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Explaining differences in retirement timing preferences between the solo self-employed and employees

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Abstract

Purpose – Previous research has shown that self-employed workers are more likely than employees to retire late or to be uncertain about retirement timing. However, little is known about the underlying mechanisms. This study aims to fill this gap, by focusing on the explanatory role of various job characteristics – flexibility, autonomy, skills-job match and job security – for explaining differences in retirement preferences between the solo self-employed and employees.

Design/methodology/approach – Data were used of 8,325 employees and 663 solo self-employed respondents (age 45–64) in the Netherlands, who participated in 2016 in the Study on Transitions in Employment, Ability, and Motivation (STREAM). The outcome variable distinguished between early, on-time, late and uncertain retirement preferences. Multinomial logistic regression models were estimated, and mediation was tested using the Karlson-Holm-Breen (KHB) method.

Findings – The solo self-employed are more likely than employees to prefer late retirement (vs "on-time") and to be uncertain about their preferred retirement age. Job characteristics mediate 21% of the relationship between solo self-employment and late retirement preferences: the self-employed experience more possibilities than employees to work from home and to choose their own working times, which partly explains why they prefer to retire late.

Originality/value – In discussions about retirement, often reference is made to differences in retirement savings and retirement regulations between the solo self-employed and employees. The current study shows that differences in job characteristics also partly explain the relatively late preferred retirement timing of solo self-employed workers.

Keywords Job characteristics, Retirement timing, Retirement uncertainty, Self-employment

Paper type Research paper

Introduction

Over the past two decades, the number of self-employed workers without personnel has been growing rapidly in various European countries (Hershey *et al.*, 2017). Despite public concerns

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around population aging, the sustainability of pension systems and flexibilization of the labor market, relatively little is known about the retirement processes of these so-called "solo self-employed" workers. The literature on the retirement decision-making process is mainly focused on employees. Prior studies that do look at differences between employees and the self-employed have consistently shown that the (solo) self-employed prefer to, and tend to, retire later than employees (e.g. Lee and Lee, 2013; Quinn, 1980; Radl, 2013; Visser *et al.*, 2016). Additionally, the self-employed are more likely to report uncertainty about retirement plans as compared to employees (Cobb-Clark and Stillman, 2009; Ekerdt *et al.*, 2001). As employment status is usually merely included as a control variable, knowledge on the theoretical mechanisms that explain these differences between employees and the solo self-employed remains limited. This study aims to fill this gap by focusing on the role of job characteristics in explaining differences in late and uncertain retirement preferences between the solo self-employed and employees in the Netherlands.

Most theoretical explanations for differences in retirement preferences between employees and the solo self-employed (hereinafter referred to as: the self-employed) emphasize financial resources and/or institutional structures. First, the self-employed bear much more responsibility to save for retirement than employees, as they have limited access to pension benefits such as quasi-obligatory occupational pension schemes (Hochguertel, 2015; Parker and Rougier, 2007; Zwinkels *et al.*, 2017). Hence, they are more likely to be financially unable to consider retirement than employees. Second, the self-employed do not have a mandatory pension age, while for employees, mandatory retirement at the age at which they are eligible for state pension is often stipulated in labor contracts or collective labor agreements. This may provide the self-employed with more possibilities to continue working until older ages than employees and may result in more uncertainty about preferred retirement timing.

Next to these frequently mentioned explanations the self-employed differ in other ways from employees, for instance, in terms of their job characteristics. Research has shown that the self-employed are more self-directed and flexible in their work than employees (e.g. Hundley, 2002), but also experience more job insecurity (Millán *et al.*, 2013). As job characteristics like these are among the main predictors of retirement processes (Fisher *et al.*, 2016; Wang and Schultz, 2010), we argue that job characteristics might explain part of the observed differences in retirement preferences between the self-employed and employees.

This study's contribution to the literature is twofold. 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 and Schultz, 2010), and as such we will test new theoretical expectations on the role of job characteristics in explaining differences in preferred retirement timing between employees and the self-employed. Few studies have devoted attention to the explanatory role of job characteristics. Exceptions include two South Korean studies (Lee, 2008; Lee and Lee, 2013) and a Finnish study (Kautonen *et al.*, 2012), showing that differences in job satisfaction between employees and the self-employed partly explain why the self-employed are more likely to intend 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 differential retirement preferences. 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.

Second, we focus on the role of uncertainty around prospective retirement. Anticipating the age at which one prefers to leave the labor market tends to be easier for employees than for the self-employed (Cobb-Clark and Stillman, 2009; Ekerdt *et al.*, 2001). Nonetheless, most prior studies on retirement preferences pay little attention to feelings of uncertainty – often, "don't know" responses are coded to missing by default – and to the factors potentially explaining differences in experienced uncertainty between the self-employed and employees. We treat

uncertainty as a substantive category of interest and introduce job insecurity as a potential mediator for the relationship between self-employment and uncertain retirement preferences.

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), which include information about both self-employed workers and employees. The Netherlands forms an interesting context to study the group of self-employed workers without personnel. The percentage of self-employed workers in the Netherlands is presently close to the European average, however, hardly any other European country has shown such a large increase in the number of self-employed without personnel over the past several decades (Conen *et al.*, 2016). More specifically, within the Dutch employed labor force, the percentage self-employed without personnel has increased from 8% in 2003 to approximately 12% in 2017 (Statistics Netherlands, 2018). The Dutch three pillar pension system (e.g. see Conen *et al.*, 2016, for a description) and retirement policies shape the context of this study as well. In terms of retirement policies, there have been major changes in the Netherlands recently. In response to the aging population, early exit routes have been abolished and the state pension age is being increased (from 2013 onwards) with the goal of keeping the pension system financially sustainable (OECD, 2017). In 2016 a policy was implemented that speeded up the increase of the state pension age to age 67 in 2021. In 2019, however, the policy changed again: the Dutch state pension age will now be age 67 in 2024.

