016 ($N = 14,734$).

The analytical panel is restricted in multiple ways. Key to our analysis is the comparison between the self-employed workers and the employees. Hence, observations of non-working persons ($N = 4,631$) and the self-employed with personnel ($N = 182$) were dropped. Furthermore, respondents older than 64 ($N = 642$) were excluded. Finally, respondents with a preferred retirement age below their actual age ($N = 19$), respondents who already received pension benefits ($N = 236$), and respondents with missing values on at least one of the independent variables ($N = 206$) were excluded. After these sample restrictions, our sample came to 8,818 observations, comprising information on 8,192 employees and 626 self-employed workers.

In the analyses we also separately studied lower/middle educated respondents and higher educated respondents. Level of education was measured by asking respondents about the highest level of education that they had completed with a diploma. The response options ranged from 1 (= no education/ primary education) to 7 (university). The group with lower/middle education includes scores 1 to 5 on the measure of education (e.g., including, LBO, MAVO, MBO). In this group, 4,849 respondents are employees and 293 are self-employed. The group with higher education refers to scores 6 and 7 on the measure of education (HBO and WO¹). In this group, 3,343 are employees and 333 are self-employed.

1 The group of higher educated respondents (scores 6 and 7) includes those who have a higher vocational education (HBO) or university (WO) diploma. All other educational levels (scores 1 to 5) are included in the lower/middle education group.

3.2 Variables

3.2.1 *Dependent variable*

Retirement preferences are measured with an open-ended question that asked respondents until what age they would like to continue working. Respondents could fill in a specific age but could also tick a box that they "don't know" yet. Preferred age of retirement is recoded into four categories: 1) *early* (< 65), 2) *on time* (≥ 65 and ≤ 67), 3) *late* (> 67), and 4) *uncertain* ("don't know"). As the state pension age was 65 years for decades (until the recent policy reform in 2012), the age of 65 is likely to still form an "age norm" – i.e., the "normal" retirement age that serves as a pervasive blueprint for retirement decision-making processes (Radl, 2012). Hence, even though for individuals born after April 30, 1954, for whom the state pension age was planned to be 67 or higher and a preferred retirement age of 66 could also be considered as "early", we argue that the age norm of 65 is still so prevalent and the knowledge of the bulk of the Dutch population about the projected age at which they will receive their state pension is so limited (Henkens, Van Dalen, & Van Solinge, 2019), that we define a preferred retirement age before the age of 65 as early, and between age 65 and 67 as on time. The upper boundary of 67 has been chosen because, at the time of data collection, it was known that the state pension age would be increased to 67 in 2021. Also, the distribution of preferred retirement age clearly peaks at age 65 and age 67 – that is, at the ages that are often mentioned in public debates about raising the state pension age (see descriptive findings in Section 4.1).

3.2.2 *Independent variables*

A dichotomous variable was used to distinguish between the self-employed (= 1) and employees (= 0). In case the respondent indicated being both an employee and self-employed, which is the case for 3% of the sample, such person is categorized based on the job which involves the most hours worked.

The main mediating variables of interest are the job characteristics: flexibility, autonomy, skills-job match, and job security. Flexibility is measured based on three items that refer to the three dimensions of flexibility (i.e., where, when, and for how long to work). A dichotomous variable indicates whether respondents believe that it is possible for them to work from home (= 1) or not (= 0) (*where*). Two categorical variables indicate the extent to which respondents perceive that the "opportunity to determine one's own working hours" (*when*), and the "opportunity to work part-time" (*for how long*) are present in their current job. The original four categories were dummy coded, with the value 1 referring to the specific aspect of flexibility being

"*highly present*". The overall flexibility measure was constructed by taking the sum score of these three flexibility indicators. Higher scores on this measure (ranging from 0 to 3) refer to more types of flexibility being present.

Autonomy is measured with a scale variable, based on four items: 1) "Are you able to decide for yourself how to do your work?" 2) "Are you able to decide for yourself in which order to do your work?" 3) "Are you able to influence the pace at which you work?" and 4) "Do you need to come up with solutions yourself?". All items initially ranged from 1 (*always*) to 5 (*(almost) never*) and are reversed before calculating the mean score (Cronbach's alpha = 0.82). Consequently, the higher the score on this scale (ranging from 1 to 5), the more autonomy the respondent experiences in his or her job.

Skills-job match is measured with a dichotomous variable indicating whether respondents think their knowledge and skills match well (= 1), or poorly, fairly or moderately (= 0) with their current job.

Limited job security is measured with an item indicating the extent to which the respondent perceives "good job security" to be present. The initial four categories were dummy coded, with value 1 reflecting that good job security is "*not present at all*".

Based on previous research (e.g., Cobb-Clark & Stillman, 2009; Ekerdt et al., 2001), we control for various variables that may correlate with employment status and that may influence retirement preferences. Specifically controlled for are gender (1 = *female*), age, subjective health, living with a partner (1 = *yes*), weekly working hours, sector, having multiple jobs, and the financial possibility to retire early. General subjective health ranges from 1 (*poor*) to 5 (*excellent*). Weekly working hours reflect the number of hours that respondents actually work per week, including overtime hours. The responses were top-coded to 50. To measure sector of work, respondents were asked to indicate in which category their company or institute fits best. The response categories were recoded into three broad sectors: 1) *industry/trade* (e.g., manufacturing, electricity/gas/water supply, construction, agriculture, transport); 2) *services* (e.g., financial institutions, business services, education, healthcare, public administration); and 3) *other*. The dummy variable for multiple jobs indicates whether the respondent is both an employee and self-employed (1 = *yes*). The financial possibility to retire early was measured by means of the question "Could you financially afford to stop working before the official retirement age?" The response options are (1) *yes*, (2) *no* and (3) *don't know*.

3.3 Methods

To examine the relationships between self-employment, job characteristics, and preferred retirement age, multivariate multinomial logistic regression models are used, in which the preference to retire “on time” is the reference category. In Model 1, the dependent variable that measures retirement preferences (early, late, and uncertain) is studied in relation to the central independent variable that indicates employment status (i.e., self-employed workers versus employees) and control variables. In Model 2, we add the hypothesized mediating variables, that is, all measures of job characteristics. We used the Karlson–Holm–Breen (KHB) method to make the coefficients comparable across models and to test the indirect effects (see technical appendix for an explanation). The results of the full sample are presented in Section 4. In Section 5 we present the findings separately for lower/middle educated and higher educated older workers.

4. Results: full sample

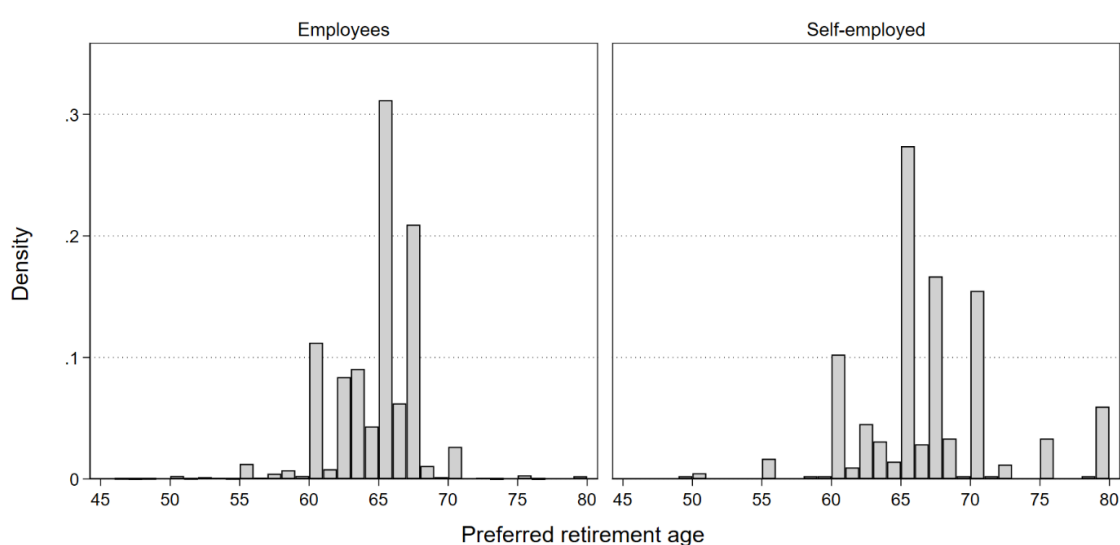
In this section the relationships between self-employment, job characteristics, and retirement preferences are examined for the full sample. First, we describe differences in retirement preferences between the self-employed and employees (see 4.1). Second, we look at the differences in perceived job characteristics between the self-employed and employees (see 4.2). Third, we examine differences in retirement preferences between the self-employed and employees in a multivariate model and test the explanatory role that job characteristics may play (see 4.3).

4.1 Differences in retirement preferences

Figure 1 presents the distribution of preferred retirement age by employment status (top-coded to 80, excluding "don't know" responses). This figure highlights that both distributions show peaks at age 65 and 67, suggesting that these ages – which play a central role in the policy discussions – act as reference points for many Dutch workers, whether wage-employed or self-employed. On average, the self-employed workers prefer to retire 2.20 years later than employees; $t(440.01) = -8.53, p < 0.001$.

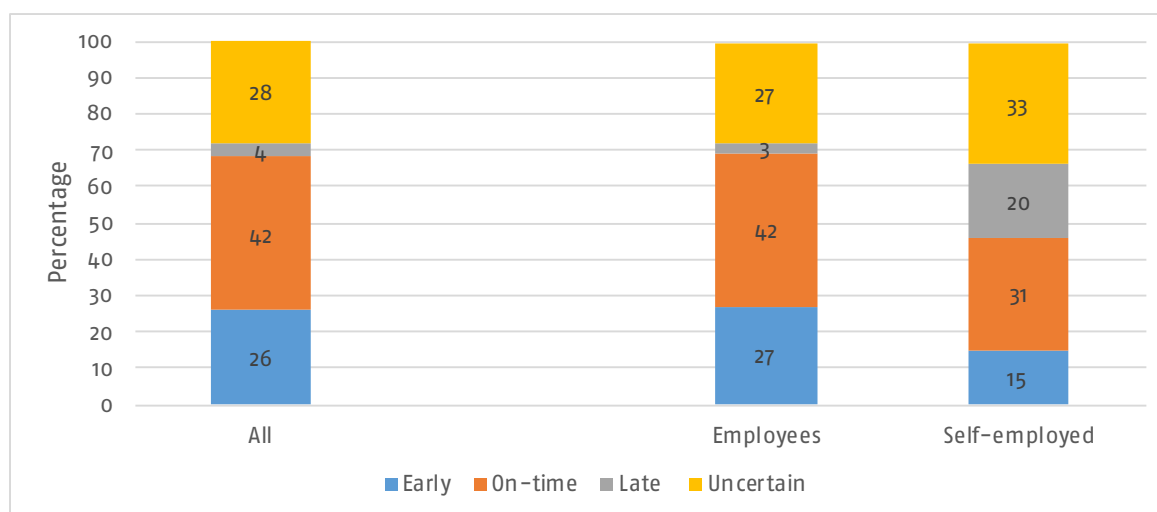
Figure 2 provides descriptive statistics of the categorical retirement preferences measure for the full sample. It is worth noting that a considerable number of respondents (28%) does not specify the age at which they prefer to retire but chooses the "don't know" response option instead. There is a significant relationship

Figure 1. *Distribution of preferred retirement age by employment status.*



Note: Preferred retirement age is top-coded to 80. $N = 6,385$ (5,965 employees, 420 self-employed) after excluding "uncertain" retirement preferences (i.e., "don't know"-category).

