



The Analysis of Predictors of Retirement Preferences over Time

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Abstract

Due to rapid demographic ageing and to sustain its pension system, the Netherlands recently initiated a pension reform that increased the retirement age, with the intention to increase labour force participation among older workers. However, there is little evidence on the preferences of workers concerning their retirement age, and on how these preferences have changed over time. To identify personal and work-related determinants of the preference toward earlier or later retirement, and how these determinants and preferences have changed over time. We use data from three consecutive measurements (waves) of a large Dutch panel. Ordered logit regression is used to investigate the predictors of retirement preferences. Analyses are performed for two groups; all workers and a subsample of workers aged 50 years or older. Furthermore, the analyses are performed for each wave separately and for the combined dataset. A preference for later retirement is primarily related to university education, high job satisfaction, and high income. Age is only positively related to later retirement among older workers. Earlier retirement is preferred by female workers and workers living with a partner. The preference toward an earlier retirement age has increased over time. The preferences toward retirement can be primarily explained by personal characteristics, job satisfaction, and net income. Furthermore, with the increase in the retirement age defined by current legislation, the preference for an earlier retirement age has increased over time.

Keywords Ageing · Ordered logit regression · Pension · Population ageing · Retirement preferences · The Netherlands

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Introduction

Due to an increasing life expectancy and a decreasing birth rate, many western European countries are confronted with rapid demographic ageing (Suadicani et al. 2013). Population ageing is occurring in most OECD countries and globally (OECD 2019b). Japan experiences the highest old-age dependency ratio of all OECD countries, where, for every 100 persons of working age, there were 50 persons of age 65 and older in 2017 (OECD 2018). It is projected that this ratio will increase to 79 persons in 2050 (OECD 2018).

Population ageing affects the labour market and challenges the sustainability of pension and social security systems (Boumans et al. 2008). To counter this, many European governments have introduced policies to stimulate labour market participation among older workers beyond the traditional retirement age of 65 years, and to discourage early retirement (Finch 2014; Lynch 2006; Wahrendorf et al. 2017). Consequently, the labour force participation among older workers has increased in many European countries (Alcover et al. 2014; Giandrea et al. 2009).

The Netherlands is one of the European Union (EU) member states that are confronted with population ageing (Henkens and Tazelaar 1994). While 13.6% of the Dutch population was 65 years or older in 2000, this had increased to 18.2% in 2016 (Centraal Bureau voor de Statistiek 2018b). It is forecasted that this will increase to 26.1% in 2040 (Centraal Bureau voor de Statistiek 2018c).

To maintain a sustainable pension system, the Netherlands initiated public pension reforms. Starting in 2013, the statutory retirement age is gradually increased from 65 years in 2012, to 67 years in 2023 (Bernal and Vermeulen 2014; Rijksoverheid 2012). In addition, the age at which a person can claim 100% of the accumulated basic state pension is increased at the same rate (Sewdas et al. 2017). These policy reforms therefore not only intend to increase the labour market participation among older workers, but also delay their entitlement to basic state pension and occupational pension.

The Dutch pension reform is consistent with international policies. A vast majority of countries are now increasing the labour force participation among older persons (OECD 2019a).

Contrary to some other countries, like the United States, the statutory retirement age and the age at which people become eligible for pension are strongly related in the Netherlands. Only upon reaching the official retirement age, a person becomes eligible for pension benefits. Although workers may voluntarily choose to withdraw from or remain in the labour market at any time, such a decision can have financial consequences. For example, in the case of early retirement, the person is expected to finance their retirement from their own resources, while workers who choose to work beyond the retirement age may receive multiple concurrent sources of income from work and pension benefits.

There was and still is strong public resistance against the increase of the retirement age in the Netherlands, and various opinion leaders and politicians have called for reinstating the old retirement age of 65 (Boschman and Van Alphen 2018; Henkens et al. 2016; MAX Vandaag 2016; PlusOnline 2016). Although the public resistance in the Netherlands is less heated compared to the outbreak of massive and sometimes even violent protests and strikes in other countries like, for example, the announcement of pension reforms in France, which paralysed the country for a while (BBC News 2019a), it illustrates that not all people accept these reforms. However, policy reforms

that increase labour force participation beyond the former retirement age are deemed to be necessary to maintain the solvency of the pension system (BBC News 2019b; Hess 2017; Lüthen 2016).