Theoretical background

In the literature, retirement timing – i.e. the age by which workers retire – is often conceptualized as the outcome of an informed decision-making process (Van Solinge and 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 this comparison, individuals reach the decision about whether and when to retire (Wang and Schultz, 2010). Different factors are theorized to affect the costs and benefits within retirement decision-making processes: 1) individual factors, 2) job factors, 3) family factors and 4) macroeconomic factors (Fisher *et al.*, 2016; Wang and Schultz, 2010).

Job factors are thus among the main predictors of retirement timing preferences. Broadly speaking, the idea is that desirable job factors motivate workers to continue working whereas undesirable factors push workers toward retirement (Fisher *et al.*, 2016). This rational choice framework typically assumes workers to have comprehensive and adequate information about themselves and their work situation when forming retirement preferences (Wang and Schultz, 2010). However, only if workers can, to some extent, oversee their future work situation and think (and plan) ahead, they may be able to orient themselves toward a specific age of retirement (Ekerdt *et al.*, 2001). Hence, job insecurity may relate to uncertainty around retirement, or the absence of specific retirement preferences.

We expect the self-employed to prefer to retire later and experience more uncertainty around the prospective age of retirement than employees (cf., Cobb-Clark and Stillman, 2009; Ekerdt *et al.*, 2001; Radl, 2013; Visser *et al.*, 2016). In the following paragraphs, we argue how these differences could 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 that characterizes self-employment might partly explain their more common feelings of uncertainty around retirement.

Flexibility

Workplace flexibility can be conceptualized with three related processes: i.e. "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). Access to 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 and consequently have more opportunities to work from home or at irregular hours (Devaney and Kim, 2003; Lee and Lee, 2013; Radl, 2013). Workers are generally more motivated and engaged when they are able to adjust their working conditions to their personal needs (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, the high level of flexibility in the number of working hours among the self-employed may 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 they work in their current job, causing them to retire earlier than they would if gradual retirement was an option (Lee, 2008; Lee and Lee, 2013). Conversely, self-employment generally offers more opportunities to adjust working hours (Devaney and Kim, 2003; Lee and Lee, 2013; Radl, 2013). Hence, the self-employed might postpone full retirement by gradually reducing their working hours as they age and therefore be more likely to consider late retirement than employees (Devaney and Kim, 2003). Consequently, we hypothesize:

H1. (a) The self-employed perceive their job to be more flexible than employees; and (b) this partly explains why the self-employed are more likely to prefer to retire late than employees.

Autonomy

The self-employed generally perceive their jobs to be more "autonomous" than employees (Hundley, 2002). Autonomy is about self-directedness in the content of work-related tasks and related to what Benz and Frey (2008) call "procedural utility". This conceptualization of utility differs from the classic economic definition in its assumption that not only the outcomes (such as income), but also the processes and conditions leading to those outcomes are valued.

Following this line of reasoning, the self-employed tend to experience high levels of self-determination and freedom in their work, whereas employees are – especially in large companies – subject to hierarchy. This experienced autonomy provides the self-employed with procedural utility, resulting in a higher level of job satisfaction (Kautonen *et al.*, 2012), which, in turn, can be expected to affect retirement preferences (see for a meta-analysis Topa, *et al.*, 2009). Therefore, we hypothesize:

H2. (a) The self-employed experience more autonomy in their work than employees; and (b) this partly explains why the self-employed are more likely to prefer to retire late than employees.

Skills-job match

The third job characteristic is the degree to which available skills are being utilized in the current job. Two forms of skills mismatches can be distinguished: skill underutilization and skill deficits (Allen and Van der Velden, 2001; Groot and Maassen van den Brink, 1999). Self-employment might provide for a better match between individuals' skills and job requirements. As self-employed workers tend to be in a better position to "design" their job such that it matches the skills they possess and wish to use in the labor market (Hundley, 2002), they may experience less skill underutilization and deficits than employees. Prior research for the United States finds empirical support for this link, related to skill underutilization and shows that the self-employed are less likely to experience having unused skills (Hundley, 2002).

When workers' skills do not match their job, they tend to become frustrated and unsatisfied with their job (Hundley, 2002). Both experiencing skill underutilization and skill

deficits have been found to reduce job satisfaction, but the effect of skill deficits appears to be less strong and consistent across studies (Allen and De Weert, 2007; Allen and Van der Velden, 2001; Badillo-Amador and Vila, 2013). Following the general idea that desirable job factors motivate workers to postpone retirement (Fisher *et al.*, 2016), we expect:

H3. (a) The self-employed experience a better match between available skills and their current job than employees and (b) this partly explains why the self-employed are more likely to prefer to retire late than employees.

Job security

Job security refers to the individual's evaluation of how much (s)he feels his/her current job to be at risk (Hundley, 2002). It is commonly presumed that perceived job security is lower among the self-employed; self-employment is associated with lower levels of social security or employment protection, and the risk of business failure is higher than the risk of becoming unemployed (Millán *et al.*, 2013). Empirical findings, however, are not conclusive. 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 even perceive themselves as having greater job security, as compared to employees (Hundley, 2002). The Dutch labor market differs from the US labor market in that employment laws 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 than employees (Cobb-Clark and Stillman, 2009; Ekerdt *et al.*, 2001). However, this difference has not been tested in relation to job security in specific. Ekerdt *et al.* (2001) argue 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 toward a specific age of retirement. 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 making it more difficult for workers to think (and plan) ahead. Consequently, we expect:

H4. (a) The self-employed experience less job security than employees and (b) this partly explains why the self-employed experience more uncertainty in preferred retirement age than employees.