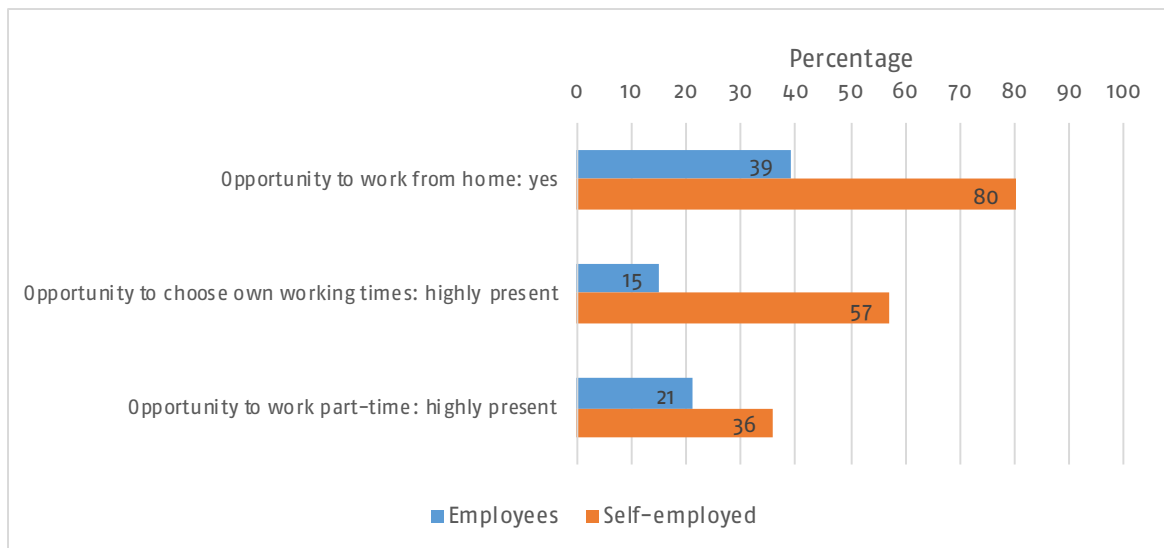
Figure 2. *Distribution of categorical preferred retirement age measure for all respondents and by employment status.*



between our categorical measure of retirement preferences – distinguishing between early, on-time, late, and uncertain preferences – and self-employment status, $\chi^2(3) = 420.29$, $p < 0.001$. For instance, about 20% of the self-employed prefer to retire late, versus 3% of the employees. About 33% of the self-employed do not know until what age they would prefer to continue working; among employees this is 27%.

4.2 Differences in job characteristics

Self-employed workers and employees appear to differ considerably in terms of their perceived job characteristics. Table Appendix 1 shows the summary statistics for the control variables and job characteristics for all respondents together and by employment status. As expected in *hypothesis 1a*, self-employed workers and employees differ significantly in terms of perceived workplace flexibility. When looking separately at the indicators of flexibility in terms of *where*, *when* and *for how long* the work is done (see Figure 3), clear dissimilarities can be observed, in particular regarding work location and work schedule. For instance, whereas 80% of the self-employed workers perceive having the opportunity to work from home, this is the case among 39% of the employees. About 57% of the self-employed say that the opportunity to choose their own working hours is highly present, compared to 15% of the employees studied. Furthermore, about 36% of the self-employed say that the opportunity to work part-time is highly present, while among employees this is 21%. In total, when taking the sum of these indicators as an aggregate measure of workplace flexibility, the self-employed workers appear to experience more workplace flexibility than employees ($t(692.50) = -23.08$, $p < 0.001$). On average, the self-employed have access

Figure 3. *Indicators of workplace flexibility by employment status*

to somewhat less than two out of these three flexibility indicators (mean score is 1.72); for employees this is less than one (mean score is 0.75).

As predicted by *hypothesis 2a*, self-employed workers on average tend to experience more autonomy in their work, the mean difference on the autonomy scale between the self-employed and employees being 0.69; $t(807.66) = -27.92, p < 0.001$. When looking at the autonomy indicators separately (see Figure 4), we also clearly see that the self-employed are more likely to perceive having autonomy about different aspects of their work than the employees. About 90% of all self-employed individuals indicate that they are always or often able to decide themselves about their work order, pace, and solutions. Among employees the percentages are lower on all autonomy indicators.

Figure 4. *Indicators of autonomy by employment status (always/often percentages combined).*

The expected difference between self-employed workers and employees with respect to skills–job match (*hypothesis 3a*) is less pronounced but in the expected direction, with 83% of the self-employed and 75% of the employees reporting a good skills–job match ($z = -1.84, p < 0.05$). Finally, in accordance with *hypothesis 4a*, the self-employed workers on average perceive to have less security in their current job compared to employees ($z = -4.64, p < 0.001$); 27% of the self-employed perceive to have limited job security, versus 8% of the employees (see Table Appendix 1).

4.3 Multivariate findings

Table 1 presents the results of the multinomial logistic regression models, displayed as KHB-corrected coefficients (Kohler, Karlson, & Holm, 2011; see technical appendix). The reference category of the dependent variable is having on-time retirement preferences.

The results of Model 1 show that, when considering the control variables, self-employed workers are more likely to have late or uncertain (vs. on-time) retirement preferences than employees. With respect to the control variables, most effects are in the expected direction and remain stable across models. The results show that respondents who are male, younger, in good health, working fewer hours, working in the services sector, and with multiple jobs are relatively likely to prefer to retire late (vs. on-time). As to uncertain retirement preferences, the findings show that respondents who are female, younger, in poor health, working fewer hours, working in the industry/trade sector, and uninformed whether they have the financial possibility to retire early are relatively likely to report such preferences (vs. on-time).

In Model 2, the job characteristics are added. In line with our expectations, having more workplace flexibility is positively related with late retirement preferences. However, contrary to what we expected, we find that autonomy and skills–job match were not associated with late retirement preferences. The variables show a significant negative relationship, however, with early retirement preferences. Individuals who experience more autonomy and have a better skills–job match are less likely to prefer to retire early (vs. on-time). It is also worth noting that limited job security is positively associated with both early and late retirement preferences. This suggests that, if we had treated preferred retirement age as a continuous variable, we would not have captured these nuances. As expected, workers experiencing limited job security are slightly more inclined to report uncertainty about prospective retirement ($p < .10$) compared to workers in highly secure jobs. Another job feature, that of autonomy, is negatively associated with uncertain retirement preferences.

Table 1. Multinomial logit models to explain retirement timing preferences by employment status, control variables, and job characteristics (KHB-corrected coefficients).

	Model 1			Model 2		
	Employment status and control variables			Adding job characteristics		
	Early	Late	Uncertain	Early	Late	Uncertain
Employment status						
Self-employed	-0.25 ⁺ (0.13)	2.07 ^{***} (0.14)	0.54 ^{***} (0.11)	-0.25 ⁺ (0.14)	1.74 ^{***} (0.15)	0.58 ^{***} (0.12)
Control variables						
Female	0.16 [*] (0.07)	-0.69 ^{***} (0.13)	0.75 ^{***} (0.07)	0.17 [*] (0.07)	-0.67 ^{***} (0.14)	0.76 ^{***} (0.07)
Age	-0.08 ^{***} (0.01)	-0.04 ^{***} (0.01)	-0.09 ^{***} (0.01)	-0.08 ^{***} (0.01)	-0.04 ^{***} (0.01)	-0.09 ^{***} (0.01)
Subjective health	-0.23 ^{***} (0.03)	0.25 ^{***} (0.06)	-0.10 ^{**} (0.03)	-0.21 ^{***} (0.03)	0.23 ^{***} (0.07)	-0.08 [*] (0.03)
Living with a partner	0.14 [*] (0.07)	-0.18 (0.13)	0.05 (0.07)	0.17 ^{**} (0.07)	-0.17 (0.13)	0.07 (0.07)
Weekly working hours	-0.00 (0.00)	-0.01 [*] (0.01)	-0.03 ^{***} (0.00)	0.00 (0.00)	-0.01 [*] (0.01)	-0.03 ^{***} (0.00)
<i>Sector (ref. = Industry/Trade)</i>						
Services	0.16 [*] (0.06)	0.46 ^{***} (0.13)	-0.22 ^{***} (0.06)	0.17 ^{**} (0.07)	0.36 ^{**} (0.14)	-0.20 ^{**} (0.07)
Other	-0.18 ⁺ (0.10)	0.11 (0.20)	0.06 (0.09)	-0.16 (0.10)	0.05 (0.20)	0.08 (0.09)
Multiple jobs	0.28 (0.19)	1.42 ^{***} (0.23)	0.35 ⁺ (0.18)	0.27 (0.19)	1.37 ^{***} (0.23)	0.36 [*] (0.18)
<i>Financially able to stop (ref. = Can stop early)</i>						
Cannot stop early	-1.18 ^{***} (0.07)	0.04 (0.13)	-0.16 [*] (0.07)	-1.21 ^{***} (0.07)	0.10 (0.14)	-0.18 [*] (0.07)
Don't know	-0.64 ^{***} (0.07)	-0.17 (0.17)	0.20 [*] (0.08)	-0.64 ^{***} (0.07)	-0.12 (0.17)	0.19 [*] (0.08)
Job characteristics						
Flexibility				0.05 (0.03)	0.26 ^{***} (0.06)	-0.01 (0.03)
Autonomy				-0.15 ^{***} (0.04)	0.03 (0.09)	-0.09 [*] (0.04)
Skills-job match				-0.21 ^{**} (0.07)	0.00 (0.14)	-0.11 (0.07)
Limited job security				0.38 ^{***} (0.10)	0.30 ⁺ (0.17)	0.18 ⁺ (0.10)
Constant	5.36 ^{***} (0.37)	-0.76 (0.72)	5.37 ^{***} (0.36)	5.71 ^{***} (0.39)	-1.13 (0.77)	5.61 ^{***} (0.38)
N	8,818			8,818		

Source: STREAM, wave 6 (2016), own calculations.