Provided that workers in the Netherlands are now expected to prolong labour force participation beyond the traditional retirement age of 65, but considering that there exists a strong resistance against compulsory later retirement, it is relevant to investigate the determinants of the preference toward prolonged labour force participation or early retirement, and how older workers can be facilitated and incentivised to continue working to an older age (Dingemans et al. 2017).

There is however a lack of evidence on the preferences on the desired retirement age (cf. Suadicani et al. 2013). Studying the difference between the preferred and expected retirement age of workers allows one to identify earlier or later retirement preferences (Zappalà et al. 2008). Furthermore, it enables us to identify the personal and work-related characteristics that influence the preference to retire earlier or later than expected, and may provide insight into how workers can be facilitated to prolong labour force participation (Lain and Vickerstaff 2014; Schreurs et al. 2011).

Facilitating the conditions for prolonged labour force participation may persuade older workers to work beyond the retirement age and may be an attractive alternative to the compulsory current pension legislation. In addition, this insight may help to identify alternatives such as flexible retirement schemes, e.g., based on education, or for workers doing physically demanding work, or for unpaid caregivers.

Therefore, the aim of this study is to identify the personal and work-related determinants for the preference toward earlier or later retirement, and to investigate how these determinants and preferences toward retirement have changed over time.

By identifying subgroups with different retirement preferences, we expect to achieve more granularity in our understanding of why and when workers prefer to retire from work. As discussed above, the insights gained from this study may enable policy to facilitate and persuade older workers to remain in the labour force longer, thereby having a positive effect on maintaining the solvency of the pension system. Also, it may support alternative retirement schemes that are more supported among the population. The next section discusses the literature and research findings of the determinants of retirement preferences. It is followed by the presentation and discussion of our empirical findings.

Determinants of Retirement Preferences

The literature shows that various determinants influence the retirement preferences of workers. These determinants can be categorised into personal and work-related characteristics.

Personal Characteristics

Personal characteristics include gender, age, level of education, and marital status.

Gender There are contradictory findings on retirement decisions by gender. Some studies report a preference for earlier retirement among women (Boumans et al. 2008; Isaksson and Johansson 2000; Lain and Vickerstaff 2014; Lee 2005; Luce

et al. 2002). These preferences can be explained by family caregiving responsibilities (Boumans et al. 2008; Zimmerman et al. 2000) and by evaluating labour as less central in their life goals (Isaksson and Johansson 2000). Other studies report later retirement preferences among females (Axelrad and McNamara 2018; Finch 2014). Since women frequently take family commitments and caring roles, they build up fewer pension entitlements compared to men, which increases their need to work beyond retirement (Finch 2014; Léime 2017). However, other studies found no differences in retirement decisions by gender, but reported that the skewed distribution by gender could have biased their findings (Dendinger et al. 2005; Mor-Barak 1995).

Age Age is positively associated with early retirement (Lund and Villadsen 2005). Older workers may start to psychologically and behaviourally disengage from their work by reducing their motivation and investment in work in the years before their retirement (Damman et al. 2013a; Dingemans et al. 2016; Gobeski and Beehr 2009). For example, when workers approach retirement, they may develop negative feelings about their job (Ekerdt and DeViney 1993). However, when workers approach retirement, they may also develop negative feelings about their forthcoming retirement, as work provides them an alternative place than to sit at home (Hochschild 1997). In addition, age discrimination of older workers, such as stigmatising them as “less productive, less flexible, less ambitious, less creative, and harder to train” (Sherman and Karren 2012, p. 855), and health limitations associated with age, may create barriers to find or extend employment at a later age (Axelrad and McNamara 2018; Coile 2015; Karpinska et al. 2011; Smeaton et al. 2009).