Data and methods

Data

We use survey data from the Dutch STREAM [1], a longitudinal prospective cohort study among employees, self-employed workers and non-working people, aged 45–64 year at baseline (2010) (see Ybema *et al.*, 2014). The current study is based on the wave collected in 2016 ($N = 14{,}734$).The analytical panel is restricted in multiple ways. Central to our analysis is the comparison between the self-employed without personnel and 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 ($N = 642$) [2] were excluded. Finally, respondents with a preferred retirement age below their actual age ($N = 19$), or with missing values on at least one of the covariates ($N = 272$) [3] were excluded. After these restrictions, our sample contains 8,988 observations, comprising information on 8,325 employees and 663 self-employed workers.

Variables

Dependent variable: Retirement preferences are measured with an open-ended question asking 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 has been 65 for decades, the age of 65 still forms an "age norm" – i.e. the "normal" retirement age that serves as a pervasive blueprint for retirement processes (Radl, 2012). Furthermore, Dutch inhabitants tend to underestimate the age at which they will receive state pension (Henkens *et al.*, 2019). Therefore, we define preferred retirement before the age of 65 as early and between age 65 and 67 as on-time. The upper boundary of 67 is chosen because at the time of data collection, it was known that the state pension age would increase to age 67 in 2021. Also, the distribution of preferred retirement age clearly peaks at age 65 and 67 – i.e. at the ages that are often mentioned in public debates about raising the state pension age (see descriptive findings in results section).

Independent variables: A dichotomous variable is used to distinguish between the self-employed (= 1) and employees (= 0). In case the respondent indicated that (s)he is both an employee and self-employed, (s)he is categorized based on the job for which (s)he works the most hours.

The mediators of interest are the job characteristics: flexibility, autonomy, skills-job match and job security. Flexibility is measured with three separate items, referring to the three dimensions of flexibility (i.e. where, when and for how long to work). A dichotomous variable indicates whether respondents think 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 times" (*when*) and the "opportunity to work part-time" (*for how long*) are present in their current job. For both indicators, the original four categories are reversed and recoded into three categories: (1) *not present at all*; (2) *somewhat/rather present* and 3) *highly 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 in 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/her job. Skills-job match is measured with a dichotomous variable indicating whether respondents think their knowledge and skills are a good (= 1), or poor, fair or moderate (= 0) match with their current job. Job security is measured with an item indicating the extent to which the respondent perceives "good job security" is present. The initial four categories are reversed and recoded into three categories: (1) *not present at all*; (2) *somewhat/rather present* and (3) *highly present.*

Based on previous research (e.g. Cobb-Clark and Stillman, 2009; Ekerdt *et al.*, 2001; Fisher *et al.*, 2016), we control for various factors that may correlate with employment status and could influence retirement preferences. More specifically, gender (1 = *female*), age, subjective health, living with a partner (1 = *yes*), weekly working hours, sector, having multiple jobs, subjective income sufficiency and receiving pension benefits are taken into account. General subjective health ranges from 1 (*poor*) to 5 (*excellent*). Weekly working hours reflect the number of hours the respondents actually work per week, including overtime hours (top-coded to 50). To measure sector, respondents were asked to indicate in which category their company or institute fits best. The response categories are recoded into five broad sectors: (1) *industry* (manufacturing, electricity/gas/water supply, construction and agriculture); (2) *trade* (transport, wholesale, retail and catering); (3) *business services* (financial institutes and business services); (4) *non-profit services* (education, healthcare and public

administration) and (5) *other*. The dummy variable for multiple jobs indicates if the respondent is both an employee and self-employed (1 = *yes*). For subjective income sufficiency, an item measuring the perceived financial situation of the household with five categories is recoded to three categories: (1) *low* (very/somewhat short on money), (2) *medium* (adequate) or (3) *high* (some/a lot of money left). Given that individuals may start transitioning into retirement already before fully exiting paid work (e.g. phased retirement and bridge employment), we control for whether the respondents – who are all engaged in paid work – also receive some kind of retirement pension (e.g. supplementary pension schemes by the employer, private savings for retirement; 1 = *yes*).

Methods

To examine the relationships between self-employment, job characteristics and preferred retirement age, multinomial logistic regression models are used, in which the preference to retire "on-time" is the reference category. In Model 1, the dependent variable measuring retirement preferences (early, late and uncertain) is studied in relation to employment status (i.e. self-employed workers versus employees) and the control variables. In Model 2, we add the hypothesized mediating variables, that is, all measures of job characteristics.

The comparison of coefficients across nested logistic models can be problematic, as the variance structure of the latent variable changes when 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 of the reduced model to the scale of the full model. The KHB-method decomposes the effect of logit coefficients into (1) the effect attributable to confounding – i.e. the part mediated or explained by the additional covariate(s) – and (2) the effect attributable to rescaling. Technically this is done by including the residuals of all predictors in the most saturated model (Model 2) to the model with less predictors (Model 1) (Karlson *et al.*, 2012). This makes it possible to make an unbiased comparison of the logit coefficient of employment status across models with and without potential confounders (here: job characteristics). Moreover, the KHB-method enables us to formally test whether job characteristics mediate the relationship between self-employment and retirement preferences (Breen *et al.*, 2013; Karlson *et al.*, 2012; Kohler *et al.*, 2011).