Note: Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

To examine whether the statistically significant effect of self-employment on late retirement preferences can partly be explained by the job characteristics studied, we compare the coefficients of Models 1 and 2. After inclusion of the job characteristics, the positive coefficient of self-employment on late retirement preferences drops in effect size. This suggests that the job features together explain part of the relationship between self-employment and late retirement preferences. To formally test the indirect effect of self-employment on late retirement preferences through the job characteristics, we conduct a KHB mediation analysis (see technical appendix for details). For late retirement preferences the indirect effect is found to be statistically significant. About 16% of the total effect of self-employment on late retirement preferences results from the job characteristics studied. A decomposition analysis shows that especially workplace flexibility is important in mediating the effect of self-employment on late (vs. on-time) retirement preferences, which supports *hypothesis 1b*. Our results do not support the predicted mediating roles of autonomy (*hypothesis 2b*) and skills-job match (*hypothesis 3b*).

For uncertain retirement preferences, the results in Table 1 show that the effect of self-employment does not decrease when comparing Models 1 and 2. This suggests that the job characteristics *together* do not seem to play a mediating role for uncertain retirement preferences; this may be because of opposing effects of specific job characteristics (positive for limited job security, negative for autonomy). When only including limited job security in the model (and leaving flexibility, autonomy, and skills-job match out), the effect of limited job security is statistically significant, and the effect of self-employment does decrease slightly across models. An additional KHB analysis, in which only job security is included as a mediator, shows that 7.51% of the effect of self-employment on experiencing uncertainty around retirement is explained by limited job security (effect of self-employment in reduced model = 0.54; in full model = 0.50; difference = 0.04, $p < 0.05$).

5. Results: by educational level

This section describes the relationships between self-employment, job characteristics, and retirement preferences for lower/middle and higher educated respondents separately. The core question is whether, among both workers with lower/middle education and workers with higher education, those self-employed differ from employees in terms of their retirement preferences (see 5.1) and job characteristics (see 5.2). Furthermore, we test in separate multivariate models for both lower/middle and higher educated workers whether the differences in retirement preferences between the self-employed and employees can partly be explained by the job characteristics studied (see 5.3).

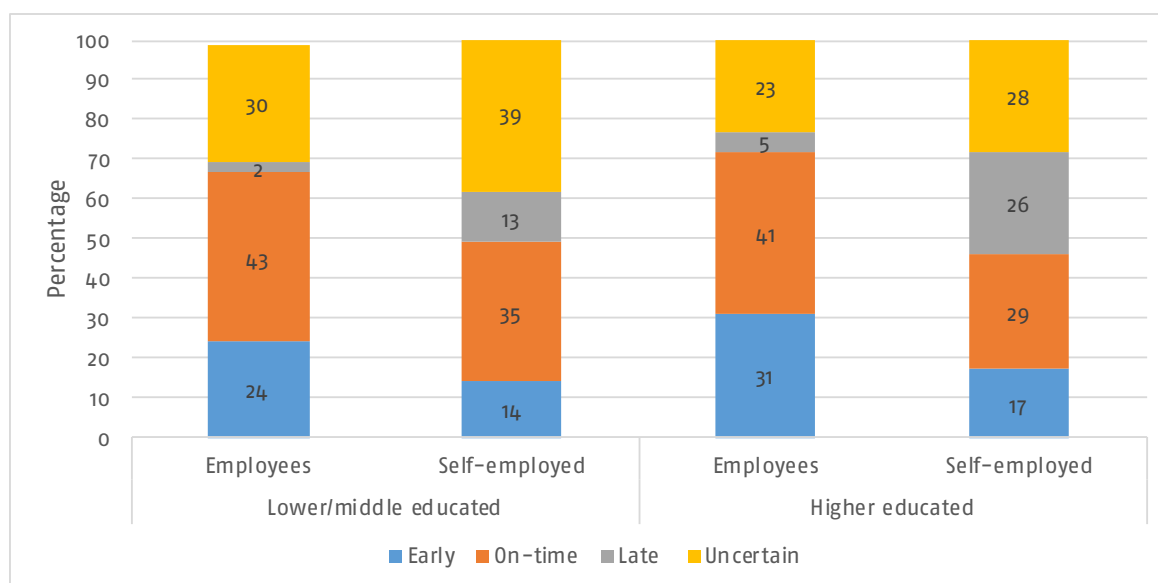
5.1 Differences in retirement preferences

Figure 5 presents the categorical measure of preferred retirement age for lower/middle and higher educated respondents separately and split by employment status. A general observation based on the figure is that, both among lower/middle educated workers ($\chi^2(3) = 142.03$, $p < 0.001$) and higher educated workers ($\chi^2(3) = 236.25$, $p < 0.001$), the retirement preferences of the self-employed differ significantly from those of employees. In both groups of workers, the self-employed are relatively likely to prefer to retire late and to be uncertain about retirement preferences (see also Table Appendix 2).

The findings for the lower/middle educated workers can be found on the left-hand side of the figure. Among lower/middle educated employees, about 2% prefer to retire after the age of 67. This is the case among 13% of the lower/middle educated self-employed workers, showing a higher inclination to retire relatively late. Furthermore, among these self-employed workers, the uncertainty about the preferred age of retirement is relatively high: 39% of them do not know yet until what age they prefer to continue working, versus 30% among employees. When only focusing on respondents who did report a specific preferred retirement age, the lower/middle educated self-employed workers prefer to retire on average 1.6 years later than lower/middle educated employees, $t(187.71) = -4.77$, $p < 0.001$.

The findings for the higher educated workers can be found on the right-hand side of the figure. Among the higher educated employees, about 5% prefer to retire late. Among higher educated self-employed workers this share is much higher: about one out of four prefer to retire after the age of 67 (26%). The uncertainty about the preferred retirement age of the higher educated self-employed is somewhat higher (28%) than among higher educated employees (23%). When only focusing on

Figure 5. *Distribution of categorical preferred retirement age measure by educational level and employment status.*



respondents who did report a specific age of preferred retirement, the self-employed workers with higher education prefer to retire on average 2.63 years later than employees with higher education, $t(253.49) = -7.05, p < 0.001$.

5.2 Differences in job characteristics

There are considerable differences in job characteristics between employees and self-employed workers, both within the group with lower/middle education and the group with higher education. The descriptive findings are presented in Table 2.

Among the lower/middle educated workers, the score on the flexibility measure appears to be considerably higher for those self-employed than for employees, $t(310.99) = -14.98, p < 0.001$. A similar pattern can be observed for autonomy. The difference on the autonomy scale is 0.76; $t(355.29) = -19.45, p < 0.001$. In terms of skills-job match, employees and self-employed do not differ significantly from each

Table 2. *Descriptive statistics of job characteristics by educational level and employment status (mean scores and percentages).*

	Lower/middle educated respondents		Higher educated respondents	
	Employee	Self-employed	Employee	Self-employed
Flexibility	0.54	1.49	1.06	1.93
Autonomy	3.64	4.41	3.88	4.45
Skills-job match	74%	78%	76%	86%
Limited job security	8%	20%	7%	33%
N	4,849	293	3,343	333

other, with 74% of the lower/middle educated employees reporting a good skills–job match and 78% of self-employed workers reporting such ($z = -0.69, p > 0.05$). With regard to job security, it can be seen that among the self-employed the share of individuals experiencing limited job security (20%) is considerably higher than among employees (8%) in the lower/middle educated group ($z = -2.04, p < 0.05$).

When looking at the workers with higher education, also clear differences in terms of job characteristics between the self-employed and employees can be seen. In terms of flexibility the self-employed on average have access to two out of three flexibility indicators studied, whereas among employees this is on average about one out of three ($t(389.45) = -16.17, p < 0.001$). The higher educated self-employed workers score on average 0.57 higher on the autonomy scale than employees ($t(444.37) = -18.51, p < 0.001$). Also in terms of skills–job match the self-employed score higher than employees. About 76% of higher educated employees report having a good skills–job match, versus about 86% among the higher educated self-employed workers ($z = -1.80, p < 0.05$). When looking at limited job security, the difference between the employees and self-employed is also clearly visible and statistically significant ($z = -4.44, p < 0.001$). While among the higher educated employees 7% indicate that job security is “not present at all”, this response is given by 33% of the higher educated self-employed individuals.

5.3 Multivariate findings

Table 3 shows the results of the multinomial logistic regression models, presented as KHB-corrected coefficients. The reference category of the dependent variable is having on-time retirement preferences. The upper panel presents the findings for the lower/middle educated respondents. For this group it should be noted that the number of respondents who prefer to retire after age 67 is relatively small (3%, $n = 142$). The lower panel shows the findings for the higher educated participants. Here the group that prefers late retirement is larger (7%, $n = 254$). The control variables are taken into account in all models.

The results of Model A1 show that among the respondents with lower/middle education, the self-employed are more likely to have late or uncertain (vs. on-time) retirement preferences than employees, when taking the control variables into account. In Model A2, the job characteristics are added to the model. Contrary to our expectations, none of the studied job characteristics was significantly related to late retirement preferences among the lower/middle educated respondents. Also for uncertain retirement preferences, the findings were not in line with our hypothesis. This implies that the job characteristics cannot play the expected mediating role

Table 3. Multinomial logit models to explain retirement timing preferences of lower/middle educated respondents (upper panel) and higher educated respondents (lower panel) by employment status, control variables, and job characteristics (KHB-corrected coefficients).

	Model A1			Model A2		
	Employment status and control variables			Adding job characteristics		
	Early	Late	Uncertain	Early	Late	Uncertain
LOWER/MIDDLE EDUCATED						
<i>Employment status</i>						
Self-employed	-0.32 (0.20)	2.06*** (0.22)	0.52*** (0.15)	-0.24 (0.20)	1.99*** (0.25)	0.63*** (0.16)
<i>Job characteristics</i>						
Flexibility				0.01 (0.05)	0.18 (0.11)	-0.06 (0.05)
Autonomy				-0.13** (0.05)	-0.15 (0.12)	-0.10* (0.04)
Skills-job match				-0.30*** (0.09)	-0.02 (0.21)	-0.08 (0.08)
Limited job security				0.18 (0.14)	0.10 (0.29)	0.19 (0.13)
Constant	5.94*** (0.50)	-1.16 (1.14)	5.58*** (0.46)	6.31*** (0.52)	-0.82 (1.20)	5.86*** (0.48)
N	5,142			5,142		
	Model B1			Model B2		
	Employment status and control variables			Adding job characteristics		
	Early	Late	Uncertain	Early	Late	Uncertain
HIGHER EDUCATED						
<i>Employment status</i>						
Self-employed	-0.25 (0.18)	2.03*** (0.18)	0.54*** (0.16)	-0.31 (0.19)	1.64*** (0.20)	0.52** (0.17)
<i>Job characteristics</i>						
Flexibility				0.06 (0.05)	0.19* (0.08)	0.04 (0.06)
Autonomy				-0.23** (0.07)	0.26+ (0.14)	-0.05 (0.08)
Skills-job match				-0.06 (0.10)	-0.02 (0.19)	-0.17 (0.11)
Limited job security				0.57*** (0.15)	0.36+ (0.22)	0.16 (0.17)
Constant	4.83*** (0.55)	-0.62 (0.95)	5.04*** (0.59)	5.36*** (0.60)	-1.82+ (1.06)	5.13*** (0.64)
N	3,676			3,676		

Source: STREAM, wave 6 (2016), own calculations. Models controlled for gender, age, subjective health, living with a partner, weekly working hours, sector, multiple jobs, and financial possibility to stop working early.