Level of Education A lower education is associated with earlier retirement (De Preter et al. 2015; Fisher et al. 2016; Polanec et al. 2013; Szubert and Sobala 2005). A lower education may result in lower-income jobs, more adverse working conditions, and less attractive work (Potočník et al. 2009). Similarly, higher education is associated with later retirement (Coile 2015; Dingemans et al. 2017; Komp et al. 2010). Higher-educated workers may have better opportunities to prolong labour force participation beyond retirement relative to lower-educated workers (Komp et al. 2010), and may be more committed and be more intrinsically motivated to work (Jones and McIntosh 2010; Wang et al. 2008).

Marital Status Family relationships and the household are important in retirement decision-making (Dingemans et al. 2016; Henkens 1999; Loretto and Vickerstaff 2012; Matthews and Fisher 2012). Partners provide social interaction, which can substitute for the interaction with colleagues (Kim and Feldman 2000; Kubicek et al. 2010). However, if the person has no partner or if the partner is still employed, this partner may not provide the desired social interaction, and the person may instead consider labour force participation beyond retirement as an alternative source of social interaction (Damman et al. 2013b; Dingemans et al. 2016).

We recognize that there may also exist other personal determinants that influence the retirement preferences of workers, which are not included in this study. For example, one study among academics reported that one’s attitude to work may also explain why some workers have either a positive or negative view about retirement (Altman et al. 2019). However, due to data limitations, we are unable to include those determinants in the analyses.

To summarize, this study investigates to what extent personal characteristics like gender, age, level of education, and marital status, are associated with a preference toward earlier or later retirement. Based on the literature, we expect that females and older workers prefer earlier retirement. In addition, we expect that higher educated workers and those without a partner prefer later retirement.

Work-Related Characteristics

Work-related characteristics include being a civil servant, employment type, job level, industry, level of job satisfaction, total years of paid work, and net income.

Civil Servant In one Dutch study, 77% of civil servants reported that they prefer earlier retirement (Henkens and Tazelaar 1997). This preference for earlier retirement may be partly explained by the more favourable pension plans in the public sector (Henkens and Tazelaar 1997; Radl 2012).

Employment Type The conditions related to being an employee or a self-employed worker are important for retirement decisions (Engelhardt 2012). Studies have found that self-employed workers more often continue labour force participation beyond the retirement age than employees (McNair et al. 2004; Parker and Rougier 2007). Self-employed workers are often not eligible to claim 100% of the basic state pension, since their pension is largely funded by private assets. These workers thus have more interest to generate income beyond the retirement age (Lain and Vickerstaff 2014; Radl 2012). Employees instead enjoy better social security (Piekkola and Harmoinen 2006). Therefore, self-employed workers have a greater need for later retirement (Blöndal and Scarpetta 1998; Wahrendorf et al. 2017).

Job Level Both workers with a low and a high job level appear to be more likely to retire later (Radl 2012). This U-shaped association can be explained by job conditions. Access to voluntary pension plans is sometimes limited for workers in lower level jobs, which results in lower pension entitlements, and therefore requires that workers prolong labour force participation beyond retirement (Radl 2012). In contrast, workers in higher level jobs may work longer because they experience greater protection against labour market constraints and enjoy their career, work conditions, and profession (Radl 2012; Wahrendorf et al. 2017).

Industry Studies have shown that the industry may influence the age of retirement (Axelrad and McNamara 2018; Engelhardt 2012). Organisations often offer occupational pension plans (Radl 2012). Consequently, pension plans in a certain industry may provide more financial security than those in other industries. The average retirement age also differs per industry. For example, in healthcare, workers retire earlier than in other industries in the Netherlands (Brinkman 2004). Instead, workers in business services tend to retire later, while workers in the public sector retire earlier, partly because they enjoy more generous pension privileges (Radl 2012). On the contrary, high-skilled blue-collar workers have a higher probability of health problems or losing their job, and may be forced to retire earlier but also enjoy early financial

retirement arrangements (Radl 2012). In addition, workers in agriculture often work beyond retirement, while entitlements to pension may be lower for low-skilled blue-collar workers in manufacturing, who therefore are forced to retire later (Radl 2012).