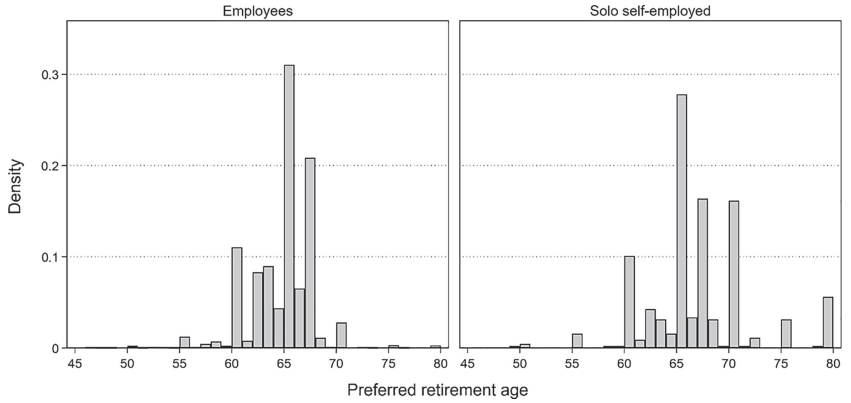
Several tests are conducted to check the model specification. First, the Wald test indicates that the four outcome categories are "distinguishable" with respect to the covariates and cannot be combined. Second, Small-Hsiao tests show that the independence of irrelevant alternatives assumption is not violated. Finally, variance inflation factor (VIF) scores indicate that there are no severe problems regarding multicollinearity.

Results

Descriptive results

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 peak at age 65 and 67, suggesting that these ages – which play a central role in policy discussions – act as reference points for many Dutch workers, either wage-employed or self-employed. On average, the self-employed prefer to retire 2.15 years later than employees.

Table 1 provides descriptive statistics of all variables of interest for the full sample and for employees and the self-employed separately. It is worth noting that a considerable part of all respondents (27%) 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 between our categorical measure of retirement preferences – distinguishing between early, on-time, late and uncertain preferences – and self-employment status (see Table 1, column "significance tests"). For instance, about 20% of the self-employed prefer to retire late,



Note(s): Preferred retirement age is top-coded to 80. $N = 6{,}519$ (6,073 employees and 446 solo self-employed individuals) after excluding uncertain retirement preferences
Source(s): STREAM, wave 6 (2016)

Figure 1.
Distribution of preferred retirement age by employment status

as compared to 3% of the employees. About 33% of the self-employed do not know until what age to continue working; among employees this is 27%.

Table 1 also points out substantial differences in job characteristics between employees and the self-employed. In line with hypothesis 1a, the self-employed experience more flexibility in terms of work location, work schedule and the number of working hours than employees. For example, whereas 79% of the self-employed have the opportunity to work from home, this is the case among 39% of the employees. As predicted in hypothesis 2a, the self-employed tend to experience more autonomy in their work; that is, the mean difference on the autonomy scale between the self-employed and employees is 0.68. The expected difference between the self-employed and employees regarding skills-job match (hypothesis 3a) is less pronounced, with 83% of the self-employed and 75% of the employees reporting a good skills-job match. Finally, in accordance with hypothesis 4a, the self-employed experience less job security than employees; 27% of the self-employed report no job security to be present at all, versus 8% of the employees.

Multinomial regression results

Table 2 presents the results of the multinomial logistic regression models, displayed as KHB-corrected coefficients (Kohler *et al.*, 2011). The results of Model 1 show that – when the control variables are taken into account – the self-employed are more likely to have late or uncertain (vs "on-time") retirement preferences than employees. We find no significant difference between the self-employed and employees in early retirement preferences. With respect to the control variables, most effects are in the expected direction and remain rather stable across models.

In Model 2, the job characteristics are added to the model. In line with our expectations, flexibility in workplace (opportunity to work from home) and schedule (high opportunity to choose own working times) are positively related with late retirement preferences. Perceived opportunities to work part-time, autonomy and skills-job match are not associated with late retirement preferences. As predicted, workers experiencing no job security, or a bit of job security, are more likely to report uncertainty about prospective retirement, as compared to workers in highly secure jobs. In general, it is worth noticing that various studied job

	Full sample		Employees		Self-employed		
	Mean	SD	Mean	SD	Mean	SD	Significance tests[b]
Dependent variable							
Retirement preferences (age)[a]	64.51	3.34	64.36	3.12	66.51	5.11	$t = -8.76$***
Retirement preferences (cat.)							
Early	0.26		0.27		0.15		$\chi^2 = 415.70$***
On-time	0.42		0.43		0.32		
Late	0.05		0.03		0.20		
Uncertain	0.27		0.27		0.33		
Employment status							
Employment status							
Employee	0.93						
Solo self-employed	0.07						
Control variables							
Female	0.46		0.46		0.42		$z = 1.03$, ns
Age	54.39	5.52	54.36	5.53	54.81	5.43	$t = -2.04$*
Subjective health	3.32	0.86	3.31	0.86	3.33	0.89	$t = -0.56$, ns
Living with a partner	0.76		0.76		0.79		$z = -0.84$, ns
Weekly working hours	33.51	10.86	33.55	10.59	33.04	13.82	$t = 0.92$, ns
Sector							$\chi^2 = 430.24$***
Industry	0.15		0.15		0.10		
Trade	0.15		0.15		0.13		
Business services	0.13		0.11		0.34		
Non-profit services	0.41		0.44		0.16		
Other	0.16		0.15		0.27		
Multiple jobs	0.03		0.02		0.06		$z = -0.86$, ns
Subjective income sufficiency							$\chi^2 = 42.91$***
Low	0.14		0.13		0.21		
Medium	0.22		0.22		0.23		
High	0.65		0.66		0.56		
Pension benefits	0.03		0.02		0.06		$z = -0.93$, ns
Job characteristics							
Opp. to work from home	0.42		0.39		0.79		$z = -9.97$***
Opp. to choose working times							$\chi^2 = 791.92$***
Not present at all	0.30		0.32		0.04		
Somewhat/rather present	0.52		0.53		0.39		
Highly present	0.18		0.15		0.57		
Opp. to work part-time							$\chi^2 = 87.99$***
Not present at all	0.22		0.22		0.21		
Somewhat/rather present	0.56		0.57		0.42		
Highly present	0.22		0.21		0.37		
Autonomy	3.79	0.79	3.74	0.78	4.42	0.60	$t = -27.54$***
Skills-job match	0.76		0.75		0.83		$z = -1.88$*
Job security							$\chi^2 = 293.81$***
Not present at all	0.09		0.08		0.27		
Somewhat/rather present	0.72		0.73		0.61		
Highly present	0.19		0.19		0.12		
N	8,988		8,325		663		