Note: Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

between employment status and retirement timing preferences. Also, formal tests using the KHB method show that the job characteristics do not mediate the effect of self-employment on late and uncertain retirement preferences among the lower/middle educated respondents.

Models B1 and B2 show the findings for the higher educated respondents. Also for this group, the results show that the self-employed are more likely to have late or uncertain (vs. on-time) retirement preferences than employees, when taking the control variables into account (see model B1). Among the higher educated workers, several job characteristics are related with retirement preferences, as can be seen in Model B2. In line with our expectations, having more workplace flexibility is positively associated with late retirement preferences. Also having more autonomy and limited job security seems to be related with late retirement preferences among the higher educated respondents (however, for both effects, $p < 0.10$). None of the job characteristics studied is significantly associated with uncertain retirement preferences.

To test whether the job characteristics studied can partly explain the statistically significant effect of self-employment on late retirement preferences among the higher educated respondents, we compare the coefficients of Models B1 and B2 and formally test the indirect effect using the KHB method. The findings show a clear drop in the coefficient for late retirement preferences across models. KHB analyses show that, for late retirement preferences, the indirect effect is found to be statistically significant. The results show that 19.5% of the total effect of self-employment on late retirement preferences among the higher educated respondents can be explained by the job characteristics studied. The decomposition analysis (see also technical appendix) shows that flexibility (8%), autonomy (7%), and limited job security (4%) all play an explanatory role. For uncertain retirement preferences, no statistically significant mediation via the job characteristics studied is observed.

6. Discussion

Previous research has shown that self-employed workers are on average more likely than employees to expect to and actually retire relatively late, and to report uncertainty about future retirement timing. Against the background of population aging and increasingly flexible labor markets, understanding these disparities in retirement processes is of eminent importance. In prior studies, retirement processes of employees and self-employed workers have been theorized to vary because of differences in financial resources (e.g., quasi-obligatory occupational pensions for employees) and/or institutional structures (e.g., mandatory pension age for many employees). In this paper we argue that job characteristics may play an explanatory role as well, and we empirically examine the resulting hypotheses by analyzing Dutch STREAM data, focusing on self-employed workers and employees aged 45–64 years in 2016. Furthermore, we explore whether the explanatory role of job characteristics can be found among workers with lower/middle education as well as those with higher education.

6.1 Main findings

First, our results confirm prior research findings from other country contexts, by showing that self-employed workers are more likely than employees to prefer to retire late and to be uncertain about their preferred retirement timing. Among the self-employed about 20% prefer to retire after the age of 67, whereas among employees this is about 3%. The self-employed also report a higher level of uncertainty than employees: 33% of the self-employed answered “don't know” until what age they would like to continue working, versus 27% among employees. When looking separately at lower/middle educated respondents and higher educated respondents, we see in both groups that the self-employed are more likely to prefer to retire late and to be uncertain about their preferred retirement timing than employees. In general, however, the percentage of respondents reporting uncertainty about preferred retirement timing is relatively high among the lower/middle educated respondents, whereas the percentage of respondents who prefer late retirement is relatively high among the higher educated respondents.

Second, many of the expected differences between self-employed workers and employees in terms of perceived job characteristics were observed. On average, self-employed workers experience higher levels of flexibility and autonomy than employees and are more likely to report a good skills–job match and limited job security. Except for skills–job match, a similar pattern of findings is observed when examining the lower/middle and higher educated respondents separately. In both

of these groups, the self-employed on average experience higher levels of flexibility, autonomy, and job insecurity than employees. In particular among higher educated self-employed workers, the combination of high scores on beneficial job characteristics and a high level of perceived job insecurity is clearly observed in the data.

Third, we expected that certain job characteristics that are typical for the work situation of the self-employed – i.e., flexibility, autonomy, and skills-job match – explain why self-employed workers prefer to retire relatively late. Our findings show that especially higher levels of workplace flexibility partly explain the observed disparities in late retirement preferences between the self-employed and employees. When specifically looking at higher educated respondents, the data suggest that not only workplace flexibility, but also relatively high levels of autonomy and limited job security partly account for the observed differences between the self-employed and employees in the preference to retire late (vs. on-time). In general, these findings suggest that the results were most in line with the hypothesized theoretical mechanisms for higher educated respondents. Among the lower/middle educated respondents, the job characteristics studied do not seem to be related with late retirement preferences, so that other mechanisms may apply. We must be careful, however, in drawing firm conclusions here, given the relatively small percentage of lower/middle educated workers who report late retirement preferences.

Fourth, our study provides additional evidence for the importance of studying uncertainty about preferred retirement timing as a separate category of substantive interest (Ekerdt et al., 2001). The results suggest that, in terms of predictors, this group is distinct from the other outcome groups: uncertain retirement preferences cannot be perceived merely as a different form of late retirement preferences. We hypothesized that high levels of job insecurity faced by self-employed workers partly explain why orienting themselves towards a specific age at which they prefer to retire might be more difficult for them than for employees. In line with this expectation, the results show that differences in job security between the self-employed and employees account for a small part of the relationship between self-employment and uncertain retirement preferences. The association is, however, rather weak. Generally, the observed difference in uncertainty about preferred retirement timing between the self-employed and employees was smaller than we initially expected. This may be linked to the major changes in retirement policies that have taken place during the last ten years in the Netherlands, as these may have raised the level of uncertainty about retirement timing for employees. Studying these policy effects would be a relevant direction for future research.

6.2 Other directions for future research

Even though the job characteristics studied may explain part of the difference in retirement preferences between the self-employed and employees, still they do not explain a large part of the effect. This is not surprising, given that, next to job-related factors, other types of factors are also important for continued employment until a higher age (Beehr & Bennett, 2015; Fisher et al., 2016; Montizaan, 2017). Individuals can be inclined to continue working for non-financial or financial reasons (Montizaan, 2017). The current study, by examining the mediating role of job characteristics, generally focuses on the 'non-financial' line of reasoning. We controlled to a certain extent for constraining circumstances (e.g., by considering the financial possibility to retire early), but much more elaborate measurements of the respondent's financial position (e.g., objective measures of accumulated pension savings and assets) would be necessary to adequately test the mediating role of financial constraints. Furthermore, it would be important to study perceptions of financial insecurity related to retirement (e.g., insecurity about ability to sell the company). Examining financial and non-financial mechanisms simultaneously may be a relevant direction for future research.

The central question of this study focuses on differences in retirement preferences between the self-employed and employees. Another significant question would be how retirement preferences differ *within* the highly diverse self-employed group. A relevant distinction to be made, for instance, would be to focus on the extent to which workers decided voluntarily to become self-employed, or whether they became self-employed out of necessity (Kautonen et al., 2010). Previous research has shown that 'forced' self-employed individuals were less likely to save for retirement than those who became self-employed on a voluntary basis (Hershey et al., 2017), which could result in different retirement preferences for these groups of workers. It may also be that the forced self-employed have different job characteristics than the voluntary self-employed, which can subsequently result in different retirement preferences for the two groups. For future research it would be highly relevant to take this diversity within the self-employed group into account, and to examine whether and how job characteristics play an explanatory role for different groups of self-employed individuals.

6.3 Study limitations

This study is not free of limitations. First, it cannot be ruled out that self-selection into employment status influences our results. As gradual retirement is often more difficult for employees, older wage workers may purposefully make the transition to

self-employment as a form of partial retirement (Quinn, 1980). Unfortunately, it was not possible for us to check the extent to which prior retirement preferences affect selection into self-employment later in life, or whether unobserved characteristics (e.g., personality traits) are associated with employment status as well as preferences for retirement. Second, when testing our hypotheses, we were not able to fully control for alternative mechanisms (e.g., differences in retirement savings, mandatory retirement regulations) that may as well explain differences in retirement preferences between the self-employed and employees. Third, the specific characteristics of the Dutch pension system and, more generally, the Dutch institutional context, may limit the generalizability of the findings to other national contexts.

6.4 Conclusion

By connecting two streams of literature – i.e., literature on differences in job characteristics between the self-employed and employees, and literature on retirement timing – we tested new theoretical expectations that resulted in a better understanding of retirement preferences of the self-employed (as compared to employees). This study contributes to the literature by showing that job characteristics that are typical for self-employment can partly explain the relatively late preferred moment of retirement of self-employed individuals compared to employees. Another way in which this study contributes to the literature is by showing that the hypothesized mechanisms apply in particular to workers with a higher education. For future research, it would be worthwhile to continue this line of research, for instance by testing other potential mechanisms that may explain differences in retirement preferences between the self-employed and employees, and by specifically addressing how explanatory mechanisms may vary between individuals with different educational backgrounds. In light of the flexibilization of the labor market, population aging, and the associated challenges within society, it is increasingly important to not only focus on employees when studying retirement processes, but also to improve our understanding of how the self-employed think about their preferred moment of retirement.