Note(s): + $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

[a]Preferred retirement age is top-coded to 80. Sample sizes on which the statistics for retirement preferences (age) are based are $N = 6{,}519$, $N = 6{,}073$, and $N = 446$, respectively, after excluding the uncertain retirement preferences (i.e. "do not know" category)

[b]Tests whether the differences between the solo self-employed and employees are statistically significant

Source(s): STREAM, wave 6 (2016)

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

Ref. = on-time	Model 1 – Employment status and control variables			Model 2 – Adding job characteristics		
	Early	Late	Uncertain	Early	Late	Uncertain
Self-employed (*ref.* = employees)	−0.13	1.91***	0.58***	−0.14	1.52***	0.59***
	(0.13)	(0.14)	(0.11)	(0.13)	(0.16)	(0.12)
Gender (*ref.* = male)	0.12+	−0.61***	0.70***	0.10	−0.59***	0.70***
	(0.07)	(0.13)	(0.07)	(0.07)	(0.13)	(0.07)
Age	−0.08***	−0.03***	−0.09***	−0.08***	−0.03**	−0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Subjective health	−0.19***	0.25***	−0.10**	−0.16***	0.23***	−0.08*
	(0.03)	(0.06)	(0.03)	(0.03)	(0.06)	(0.03)
Partner (*ref.* = no)	0.24***	−0.20	0.09	0.26***	−0.21+	0.10
	(0.07)	(0.12)	(0.06)	(0.07)	(0.12)	(0.06)
Weekly working hours	−0.01*	−0.01+	−0.03***	−0.00	−0.01+	−0.03***
	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)
Sector (ref. = industry)						
Trade	−0.36***	0.34	−0.11	−0.39***	0.36+	−0.12
	(0.10)	(0.21)	(0.10)	(0.10)	(0.22)	(0.10)
Business services	−0.07	0.78***	−0.36***	−0.18+	0.51*	−0.34**
	(0.10)	(0.20)	(0.11)	(0.11)	(0.21)	(0.11)
Non-profit services	0.12	0.46*	−0.18*	0.06	0.34+	−0.13
	(0.08)	(0.19)	(0.09)	(0.09)	(0.20)	(0.09)
Other	−0.33**	0.38+	−0.08	−0.36***	0.29	−0.06
	(0.10)	(0.21)	(0.10)	(0.10)	(0.21)	(0.10)
Multiple jobs (*ref.* = no)	0.27	1.44***	0.40*	0.23	1.35***	0.40*
	(0.18)	(0.23)	(0.18)	(0.18)	(0.23)	(0.18)
Subj. income sufficiency (ref. = medium)						
Low	0.03	0.02	−0.17+	−0.00	0.02	−0.19*
	(0.10)	(0.18)	(0.09)	(0.10)	(0.18)	(0.09)
High	0.39***	−0.10	−0.05	0.39***	−0.16	−0.03
	(0.07)	(0.13)	(0.07)	(0.07)	(0.13)	(0.07)
Pension benefits (*ref.* = no)	−0.30	0.65*	−0.01	−0.31	0.57*	0.00
	(0.20)	(0.26)	(0.18)	(0.20)	(0.26)	(0.18)
Opp. to work from home (*ref.* = no)				0.14*	0.38**	−0.10
				(0.07)	(0.14)	(0.07)
Opp. to choose working times (ref. = not present)						
Somewhat/rather present				0.06	0.24	0.06
				(0.07)	(0.17)	(0.07)
Highly present				−0.04	0.50*	0.17+
				(0.11)	(0.21)	(0.11)
Opp. to work part-time (ref. = not present)						
Somewhat/rather present				0.15*	0.08	−0.06
				(0.08)	(0.15)	(0.08)
Highly present				0.31**	0.22	−0.03
				(0.10)	(0.19)	(0.10)
Autonomy				−0.15***	0.03	−0.09*
				(0.04)	(0.09)	(0.04)
Skills-job match (*ref.* = not good)				−0.16*	0.00	−0.09
				(0.06)	(0.14)	(0.07)

(*continued*)

Table 2. Multinomial logit retirement plans on work-related factors and control variables (KHB-corrected coefficients)

Ref. = on-time	Model 1 – Employment status and control variables			Model 2 – Adding job characteristics		
	Early	Late	Uncertain	Early	Late	Uncertain
Job security (ref. = highly present)						
Not present at all				0.43***	0.39+	0.30*
				(0.12)	(0.21)	(0.12)
Somewhat/rather present				0.07	0.16	0.15*
				(0.07)	(0.15)	(0.08)
Constant	4.21***	−1.22+	5.60***	4.29***	−1.85*	5.66***
	(0.35)	(0.69)	(0.35)	(0.39)	(0.79)	(0.39)
N	8,988			8,988		

Note(s): Standard errors in parentheses. + $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Source(s): STREAM, wave 6 (2016)

Table 2.