Reference list

- Allen, J. & De Weert, E. (2007). What do educational mismatches tell us about skill mismatches? A cross-country analysis. *European Journal of Education*, 42(1), 59–73. doi: 10.1111/j.1465-3435.2007.00283.x
- Allen, J. & Van der Velden, R. (2001). Educational mismatches versus skill mismatches: Effects on wages, job satisfaction, and on-the-job search. *Oxford Economic Papers*, 53(3), 434–452. doi: 10.1093/oepp/53.3.434
- Badillo-Amador, L. & Vila, L. E. (2013). Education and skill mismatches: Wage and job satisfaction consequences. *International Journal of Manpower*, 34(5), 416–428. doi: 10.1108/IJM-05-2013-0116
- Beehr, T. A. (1986). The process of retirement: A review and recommendations for future investigation. *Personnel Psychology*, 39, 31–55. doi: 10.1111/j.1744-6570.1986.tb00573.x
- Beehr, T. A. & Bennett, M. M. (2015). Working after retirement: Features of bridge employment and research directions. *Work, Aging and Retirement*, 1(1), 112–128. doi: 10.1093/workar/wau007
- Benz, M. & Frey, B. S. (2008a). Being independent is a great thing: Subjective evaluations of self-employment and hierarchy. *Economica*, 75, 362–383. doi: 10.1111/j.1468-0335.2007.00594.x
- Benz, M. & Frey, B. S. (2008b). The value of doing what you like: Evidence from the self-employed in 23 countries. *Journal of Economic Behavior & Organization*, 68(3–4), 445–455. doi: 10.1016/j.jebo.2006.10.014
- Bijlsma, I., Fouarge, D., & Montizaan, R. (2017). Werken met een AOW. Omvang, beweegredenen en risico's van verdringing (Netspar Opinion Paper 69). Tilburg: Netspar.
- Blanchflower, D. G. (2004). Self-employment: More may not be better. *NBER Working Paper* (pp. 1–59). Cambridge, MA: National Bureau of Economic Research.
- Breen, R., Karlson, K. B., & Holm, A. (2013). Total, direct, and indirect effects in logit and probit models. *Sociological Methods & Research*, 42(2), 164–191. doi: 10.1177/0049124113494572
- Cobb-Clark, D. A. & Stillman, S. (2009). The retirement expectations of middle-aged Australians. *The Economic Record*, 85(269), 146–163. doi: 10.1111/j.1475-4932.2009.00543.x
- Conen, W., Schippers, J., & Schulze Buschoff, K. (2016). Self-employed without personnel. Between freedom and insecurity (pp. 1–136). Düsseldorf: Hans-Boeckler-Foundation.
- Damman, M., Henkens, K., & Kalmijn, M. (2011). The impact of midlife educational, work, health, and family experiences on men's early retirement. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 66(5), 617–627. doi: 10.1093/geronb/gbro92
- De Wind, A., Geuskens, G. A., Ybema, J. F., Blatter, B. M., Burdorf, A., Bongers, P. M., & Van der Beek, A. J. (2014). Health, job characteristics, skills, and social and financial factors in relation to early retirement. Results from a longitudinal study in the Netherlands. *Scandinavian Journal of Work, Environment & Health*, 40(2), 186–194. doi: 10.5271/sjweh.3393
- Devaney, S. A. & Kim, H. (2003). Older self-employed workers and planning for the future. *The Journal of Consumer Affairs*, 37(1), 123–142. doi: 10.1111/j.1745-6606.2003.tb00443.x
- Dingemans, E. & Möhring, K. (2018). Do work histories explain the decision to work after retirement? Evidence from Europe (Netspar DP 09/2018-037). Tilburg: Netspar.
- Ekerdt, D. J., Hackney, J., Kosloski, K., & DeViney, S. (2001). Eddies in the stream: The prevalence of uncertain plans for retirement. *The Journals of Gerontology*, 56(3), 162–170. doi: 10.1093/geronb/56.3.S162
- Fisher, G. G., Chaffee, D. S., & Sonnega, A. (2016). Retirement timing: A review and recommendations for future research. *Work, Aging and Retirement*, 2(2), 230–261. doi: 10.1093/workar/waw001

- Groot, W. & Maassen van den Brink, H. (1999). Job satisfaction of older workers. *International Journal of Manpower*, 20(6), 343–360. doi: 10.1108/01437729910289701
- Henkens, K., Van Dalen, H., & Van Solinge, H. (2019). Besef en beleving van de verschuivende AOW-leeftijd. *Me Judice*. Retrieved on December 16, 2019 from <http://www.mejudice.nl/artikelen/detail/besef-en-beleving-van-de-verschuivende-aowleeftijd>
- Hershey, D. A., Van Dalen, H. P., Conen, W., & Henkens, K. (2017). Are “voluntary” self-employed better prepared for retirement than “forced” self-employed? *Work, Aging and Retirement*, 3(3), 243–256. doi: 10.1093/workar/wax008
- Hill, J. E., Grzywacz, J. G., Allen, S., Blanchard, V. L., Matz-Costa, C., Shulkin, S., & Pitt-Catsoupes, M. (2008). Defining and conceptualizing workplace flexibility. *Work and Family*, 11(2), 149–163. doi: 10.1080/13668800802024678
- Hochguertel, S. (2010). Self-employment around retirement age (*Tinbergen Institute Discussion Paper*). Amsterdam and Rotterdam: Tinbergen Institute.
- Hundley, G. (2002). Why and when are the self-employed more satisfied with their work? *Industrial Relations*, 40(2), 293–316. doi: 10.1111/0019-8676.00209
- Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology*, 42, 286–313. doi: 10.1177/0081175012444861
- Kautonen, T., Down, S., Welter, F., Vainio, P., Palmroos, J., Althoff, K., & Kolb, S. (2010). “Involuntary self-employment” as a public policy issue: A cross-country European review. *International Journal of Entrepreneurial Behaviour & Research*, 16(2), 112–129. doi: 10.1108/13552551011027002
- Kautonen, T., Hytti, U., Bögenhold, D., & Heinonen, J. (2012). Job satisfaction and retirement age intentions in Finland: Self-employed versus salary earners. *International Journal of Manpower*, 33(4), 424–440. doi: 10.1108/01437721211243778
- Kohler, U., Karlson, K. B., & Holm, A. (2011). Comparing coefficients of nested nonlinear probability models. *The Stata Journal*, 11(3), 420–438. doi: 10.1177/1536867X1101100306
- Lee, C. (2008). Retirement expectations of older self-employed workers in Korea: Comparison with wage and salary workers. *Korean Economic Review*, 24, 33–71.
- Lee, C. & Lee, J. (2013). Employment status, quality of matching, and retirement in Korea: Evidence from Korean Longitudinal Study of Aging. *Journal of Population Ageing*, 2013(6), 59–83. doi: 10.1007/s12062-012-9080-x
- Mastrogiacomo, M. (2016). De pensioenpuzzel van zelfstandigen. Zelfstandigen maken pensioenambities niet waar (Netspar Brief 7). Tilburg: Netspar.
- Millán, J. M., Hessels, J., Thurik, R., & Aguado, R. (2013). Determinants of job satisfaction: A European comparison of self-employed and paid employees. *Small Business Economics*, 40(3), 651–670. doi: 10.1007/s11187-011-9380-1
- Montizaan, R. (2017). Post-retirement employment: Determinants and labor market consequences (Netspar Survey Paper 49). Tilburg: Netspar.
- Montizaan, R., de Grip, A., & Fouarge, D. (2015). Training access, reciprocity, and expected retirement age (ROA Research Memoranda; No. 001). Maastricht: Research Centre for Education and the Labour Market.
- Mood, C. (2010). Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, 26(1), 67–82. doi: 10.1093/esr/ljcp006
- OECD (2015). *Netherlands Pensions at a Glance 2015: OECD and G20 indicators*. Paris: OECD Publishing.

- OECD (2018). *OECD Indicators of Employment Protection*. Retrieved from: https://stats.oecd.org/Index.aspx?DataSetCode=EPL_R
- Oude Mulders, J., Henkens, K., & Van Dalen, H. (2018). Loslaten van de verplichte pensioenleeftijd en het organisatieklimaat rondom langer doorwerken (Netspar Design Paper 97). Tilburg: Netspar.
- Parker, S. C. & Rougier, J. C. (2007). The retirement behaviour of the self-employed in Britain. *Applied Economics*, 36(6), 697-713. doi: 10.1080/00036840500447807
- Quinn, J. F. (1980). Labor-force participation patterns of older self-employed workers. *Social Security Bulletin*, 43(4), 17-28.
- Radl, J. (2012). Too old to work, or too young to retire? The pervasiveness of age norms in Western Europe. *Work, employment and society*, 26(5), 755-771. doi: 10.1177/0950017012451644
- Radl, J. (2013). Labour market exit and social stratification in Western Europe: The effects of social class and gender on the timing of retirement. *European Sociological Review*, 29(3), 654-668. doi: 10.1093/esr/jcs045
- Solem, P. E., Syse, A., Furunes, T., Mykletun, R. J., De Lange, A., Schaufeli, W., & Ilmarinen, J. (2016). To leave or not to leave: Retirement intentions and retirement behaviour. *Ageing & Society*, 36, 259-281. doi: 10.1017/S0144686X14001135
- Statistics Netherlands. (2019). Arbeidsdeelname; kerncijfers. Retrieved on May 7, 2019 from <https://opendata.cbs.nl/statline/#/CBS/nl/>
- Topa, G., Moriano, J. A., Dopolo, M., Alcover, C.-M., & Morales, J. F. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior*, 75(1), 38-55. doi: 10.1016/j.jvb.2009.03.002
- Van der Lecq, F. & Oerlemans, A. (2009). Zelfstandigen zonder pensioen (NEA Paper 24). Tilburg: Netspar.
- Van Solinge, H. (2014). Who opts for self-employment after retirement? A longitudinal study in the Netherlands. *European Journal of Ageing*, 11, 261-272. doi: 10.1007/s10433-013-0303-7
- Van Solinge, H. & Henkens, K. (2007). Involuntary retirement: The role of restrictive circumstances, timing, and social embeddedness. *Journal of Gerontology: Social Sciences*, 62B(5), S295-S303.
- Van Solinge, H. & Henkens, K. (2014). Work-related factors as predictors in the retirement decision-making process of older workers in the Netherlands. *Ageing & Society*, 34, 1551-1574. doi: 10.1017/S0144686X13000330
- Visser, M. (2017). *Inequality between older workers and older couples in the Netherlands. A dynamic life course perspective on educational and social class differences in the late career*. Nijmegen: Radboud University.
- Visser, M., Gesthuizen, M., Kraaykamp, G., & Wolbers, M. H. J. (2016). Inequality among older workers in the Netherlands: A life course and social stratification perspective on early retirement. *European Sociological Review*, 32(3), 370-382. doi: 10.1093/esr/jcw013
- Wang, M. & Schultz, K. S. (2010). Employee retirement: A review and recommendations for future investigation. *Journal of Management*, 36(1), 172-206. doi: 10.1177/0149206309347957
- Ybema, J. F., Geuskens, G. A., Van den Heuvel, S. G., De Wind, A., Leijten, F. R. M., Joling, C., . . . Bongers, P. M. (2014). Study on Transitions in Employment, Ability and Motivation (STREAM): The design of a four-year longitudinal cohort study among 15,118 persons aged 45 to 64 years. *British Journal of Medicine and Medical Research*, 4(6), 1383-1399. doi: 10.9734/BJMMR/2014/7161
- Zwinkels, W., Knoef, M., Been, J., Caminada, K., & Goudswaard, K. (2017). Zicht op zvp-pensioen (Netspar Design Paper 91). Tilburg: Netspar.
- Zwinkels, W., Knoef, M., Caminada, K., Goudswaard, K., & Been, J. (2017). Zelfstandigen zonder pensioen? *ESB*, 102, 254-256.

Descriptive appendix

Table Appendix 1. *Summary statistics for full sample and by employment status.*

	Full sample				Employees				Self-employed			
	mean	sd	min	max	mean	sd	min	max	mean	sd	min	max
Dependent variable												
Retirement preferences (age in years) ^a	64.48	3.32	46	80	64.33	3.10	46	80	66.53	5.22	49	80
<i>Retirement preferences (categories)</i>												
Early (<65)	0.26		0	1	0.27		0	1	0.15		0	1
On-time	0.42		0	1	0.42		0	1	0.31		0	1
Late (>67)	0.04		0	1	0.03		0	1	0.20		0	1
Uncertain	0.28		0	1	0.27		0	1	0.33		0	1
Employment status												
<i>Status</i>												
Employee	0.93		0	1								
Self-employed	0.07		0	1								
Control variables												
Female	0.46		0	1	0.46		0	1	0.43		0	1
Age	54.24	5.46	45	64	54.23	5.47	45	64	54.37	5.25	46	64
Subjective health	3.32	0.86	1	5	3.32	0.86	1	5	3.34	0.89	1	5
Living with a partner	0.76		0	1	0.76		0	1	0.79		0	1
Weekly working hours	33.70	10.75	1	50	33.69	10.51	1	50	33.76	13.54	1	50
<i>Sector</i>												
Industry/Trade	0.30		0	1	0.30		0	1	0.23		0	1
Services	0.58		0	1	0.58		0	1	0.56		0	1
Other	0.12		0	1	0.11		0	1	0.21		0	1
Multiple jobs	0.03		0	1	0.02		0	1	0.06		0	1
<i>Financially able to stop</i>												
Can stop early	0.28		0	1	0.28		0	1	0.32		0	1
Cannot stop early	0.46		0	1	0.45		0	1	0.49		0	1
Don't know	0.26		0	1	0.26		0	1	0.19		0	1
Job characteristics												
Flexibility	0.82	0.90	0	3	0.75	0.86	0	3	1.72	1.03	0	3
Autonomy	3.79	0.79	1	5	3.74	0.78	1	5	4.43	0.58	2	5
Skills-job match	0.76		0	1	0.75		0	1	0.83		0	1
Limited job security	0.09		0	1	0.08		0	1	0.27		0	1
Observations	8,818				8,192				626			

Source: STREAM, wave 6 (2016), authors' own calculations.

a Note: Preferred retirement age is top-coded to 80 to avoid that a small group of outliers reporting an extremely late age of retirement would strongly influence the descriptive results. Sample sizes, on which the statistics for retirement preferences (age) are based, are $N = 6,385$, $N = 5,965$, and $N = 420$, respectively, after excluding "uncertain" retirement preferences (i.e., "don't know" category).

Table Appendix 2. *Summary statistics by educational level and employment status.*

	<i>Lower/middle educated</i>				<i>Higher educated</i>			
	<i>Employees</i>		<i>Self-employed</i>		<i>Employees</i>		<i>Self-employed</i>	
	mean	sd	mean	sd	mean	sd	mean	sd
Dependent variable								
Retirement preferences (age in years) ^a	64.30	3.00	65.90	4.45	64.38	3.22	67.00	5.69
<i>Retirement preferences (categories)</i>								
Early	0.24		0.14		0.31		0.17	
On-time	0.43		0.35		0.41		0.29	
Late	0.02		0.13		0.05		0.26	
Uncertain	0.30		0.39		0.23		0.28	
Control variables								
Female	0.50		0.51		0.42		0.36	
Age	54.37	5.51	54.32	5.39	54.02	5.42	54.42	5.13
Subjective health	3.26	0.85	3.23	0.89	3.40	0.87	3.44	0.87
Living with a partner	0.77		0.84		0.75		0.74	
Weekly working hours	31.84	11.00	33.74	14.30	36.38	9.10	33.78	12.86
<i>Sector</i>								
Industry/Trade	0.39		0.35		0.18		0.13	
Services	0.47		0.38		0.75		0.72	
Other	0.14		0.27		0.07		0.15	
Multiple jobs	0.01		0.05		0.04		0.07	
<i>Financially able to stop</i>								
Can stop early	0.23		0.24		0.35		0.39	
Cannot stop early	0.50		0.55		0.39		0.44	
Don't know	0.26		0.21		0.26		0.17	
Job characteristics								
Flexibility	0.54	0.78	1.49	1.07	1.06	0.87	1.93	0.95
Autonomy	3.64	0.84	4.41	0.64	3.88	0.66	4.45	0.52
Skills-job match	0.74		0.78		0.76		0.86	
Limited job security	0.08		0.20		0.07		0.33	
Observations	4,849		293		3,343		333	

Source: STREAM, wave 6 (2016), own calculations.

a Note: Preferred retirement age is top-coded to 80 to avoid that a small group of outliers reporting an extremely late age of retirement would strongly influence the descriptive results. Sample sizes, on which the statistics for retirement preferences (age) are based, are $N = 3,393$, $N = 180$, and $N = 2,572$, $N = 240$, respectively, after excluding "uncertain" retirement preferences (i.e., "don't know" category).

Technical appendix

To examine the relationships between self-employment, job characteristics, and preferred retirement age (in four categories: early, on-time, late, and uncertain), multivariate multinomial logistic regression models are estimated. In these models the preference to retire "on time" is the reference category. The comparison of estimated coefficients across nested logistic models can be problematic, as the variance structure of the latent variable changes when additional covariates are added to the model (see Mood, 2010). To solve this issue, we use the Karlson-Holm-Breen (KHB) method to "rescale" all coefficients to the scale of the most saturated model (Model 2). This method also allows us to formally test whether job characteristics mediate the relationship between self-employment and retirement preferences by providing unbiased decompositions of total effects into direct and indirect effects (Breen, Karlson, & Holm, 2013; Karlson, Holm, & Breen, 2012; Kohler et al., 2011).

Table Appendix 3 presents the estimated effect of self-employment in the "reduced model" (i.e., only taking the control variables into account), the estimated effect within the "full model" (i.e., including both control variables and job characteristics), and the estimated difference between these effects (i.e., the indirect effect of self-employment via job characteristics) for late versus on-time retirement preferences. Our findings show that, in the full sample, the indirect effect

Table Appendix 3. *KHB mediation analysis for late (vs. on-time) retirement preferences; all respondents, lower/middle educated respondents, and higher educated respondents*

	All respondents	Lower/middle educated respondents	Higher educated respondents
Reduced	2.07 ^{***} (0.14)	2.06 ^{***} (0.22)	2.03 ^{***} (0.18)
Full	1.74 ^{***} (0.15)	1.99 ^{***} (0.25)	1.64 ^{***} (0.20)
Difference	0.33 ^{***} (0.08)	0.07 (0.12)	0.40 ^{***} (0.11)
Confounding ratio	1.19	1.03	1.24
Confounding percentage	16.00	3.35	19.50
<i>N</i>	8,818	5,142	3,676

Source: STREAM, wave 6 (2016), own calculations.

Note: Standard errors in parentheses. Variable of interest: employment status. Mediators: flexibility, autonomy, skills-job match, and limited job security. Concomitants: gender, age, subjective health, living with a partner, weekly working hours, sector, multiple jobs and financial possibility to stop working early. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

is statistically significant. About 16% of the total effect of self-employment on late retirement preferences can be explained by the job characteristics studied. For lower/middle educated workers, the indirect effect via job characteristics is not statistically significant. Among higher educated respondents, the indirect effect is statistically significant. About 19.5% of the total effect of self-employment on late retirement preferences among the higher educated respondents can be explained by the job characteristics studied.

The next step is to assess the individual contributions of specific job characteristics in mediating the relationship between self-employment and late retirement preferences (see Table Appendix 4). For each group of respondents, the left column shows differences in the effect of self-employment due to each of the mediators, adding up to the total indirect effect; the right column expresses these contributions as percentages of the total (direct + indirect) effect of self-employment.

Table Appendix 4. *Contribution of mediators (job characteristics) to effect of self-employment on late (vs. on-time) retirement preferences; all respondents, lower/middle educated respondents, and higher educated respondents*

	All respondents		Lower/middle educated respondents		Higher educated respondents	
	Effect diff.	% total effect	Effect diff.	% total effect	Effect diff.	% total effect
Flexibility	0.25 (0.06)	12.14	0.17 (0.10)	8.20	0.16 (0.07)	7.82
Autonomy	0.02 (0.06)	1.10	-0.11 (0.09)	-5.40	0.15 (0.08)	7.42
Skills-job match	0.00 (0.01)	0.01	-0.00 (0.01)	-0.03	-0.00 (0.02)	-0.10
Limited job security	0.06 (0.03)	2.74	0.01 (0.04)	0.59	0.09 (0.05)	4.35
Total	0.33	16.00	0.07	3.35	0.40	19.50

Source: STREAM, wave 6 (2016), authors' own calculations.

Note: Standard errors in parentheses. Variable of interest: employment status. Mediators: flexibility, autonomy, skills-job match, and limited job security. Concomitants: gender, age, subjective health, living with a partner, weekly working hours, sector, multiple jobs and financial possibility to stop working early. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

OVERZICHT UITGAVEN IN DE DESIGN PAPER SERIE

- 1 Naar een nieuw pensioencontract (2011)
Lans Bovenberg en Casper van Ewijk
- 2 Langlevenrisico in collectieve pensioencontracten (2011)
Anja De Waegenaere, Alexander Paulis en Job Stigter
- 3 Bouwstenen voor nieuwe pensioencontracten en uitdagingen voor het toezicht daarop (2011)
Theo Nijman en Lans Bovenberg
- 4 European supervision of pension funds: purpose, scope and design (2011)
Niels Kortleve, Wilfried Mulder and Antoon Pelsser
- 5 Regulating pensions: Why the European Union matters (2011)
Ton van den Brink, Hans van Meerten and Sybe de Vries
- 6 The design of European supervision of pension funds (2012)
Dirk Broeders, Niels Kortleve, Antoon Pelsser and Jan-Willem Wijckmans
- 7 Hoe gevoelig is de uittredeleeftijd voor veranderingen in het pensioenstelsel? (2012)
Didier Fouarge, Andries de Grip en Raymond Montizaan
- 8 De inkomensverdeling en levensverwachting van ouderen (2012)
MARIKE Knoef, Rob Alessie en Adriaan Kalwij
- 9 Marktconsistente waardering van zachte pensioenrechten (2012)
Theo Nijman en Bas Werker
- 10 De RAM in het nieuwe pensioenakkoord (2012)
Frank de Jong en Peter Schotman
- 11 The longevity risk of the Dutch Actuarial Association's projection model (2012)
Frederik Peters, Wilma Nusselder and Johan Mackenbach
- 12 Het koppelen van pensioenleeftijd en pensioenaanspraken aan de levensverwachting (2012)
Anja De Waegenaere, Bertrand Melenberg en Tim Boonen
- 13 Impliciete en expliciete leeftijdsdifferentiatie in pensioencontracten (2013)
Roel Mehlkopf, Jan Bonenkamp, Casper van Ewijk, Harry ter Rele en Ed Westerhout
- 14 Hoofdlijnen Pensioenakkoord, juridisch begrepen (2013)
Mark Heemskerk, Bas de Jong en René Maatman
- 15 Different people, different choices: The influence of visual stimuli in communication on pension choice (2013)
Elisabeth Brüggén, Ingrid Rohde and Mijke van den Broeke
- 16 Herverdeling door pensioenregelingen (2013)
Jan Bonenkamp, Wilma Nusselder, Johan Mackenbach, Frederik Peters en Harry ter Rele
- 17 Guarantees and habit formation in pension schemes: A critical analysis of the floor-leverage rule (2013)
Frank de Jong and Yang Zhou
- 18 The holistic balance sheet as a building block in pension fund supervision (2013)
Erwin Fransen, Niels Kortleve, Hans Schumacher, Hans Staring and Jan-Willem Wijckmans
- 19 Collective pension schemes and individual choice (2013)
Jules van Binsbergen, Dirk Broeders, Myrthe de Jong and Ralph Koijen
- 20 Building a distribution builder: Design considerations for financial investment and pension decisions (2013)
Bas Donkers, Carlos Lourenço, Daniel Goldstein and Benedict Dellaert