Ref. = on-time	Late	Uncertain
Reduced	1.91***	0.58***
	(0.14)	(0.11)
Full	1.52***	0.59***
	(0.16)	(0.12)
Difference	0.39***	−0.01
	(0.08)	(0.04)
Confounding ratio	1.26	0.98
Confounding percentage	20.55	−1.88
N	8,988	8,988

Note(s): Standard errors in parentheses. Variable of interest: employment status; Mediators: opp. to work from home, opp. to choose own working times, opp. to work part-time, autonomy, skills-job match, job security; Concomitants: gender, age, subjective health, partner status, weekly working hours, sector, having multiple jobs, subjective income sufficiency and pension benefits
+ $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Source(s): STREAM, wave 6 (2016)

Table 3.
KHB mediation analysis for late and uncertain (vs "on-time") retirement preferences

features – e.g. opportunities to work from home and low job security – are 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.

After inclusion of the job characteristics in Model 2, the positive coefficient of self-employment on late retirement preferences drops in effect size. This suggests that the job features together mediate part of the relationship between self-employment and late retirement preferences. To formally test the indirect effect of self-employment on retirement preferences through job characteristics, we conduct a KHB mediation analysis. Table 3 presents the estimated effect of self-employment in the reduced model (i.e. only including control variables), the estimated effect in the full model (i.e. including 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 retirement preferences the indirect effect is found to be statistically significant, and the confounding percentage indicates that 21% of the total effect of self-employment on late retirement preferences is due to the studied job characteristics. For uncertain retirement preferences, the job characteristics together do not seem to play a mediating role.

Mediator	Late			Uncertain		
	Effect diff.		% Total effect	Effect diff.		% Total effect
Opp. to work from home (*ref.* = no)	0.14	(0.05)	7.33	−0.04	(0.03)	−6.58
Opp. to choose own working times (ref. = not present)						
Somewhat/rather present	−0.04	(0.03)	−1.95	−0.01	(0.01)	−1.67
Highly present	0.20	(0.09)	10.40	0.07	(0.04)	12.14
Opp. to work part-time (ref. = not present)						
Somewhat/rather present	−0.01	(0.02)	−0.63	0.01	(0.01)	1.44
Highly present	0.03	(0.03)	1.82	−0.00	(0.02)	−0.79
Autonomy	0.02	(0.06)	1.13	−0.06	(0.03)	−10.61
Skills-job match (*ref.* = not good)	0.00	(0.01)	0.01	−0.01	(0.01)	−1.37
Job security (ref. = highly present)						
Not present at all	0.07	(0.04)	3.46	0.05	(0.02)	8.77
Somewhat/rather present	−0.02	(0.02)	−1.02	−0.02	(0.01)	−3.20
Total	0.39		20.55	−0.01		−1.88

Note(s): Standard errors in parentheses. For both outcome categories, the column "Effect diff." denotes differences in the effect of self-employment due to each of the mediators, adding up to the total indirect effect. The column "% total effect" expresses these contributions as percentages of the total (direct + indirect) effect. Variable of interest: employment status; Concomitants: gender, age, subjective health, partner status, weekly working hours, sector, having multiple jobs, subjective income sufficiency and pension benefits
Source(s): STREAM, wave 6 (2016)

Table 4. Contribution of mediators (job characteristics) to effect of self-employment on late and uncertain (vs "on-time") retirement preferences (KHB mediation analysis)

Finally, we assess the individual contributions of job characteristics in mediating the relationship between self-employment and retirement preferences (see Table 4). Especially flexibility in work location (opportunity to work from home) and work schedule (opportunity to choose one's own working times) are found to be important in mediating the effect of self-employment on late (vs "on-time") retirement preferences, partly supporting hypothesis 1b. Our results do not support the predicted mediating roles of autonomy (hypothesis 2b) and skills-job match (hypothesis 3b). With respect to uncertainty around prospective retirement, the opposing effects of the studied job characteristics clarify why the job features together do not play a mediating role. The specific results for job security are in line with hypothesis 4b: the positive contribution of the absence of job security suggests that self-employment is related with experiencing uncertainty around retirement partly through job insecurity. Additional KHB-analyses in which only job security is included as a mediator (not presented in Table 4), confirm that 6% of the effect of self-employment on experiencing uncertainty around retirement runs through job security (effect self-employment in reduced model = 0.57; in full model = 0.53; difference = 0.04, $p < 0.05$).

Multiple sensitivity tests have been conducted (see Appendix Tables A1–A4). First, the analysis is repeated for subsamples excluding people with multiple jobs and excluding people receiving pension benefits. Second, we checked whether our results are sensitive to changes in the categorization of the dependent variable by changing the lower boundary of late retirement to age 69 and by combining the early and on-time categories. The results closely resemble our main results and did not affect our substantive conclusions.

Discussion

Previous research has consistently shown that the self-employed are more likely than employees to prefer to retire late and to express uncertainty about retirement preferences (e.g. Quinn, 1980; Radl, 2013; Visser *et al.*, 2016). Against the background of population aging

and increasingly flexible labor markets, understanding these disparities is of eminent importance. In prior studies, retirement preferences of employees and the self-employed 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 empirically examine the resulting hypotheses by analyzing the Dutch STREAM data (2016).