- 21 Escalerende garantietoezeggingen: een alternatief voor het StAr RAM-contract (2013)
Servaas van Bilsen, Roger Laeven en Theo Nijman
- 22 A reporting standard for defined contribution pension plans (2013)
Kees de Vaan, Daniele Fano, Herialt Mens and Giovanna Nicodano
- 23 Op naar actieve pensioenconsumenten: Inhoudelijke kenmerken en randvoorwaarden van effectieve pensioencommunicatie (2013)
Niels Kortleve, Guido Verbaal en Charlotte Kuiper
- 24 Naar een nieuw deelnemergericht UPO (2013)
Charlotte Kuiper, Arthur van Soest en Cees Dert
- 25 Measuring retirement savings adequacy; developing a multi-pillar approach in the Netherlands (2013)
MARIKE KNOEF, Jim Been, Rob Alessie, Koen Caminada, Kees Goudswaard, and Adriaan Kalwijn
- 26 Illiquiditeit voor pensioenfondsen en verzekeraars: Rendement versus risico (2014)
Joost Driessen
- 27 De doorsneesystematiek in aanvullende pensioenregelingen: effecten, alternatieven en transitiepaden (2014)
Jan Bonenkamp, Ryanne Cox en Marcel Lever
- 28 EIOPA: bevoegdheden en rechtsbescherming (2014)
Ivor Witte
- 29 Een institutionele beleggersblik op de Nederlandse woningmarkt (2013)
Dirk Brounen en Ronald Mahieu
- 30 Verzekeraar en het reële pensioencontract (2014)
Jolanda van den Brink, Erik Lutjens en Ivor Witte
- 31 Pensioen, consumptiebehoeften en ouderenzorg (2014)
MARIKE KNOEF, Arjen Hussem, Arjan Soede en Jochem de Bresser
- 32 Habit formation: implications for pension plans (2014)
Frank de Jong and Yang Zhou
- 33 Het Algemeen pensioenfonds en de taakafbakening (2014)
Ivor Witte
- 34 Intergenerational Risk Trading (2014)
Jiajia Cui and Eduard Ponds
- 35 Beëindiging van de doorsneesystematiek: juridisch navigeren naar alternatieven (2015)
Dick Boeijen, Mark Heemskerk en René Maatman
- 36 Purchasing an annuity: now or later? The role of interest rates (2015)
Thijs Markwat, Roderick Molenaar and Juan Carlos Rodriguez
- 37 Entrepreneurs without wealth? An overview of their portfolio using different data sources for the Netherlands (2015)
Mauro Mastrogiacomo, Yue Li and Rik Dillingh
- 38 The psychology and economics of reverse mortgage attitudes. Evidence from the Netherlands (2015)
Rik Dillingh, Henriëtte Prast, Mariacristina Rossi and Cesira Urzì Brancati
- 39 Keuzevrijheid in de uittreedleeftijd (2015)
Arthur van Soest
- 40 Afschaffing doorsneesystematiek: verkenning van varianten (2015)
Jan Bonenkamp en Marcel Lever
- 41 Nederlandse pensioenopbouw in internationaal perspectief (2015)
MARIKE KNOEF, Kees Goudswaard, Jim Been en Koen Caminada
- 42 Intergenerationele risicodeling in collectieve en individuele pensioencontracten (2015)
Jan Bonenkamp, Peter Broer en Ed Westerhout
- 43 Inflation Experiences of Retirees (2015)
Adriaan Kalwijn, Rob Alessie, Jonathan Gardner and Ashik Anwar Ali
- 44 Financial fairness and conditional indexation (2015)
Torsten Kleinow and Hans Schumacher
- 45 Lessons from the Swedish occupational pension system (2015)
Lans Bovenberg, Ryanne Cox and Stefan Lundbergh

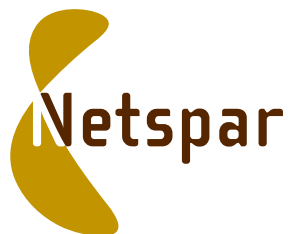
- 46 Heldere en harde pensioenrechten onder een PPR (2016)
Mark Heemskerk, René Maatman en Bas Werker
- 47 Segmentation of pension plan participants: Identifying dimensions of heterogeneity (2016)
Wiebke Eberhardt, Elisabeth Brüggem, Thomas Post and Chantal Hoet
- 48 How do people spend their time before and after retirement? (2016)
Johannes Binswanger
- 49 Naar een nieuwe aanpak voor risicoprofiel-meting voor deelnemers in pensioenregelingen (2016)
Benedict Dellaert, Bas Donkers, Marc Turlings, Tom Steenkamp en Ed Vermeulen
- 50 Individueel defined contribution in de uitkeringsfase (2016)
Tom Steenkamp
- 51 Wat vinden en verwachten Nederlanders van het pensioen? (2016)
Arthur van Soest
- 52 Do life expectancy projections need to account for the impact of smoking? (2016)
Frederik Peters, Johan Mackenbach en Wilma Nusselder
- 53 Effecten van gelaagdheid in pensioen-documenten: een gebruikersstudie (2016)
Louise Nell, Leo Lentz en Henk Pander Maat
- 54 Term Structures with Converging Forward Rates (2016)
Michel Vellekoop and Jan de Kort
- 55 Participation and choice in funded pension plans (2016)
Manuel García-Huitrón and Eduard Ponds
- 56 Interest rate models for pension and insurance regulation (2016)
Dirk Broeders, Frank de Jong and Peter Schotman
- 57 An evaluation of the nFTK (2016)
Lei Shu, Bertrand Melenberg and Hans Schumacher
- 58 Pensioenen en inkomensongelijkheid onder ouderen in Europa (2016)
Koen Caminada, Kees Goudswaard, Jim Been en Marike Knoef
- 59 Towards a practical and scientifically sound tool for measuring time and risk preferences in pension savings decisions (2016)
Jan Potters, Arno Riedl and Paul Smeets
- 60 Save more or retire later? Retirement planning heterogeneity and perceptions of savings adequacy and income constraints (2016)
Ron van Schie, Benedict Dellaert and Bas Donkers
- 61 Uitstroom van oudere werknemers bij overheid en onderwijs. Selectie uit de poort (2016)
Frank Cörvers en Janneke Wilschut
- 62 Pension risk preferences. A personalized elicitation method and its impact on asset allocation (2016)
Gosse Alserda, Benedict Dellaert, Laurens Swinkels and Fieke van der Lecq
- 63 Market-consistent valuation of pension liabilities (2016)
Antoon Pelsser, Ahmad Salahnejhad and Ramon van den Akker
- 64 Will we repay our debts before retirement? Or did we already, but nobody noticed? (2016)
Mauro Mastrogiacomo
- 65 Effectieve ondersteuning van zelfmanagement voor de consument (2016)
Peter Lapperre, Alwin Oerlemans en Benedict Dellaert
- 66 Risk sharing rules for longevity risk: impact and wealth transfers (2017)
Anja De Waegenaere, Bertrand Melenberg and Thijs Markwat
- 67 Heterogeniteit in doorsneeproblematiek. Hoe pakt de transitie naar degressieve opbouw uit voor verschillende pensioenfondsen? (2017)
Loes Frehen, Wouter van Wel, Casper van Ewijk, Johan Bonekamp, Joost van Valkengoed en Dick Boeijen
- 68 De toereikendheid van pensioenopbouw na de crisis en pensioenhervormingen (2017)
MARIKE Knoef, Jim Been, Koen Caminada, Kees Goudswaard en Jason Rhuggenaath

- 69 De combinatie van betaald en onbetaald werk in de jaren voor pensioen (2017)
Marleen Damman en Hanna van Solinge
- 70 Default life-cycles for retirement savings (2017)
Anna Grebenchtchikova, Roderick Molenaar, Peter Schotman en Bas Werker
- 71 Welke keuzemogelijkheden zijn wenselijk vanuit het perspectief van de deelnemer? (2017)
Casper van Ewijk, Roel Mehlkopf, Sara van den Bleeken en Chantal Hoet
- 72 Activating pension plan participants: investment and assurance frames (2017)
Wiebke Eberhardt, Elisabeth Brüggem, Thomas Post en Chantal Hoet
- 73 Zerotopia – bounded and unbounded pension adventures (2017)
Samuel Sender
- 74 Keuzemogelijkheden en maatwerk binnen pensioenregelingen (2017)
Saskia Bakels, Agnes Joseph, Niels Kortleve en Theo Nijman
- 75 Polderen over het pensioenstelsel. Het debat tussen de sociale partners en de overheid over de oudedagvoorzieningen in Nederland, 1945–2000 (2017)
Paul Brusse
- 76 Van uitkeringsovereenkomst naar PPR (2017)
Mark Heemskerk, Kees Kamminga, René Maatman en Bas Werker
- 77 Pensioenresultaat bij degressieve opbouw en progressieve premie (2017)
Marcel Lever en Sander Muns
- 78 Bestedingsbehoeften bij een afnemende gezondheid na pensionering (2017)
Lieke Kools en Marike Knoef
- 79 Model Risk in the Pricing of Reverse Mortgage Products (2017)
Anja De Waegenaere, Bertrand Melenberg, Hans Schumacher, Lei Shu and Lieke Werner
- 80 Expected Shortfall voor toezicht op verzekeraars: is het relevant? (2017)
Tim Boonen
- 81 The Effect of the Assumed Interest Rate and Smoothing on Variable Annuities (2017)
Anne G. Balter and Bas J.M. Werker
- 82 Consumer acceptance of online pension investment advice (2017)
Benedict Dellaert, Bas Donkers and Carlos Lourenço
- 83 Individualized life-cycle investing (2017)
Gréta Oleár, Frank de Jong and Ingmar Minderhoud
- 84 The value and risk of intergenerational risk sharing (2017)
Bas Werker
- 85 Pensioenwensen voor en na de crisis (2017)
Jochem de Bresser, Marike Knoef en Lieke Kools
- 86 Welke vaste dalingen en welk beleggingsbeleid passen bij gewenste uitkeringsprofielen in verbeterde premieregelingen? (2017)
Johan Bonekamp, Lans Bovenberg, Theo Nijman en Bas Werker
- 87 Inkomens- en vermogensafhankelijke eigen bijdragen in de langdurige ouderenzorg: een levensloopperspectief (2017)
Arjen Hussem, Harry ter Rele en Bram Wouterse
- 88 Creating good choice environments – Insights from research and industry practice (2017)
Elisabeth Brüggem, Thomas Post and Kimberley van der Heijden
- 89 Two decades of working beyond age 65 in the Netherlands. Health trends and changes in socio-economic and work factors to determine the feasibility of extending working lives beyond age 65 (2017)
Dorly Deeg, Maaïke van der Noordt and Suzan van der Pas
- 90 Cardiovascular disease in older workers. How can workforce participation be maintained in light of changes over time in determinants of cardiovascular disease? (2017)
Dorly Deeg, E. Burgers and Maaïke van der Noordt
- 91 Zicht op zzp-pensioen (2017)
Wim Zwinkels, Marike Knoef, Jim Been, Koen Caminada en Kees Goudswaard
- 92 Return, risk, and the preferred mix of PAYG and funded pensions (2017)
Marcel Lever, Thomas Michielsen and Sander Muns