First, we predicted that certain desirable job characteristics that are characteristic for the work situation of the self-employed – i.e. flexibility, autonomy and skills-job match – can partly explain why the self-employed prefer to retire relatively late. Confirming prior research (e.g. Lee and Lee, 2013; Quinn, 1980; Radl, 2013; Visser *et al.*, 2016), we find that self-employed workers are more likely than employees to prefer late retirement. Furthermore, this study shows that the self-employed differ considerably in terms of their job characteristics from employees, resembling previous findings from the employment literature (e.g. Hundley, 2002; Millán *et al.*, 2013). Little was still known, however, about the extent to which job characteristics could explain these differences in retirement preferences. The current study shows that self-employed workers experience more flexibility in work location and schedule than employees, which could partly explain the observed disparities in late retirement preferences. This suggests that in particular being in control regarding *where* and *when* the work is performed – rather than being self-directed regarding the number of work hours, the content of the work, or having a good skills-job match – relates to the late retirement preferences of the self-employed. These findings seem to support the theoretical notion that desirable job factors could motivate workers to continue working (Fisher *et al.*, 2016) and are in line with expectations from the literature on workplace flexibility and blended working (e.g. Damman, 2016; Dropkin *et al.*, 2016).

Second, we stressed the importance of experienced uncertainty about prospective retirement of the self-employed. As expected, the self-employed report a higher level of uncertainty than employees. However, the observed difference was smaller than initially expected (33% versus 27%). This may be linked to the major changes in retirement policies that have recently taken place in the Netherlands (Van Solinge and Henkens, 2017), which reasonably raised the level of uncertainty about retirement timing for employees. We hypothesized that high levels of job insecurity faced by the self-employed partly explain why orienting themselves toward a specific age at which they prefer to leave the labor market might be more difficult for them than for employees. The assumption of the rational choice framework that workers have comprehensive and adequate information about themselves and their work situation and can form specific ideas about retirement timing based on that information (Wang and Schultz, 2010), may not apply to workers in an insecure work situation. In line with this expectation, we find that observed 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.

More generally, our findings emphasize the importance of examining retirement timing preferences in a non-linear way (i.e. a categorical instead of a continuous preferred retirement age indicator) for two main reasons. First, such an approach enabled us to include the "don't know" responses, which are chosen by a substantial share of respondents. Our results suggest that this group is distinguishable from other outcome groups (e.g. uncertain retirement preferences cannot just be perceived as a different form of late retirement preferences). This provides additional evidence for the importance of studying uncertainty as a separate category of substantive interest (Ekerdt *et al.*, 2001). Second, distinguishing between early, on-time and late retirement timing preferences appeared to be important, because the effects of several predictors point in the same direction for early as for late

retirement timing preferences (vs "on-time"). If we had studied preferred retirement age in a continuous way, these nuances would have been difficult to observe.

Although the examined job characteristics could explain a substantial part of the difference in late retirement preferences between the self-employed and employees, a large part of the effect cannot be explained. This is not surprising given that it is known that many other factors affect retirement processes as well (Fisher *et al.*, 2016; Wang and Schultz, 2010). It may be the case that the studied job characteristics do not capture the full breadth of job factors that are of importance. It can, for instance, be that differences in work attachment between the self-employed and employees also play an explanatory role (Hochguertel, 2015). Furthermore, in particular for the self-employed, business closing or succession-related considerations may be important as well. Next to job factors, also financial factors can be expected to be relevant, given that Dutch self-employed individuals have been found to be less financially prepared for retirement than employees are (e.g. Conen *et al.*, 2016; Zwinkels *et al.*, 2017). Given that there are many ways in which individuals could financially prepare for old age, sophisticated measurements of the older individual's financial situation would be necessary to effectively test the mediating role of financial constraints. Examining both non-financial and financial potential underlying mechanisms simultaneously may be a relevant direction for future research. Furthermore, future research should pay more attention to diversity within the group of self-employed individuals. A relevant distinction to be made, for instance, would be to focus on the extent to which workers voluntarily became self-employedor whether they became self-employed out of necessity (cf., Hershey *et al.*, 2017; Kautonen *et al.*, 2010) and to examine whether the retirement preferences and the underlying mechanisms differ between these groups.

This study focused on examining the factors explaining retirement *preferences*, not actual *behavior*. Prior research has demonstrated that retirement preferences are a relatively strong predictor of retirement behavior (e.g. Henkens and Tazelaar, 1997; Örestig *et al.*, 2013), especially when measuring preferences with a specific age instead of more general considerations (Solem *et al.*, 2016). However, employment can be insecure in later life, and retirement preferences are not always realized in actual behavior: substantial shares of people retire either earlier or later than preferred (Steiber and Kohli, 2017). These discrepancies can be explained by various factors. Especially highly-educated workers, close to retirement, in white-collar jobs, in good health and with a supporting partner are generally better able to "match" their actual retirement timing with their preferences (e.g. Henkens and Tazelaar, 1997; Örestig *et al.*, 2013; Solem *et al.*, 2016). While it thus has to be kept in mind that retirement behavior cannot be directly read off from preferences and vice versa, gaining a better understanding of the factors underlying retirement preferences remains important for the study of retirement processes.

This study is not free of limitations. First, it cannot be ruled out that self-selection into self-employment influences our results. As gradual retirement is often more difficult for employees, older wage workers may make the transition to self-employment as a form of partial retirement (Quinn, 1980). Unfortunately, it was not possible to check the extent to which prior retirement preferences affect selection into self-employment later in life. 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 explain differences in retirement preferences between the self-employed and employees as well. For instance, no detailed information about savings for old age or about work histories was available in STREAM. Third, no information was available about the knowledge respondents have regarding the changing state pension age and about the age at which they think they personally start receiving basic pension. Fourth, the specific characteristics of the Dutch institutional context might limit the generalizability of the findings to other national contexts.