- 93 Life events and participant engagement in pension plans (2017)
Matthew Blakstad, Elisabeth Brügggen and Thomas Post
- 94 Parttime pensioneren en de arbeids-participatie (2017)
Raymond Montizaan
- 95 Keuzevrijheid in pensioen: ons brein wil niet kiezen, maar wel gekozen hebben (2018)
Walter Limpens en Joyce Vonken
- 96 Employability after age 65? Trends over 23 years in life expectancy in good and in poor physical and cognitive health of 65–74-year-olds in the Netherlands (2018)
Dorly Deeg, Maaïke van der Noordt, Emiel Hoogendijk, Hannie Comijs and Martijn Huisman
- 97 Loslaten van de verplichte pensioenleeftijd en het organisatieklimaat rondom langer doorwerken (2018)
Jaap Oude Mulders, Kène Henkens en Harry van Dalen
- 98 Overgangseffecten bij introductie degressieve opbouw (2018)
Bas Werker
- 99 You're invited – RSVP! The role of tailoring in incentivising people to delve into their pension situation (2018)
Milena Dinkova, Sanne Elling, Adriaan Kalwij en Leo Lentz
- 100 Geleidelijke uittreding en de rol van deeltijdpensioen (2018)
Jonneke Bolhaar en Daniël van Vuuren
- 101 Naar een model voor pensioen-communicatie (2018)
Leo Lentz, Louise Nell en Henk Pander Maat
- 102 Tien jaar UPO. Een terugblik en vooruitblik op inhoud, doelen en effectiviteit (2018)
Sanne Elling en Leo Lentz
- 103 Health and household expenditures (2018)
Raun van Ooijen, Jochem de Bresser en Marike Knoef
- 104 Keuzevrijheid in de uitkeringsfase: internationale ervaringen (2018)
Marcel Lever, Eduard Ponds, Rik Dillingh en Ralph Stevens
- 105 The move towards riskier pension products in the world's best pension systems (2018)
Anne G. Balter, Malene Kallestrup-Lamb and Jesper Rangvid
- 106 Life Cycle Option Value: The value of consumer flexibility in planning for retirement (2018)
Sonja Wendel, Benedict Dellaert and Bas Donkers
- 107 Naar een duidelijk eigendomsbegrip (2018)
Jop Tangelder
- 108 Effect van stijging AOW-leeftijd op arbeidsongeschiktheid (2018)
Rik Dillingh, Jonneke Bolhaar, Marcel Lever, Harry ter Rele, Lisette Swart en Koen van der Ven
- 109 Is de toekomst gearriveerd? Data science en individuele keuzemogelijkheden in pensioen (2018)
Wesley Kaufmann, Bastiaan Starink en Bas Werker
- 110 De woontevredenheid van ouderen in Nederland (2018)
Jan Rouwendal
- 111 Towards better prediction of individual longevity (2018)
Dorly Deeg, Jan Kardaun, Maaïke van der Noordt, Emiel Hoogendijk en Natasja van Schoor
- 112 Framing in pensioenkeuzes. Het effect van framing in de keuze voor beleggingsprofiel in DC-plannen naar aanleiding van de Wet verbeterde premieregeling (2018)
Marijke van Putten, Rogier Potter van Loon, Marc Turlings en Eric van Dijk
- 113 Working life expectancy in good and poor self-perceived health among Dutch workers aged 55–65 years with a chronic disease over the period 1992–2016 (2019)
Astrid de Wind, Maaïke van der Noordt, Dorly Deeg and Cécile Boot
- 114 Working conditions in post-retirement jobs: A European comparison (2019)
Ellen Dingemans and Kène Henkens

- 115 Is additional indebtedness the way to increase mortgage–default insurance coverage? (2019)
Yeorim Kim, Mauro Mastrogiacomio, Stefan Hochguertel and Hans Bloemen
- 116 Appreciated but complicated pension Choices? Insights from the Swedish Premium Pension System (2019)
Monika Böhnke, Elisabeth Brügggen and Thomas Post
- 117 Towards integrated personal financial planning. Information barriers and design propositions (2019)
Nitesh Bharosa and Marijn Janssen
- 118 The effect of tailoring pension information on navigation behavior (2019)
Milena Dinkova, Sanne Elling, Adriaan Kalwij and Leo Lentz
- 119 Opleiding, levensverwachting en pensioenleeftijd: een vergelijking van Nederland met andere Europese landen (2019)
Johan Mackenbach, José Rubio Valverde en Wilma Nusselder
- 120 Giving with a warm hand: Evidence on estate planning and bequests (2019)
Eduard Suari–Andreu, Raun van Ooijen, Rob J.M. Alessie and Viola Angelini
- 121 Investeren in menselijk kapitaal: een gecombineerd werknemers– en werkgeversperspectief (2019)
Raymond Montizaan, Merlin Nieste en Davey Poulissen
- 122 The rise in life expectancy – corresponding rise in subjective life expectancy? Changes over the period 1999–2016 (2019)
Dorly Deeg, Maaïke van der Noordt, Noëlle Sant, Henrike Galenkamp, Fanny Janssen and Martijn Huisman
- 123 Pensioenaanvullingen uit het eigen woningbezit (2019)
Dirk Brounen, Niels Kortleve en Eduard Ponds
- 124 Personal and work–related predictors of early exit from paid work among older workers with health limitations (2019)
Nils Plomp, Sascha de Breij and Dorly Deeg
- 125 Het delen van langlevensrisico (2019)
Anja De Waegenaere, Agnes Joseph, Pascal Janssen en Michel Vellekoop
- 126 Maatwerk in pensioencommunicatie (2019)
S.K. Elling en L.R. Lentz
- 127 Dutch Employers’ Responses to an Aging Workforce: Evidence from Surveys, 2009–2017 (2019)
Jaap Oude Mulders, Kène Henkens and Hendrik P. van Dalen
- 128 Preferences for solidarity and attitudes towards the Dutch pension system – Evidence from a representative sample (2019)
Arno Riedl, Hans Schmeets and Peter Werner
- 129 Deeltijdpensioen geen wondermiddel voor langer doorwerken (2019)
Henk–Wim de Boer, Tunga Kantarcı, Daniel van Vuuren en Ed Westerhout
- 130 Spaarmotieven en consumptiegedrag (2019)
Johan Bonekamp en Arthur van Soest
- 131 Substitute services: a barrier to controlling long–term care expenditures (2019)
Mark Kattenberg and Pieter Bakx
- 132 Voorstel keuzearchitectuur pensioensparen voor zelfstandigen (2019)
Jona Linde
- 133 The impact of the virtual integration of assets on pension risk preferences of individuals (2019)
Sesil Lim, Bas Donkers en Benedict Dellaert
- 134 Reforming the statutory retirement age: Policy preferences of employers (2019)
Hendrik P. van Dalen, Kène Henkens and Jaap Oude Mulders
- 135 Compensatie bij afschaffing doorsnee–systematiek (2019)
Dick Boeijen, Chantal de Groot, Mark Heemskerk, Niels Kortleve en René Maatman
- 136 Debt affordability after retirement, interest rate shocks and voluntary repayments (2019)
Mauro Mastrogiacomio

- 137 Using social norms to activate pension plan members: insights from practice (2019)
Joyce Augustus-Vonken, Pieter Verhallen, Lisa Brüggem and Thomas Post
- 138 Alternatieven voor de huidige verplichtstelling van bedrijfstakpensioenfondsen (2020)
Erik Lutjens en Fieke van der Lecq
- 139 Eigen bijdrage aan ouderenzorg (2020)
Pieter Bakx, Judith Bom, Marianne Tenand en Bram Wouterse
- 140 Inrichting fiscaal kader bij afschaffing doorsneesystematiek (2020)
Bastiaan Starink en Michael Visser
- 141 Hervorming langdurige zorg: trends in het gebruik van verpleging en verzorging (2020)
Pieter Bakx, Pilar Garcia-Gomez, Sara Rellstab, Erik Schut en Eddy van Doorslaer
- 142 Genetic health risks, insurance, and retirement (2020)
Richard Karlsson Linnér and Philipp D. Koellinger
- 143 Publieke middelen voor particuliere ouderenzorg (2020)
Arjen Hussem, Marianne Tenand en Pieter Bakx
- 144 Emotions and technology in pension service interactions: Taking stock and moving forward (2020)
Wiebke Eberhardt, Alexander Henkel en Chantal Hoet
- 145 Opleidingsverschillen in levensverwachting: de bijdrage van acht risicofactoren (2020)
Wilma J. Nusselder, José Rubio Valverde en Johan P. Mackenbach
- 146 Shades of Labor: Motives of Older Adults to Participate in Productive Activities (2020)
Sonja Wendel and Benedict Dellaert
- 147 Raising pension awareness through letters and social media: Evidence from a randomized and a quasi-experiment (2020)
Marika Knoef, Jim Been and Marijke van Putten
- 148 Infographics and Financial Decisions (2020)
Ruben Cox and Peter de Goeij
- 149 To what extent can partial retirement ensure retirement income adequacy? (2020)
Tunga Kantarcı and Jochem Zweerink
- 150 De steun voor een 'zwareberoepenregeling' ontleed (2020)
Harry van Dalen, Kène Henkens en Jaap Oude Mulders
- 151 Verbeteren van de inzetbaarheid van oudere werknemers tot aan pensioen: literatuuroverzicht, inzichten uit de praktijk en de rol van pensioenuitvoerders (2020)
Peter Lapperre, Henk Heek, Pascal Corten, Ad van Zonneveld, Robert Boulogne, Marieke Koeman en Benedict Dellaert
- 152 Betere risicospreiding van eigen bijdragen in de verpleeghuiszorg (2020)
Bram Wouterse, Arjen Hussem en Rob Aalbers
- 153 Doorbeleggen met garanties? (2020)
Roderick Molenaar, Peter Schotman, Peter Dekkers en Mark Irwin
- 154 Differences in retirement preferences between the self-employed and employees: Do job characteristics play an explanatory role? (2020)



Network for Studies on Pensions, Aging and Retirement

This is a publication of:
Netspar
Phone +31 13 466 2109
E-mail info@netspar.nl
www.netspar.nl

June 2020