Despite these limitations, this study contributes to the literature by showing that job characteristics that are typical for self-employment (i.e. workplace flexibility, job insecurity) can partly explain the relatively late and uncertain preferred retirement timing of the self-employed, as compared to employees. Besides contributing to scientific debates, these insights are relevant for policymakers at both the organizational and national level. For employers who would like to keep their employees at work until older ages, the findings suggest that offering employees more workplace flexibility could be a potentially interesting direction for organizational HR practices. For policymakers at the national level it is important to be aware that the way in which self-employed individuals think about retirement is different from the traditional employee view. There is more uncertainty surrounding retirement and for many self-employed persons reaching the state pension age will not mean that they stop working. This may have profound implications for the meaning of retirement in the future (cf. Sargent *et al.*, 2013). Paying more attention to the changing nature of work may therefore be crucial when making projections about later-life work and retirement of future cohorts of older individuals.

Notes

1. The Medical Ethical Committee of the VU University Medical Center (Amsterdam) had no objection to the STREAM data collection. At the start of the online questionnaire, it was stressed that the participants' privacy is guaranteed, that responses are treated confidentially, and that all data are stored in secured computer systems.
2. Given that respondents working beyond the "traditional" retirement age of 65 form a selective group of workers that differs in composition from the main workforce, we excluded them from the analytic sample. Additional analyses show that among these older employees (≥age 65), 40% prefers to retire "on-time", 38% prefers to retire late, and 22% reports uncertain retirement preferences. Among the older self-employed respondents, 7% prefers to retire "on-time", 60% prefers to retire late, and 33% reports uncertain retirement preferences.
3. We checked whether the findings are similar when using a multiple imputation procedure (mi impute chained in Stata 15). Variables having missing values were imputed 25 times by using information of the dependent, independent and control variables. The findings were generally similar to the findings as presented in Table 2 (Model 2).

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Appendix. Summary of results from sensitivity analyses

Ref. = on-time	Late	Uncertain
Reduced	2.01***	0.62***
	(0.14)	(0.11)
Full	1.61***	0.62***
	(0.16)	(0.12)
Difference	0.40***	0.01
	(0.08)	(0.04)
Confounding ratio	1.25	1.01
Confounding percentage	19.87	0.99
N	8,747	8,747

Note(s): Standard errors in parentheses. Variable of interest: employment status; Mediators: opp. to work from home, opp. to choose own working times, opp. to work part-time, autonomy, skills-job match, job security; Concomitants: gender, age, subjective health, partner status, weekly working hours, sector, subjective income sufficiency and pension benefits

$+ p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

Source(s): STREAM, wave 6 (2016)

Table A1. KHB mediation analysis for late and uncertain (vs "on-time") retirement preferences for the subsample of persons having only one job (i.e. excluding 241 persons with multiple jobs)

Ref. = on-time	Late	Uncertain
Reduced	2.01***	0.58***
	(0.14)	(0.11)
Full	1.64***	0.59***
	(0.16)	(0.12)
Difference	0.37***	−0.01
	(0.08)	(0.04)
Confounding ratio	1.23	0.98
Confounding percentage	18.49	−2.01
N	8,759	8,759

Note(s): Standard errors in parentheses. Variable of interest: employment status; Mediators: opp. to work from home, opp. to choose own working times, opp. to work part-time, autonomy, skills-job match, job security; Concomitants: gender, age, subjective health, partner status, weekly working hours, sector, having multiple jobs and subjective income sufficiency

$+ p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

Source(s): STREAM, wave 6 (2016)

Table A2. KHB mediation analysis for late and uncertain (vs "on-time") retirement preferences for the subsample of persons not receiving pension benefits (i.e. excluding 229 persons who receive pension benefits)

Table A3.
KHB mediation analysis for late and uncertain (vs "on-time") retirement preferences when changing the lower boundary for "late" retirement to age 69

Ref. = on-time	Late	Uncertain
Reduced	2.02***	0.54***
	(0.15)	(0.11)
Full	1.51***	0.55***
	(0.17)	(0.12)
Difference	0.51***	−0.01
	(0.09)	(0.04)
Confounding ratio	1.34	0.98
Confounding percentage	25.44	−1.79
N	8,988	8,988

Note(s): Standard errors in parentheses. Variable of interest: employment status; Mediators: opp. to work from home, opp. to choose own working times, opp. to work part-time, autonomy, skills-job match, job security; Concomitants: gender, age, subjective health, partner status, weekly working hours, sector, having multiple jobs, subjective income sufficiency and pension benefits
+ $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Source(s): STREAM, wave 6 (2016)

Table A4.
KHB mediation analysis for late and uncertain (vs "on-time and early") retirement preferences

Ref. = on-time and early (groups were combined)	Late	Uncertain
Reduced	1.95***	0.62***
	(0.13)	(0.10)
Full	1.56***	0.64***
	(0.15)	(0.11)
Difference	0.39***	−0.02
	(0.08)	(0.04)
Confounding ratio	1.25	0.98
Confounding percentage	19.91	−2.48
N	8,988	8,988

Note(s): Standard errors in parentheses. Variable of interest: employment status; Mediators: opp. to work from home, opp. to choose own working times, opp. to work part-time, autonomy, skills-job match, job security; Concomitants: gender, age, subjective health, partner status, weekly working hours, sector, having multiple jobs, subjective income sufficiency and pension benefits
+ $p < 0.1$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Source(s): STREAM, wave 6 (2016)

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