Job Satisfaction Job satisfaction is defined as “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (Locke 1976, p. 1304). It seems logical that satisfied workers do not actively plan their retirement (Kautonen et al. 2012). Abundant studies have found that satisfied workers are more likely to retire later (Arber and Ginn 1995; Axelrad and McNamara 2018; Davidson et al. 2001; Kalokerinos et al. 2015; Kautonen et al. 2012; McGoldrick and Cooper 1990; Mein et al. 2000; Schreurs et al. 2011; Sibbald et al. 2003).

Total Years of Paid Work The number of years of work experience may be associated with retirement decisions (Feldman 1994; Finch 2014). Bennet and Möhring suggested that “persons with long job tenures are more likely to benefit from seniority wages” (Bennett and Möhring 2015, p. 215). Consequently, since the amount of pension contributions accumulates over time, their pension benefits may be higher (Bennett and Möhring 2015). Also, because longer job tenures often result in a higher salary, the total years of paid work may also be a proxy to the anticipated level of the drop in earnings upon retirement.

Net Income Decisions about retirement are influenced by the level of income prior to retirement and financial wealth (Bahrami 2001; Beehr et al. 2000; Léime 2017; Mein et al. 2000; Mor-Barak 1995; Shacklock and Brunetto 2005). Therefore, the probability of earlier retirement is higher if workers can afford it (Boumans et al. 2008). For example, workers with lower income may not have accumulated sufficient wealth and occupational pension to finance their retirement and may therefore be required to work longer (Cahill et al. 2016). However, workers with greater wealth are less likely to experience such restrictions to earlier retirement, but may voluntarily choose to work longer to avoid consuming their financial savings (Cahill et al. 2016). In addition, when the statutory retirement age increases, older workers may realise that their financial retirement situation is not comfortable, and that may induce them to prolong their labour force participation (Baruch et al. 2014).

In addition to the work-related characteristics above, we additionally investigate the variables *contract type* and *contractual working hours* which have not been studied abundantly before in the literature. We expect that part-time work may facilitate prolonged labour force participation.

Like with the personal characteristics, we recognize that there may also exist other work-related determinants that influence the retirement preferences of workers, which, due to limitations in the data, we were not able to include in the analyses.

Overall, this study investigates to what extent work-related characteristics of being a civil servant, employment type, job level, industry, level of job satisfaction, total years of paid work, and net income, are associated with a preference toward earlier or later retirement. Given the previous studies, we expect that civil workers and those with low job satisfaction, prefer to retire earlier and that self-employed workers, and workers at higher job level, people in business, and workers with a low net income, instead prefer later retirement.

Methods

We use data from the Arbeidsaanbodpanel (AAP) from the Netherlands Institute for Social Research (Sociaal en Cultureel Planbureau (SCP) 2016). Established in 1985, this ongoing prospective open cohort panel provides data on the work situation of employed and unemployed people, and measures the (potential) labour supply in the Netherlands (Van Echtelt et al. 2016). The data are collected with a two-year interval among approximately 5000 participants and participation in this panel is stimulated by offering a small financial reward (Sociaal en Cultureel Planbureau 2014; Vlasblom et al. 2015). To maintain the desired sample size and sufficient external validity for the Dutch population, additional sampling is done in every wave to replace those who dropped out of the panel (Vlasblom et al. 2015). The AAP contains three separate questionnaires for the employed, unemployed, and for students (Van Echtelt et al. 2016). For the present study, we only use the data collected with the questionnaire for the employed.

Since 2010, the questionnaire contains two questions on the preferred and expected retirement age, which are of particular interest for this study. Therefore, data from three waves (2010: $N=4872$, 2012: $N=4837$, 2014: $N=4948$) available at the time of the study are used to investigate the relations outlined in the previous section. Data for 2016 and later years were not (yet) available. The data were anonymised, and no personal information was available.

Independent Variables

From each data wave, we use 14 variables to investigate their association with retirement preferences.

Gender (1: “male”, 2: “female”) and age of workers were derived from the national population register in the Netherlands before the data were collected.

Level of education is established according to the standard education classification SOI (Centraal Bureau voor de Statistiek 2018e) by the self-reported item “What is the highest educational program that you completed with a diploma?”. The item is scored from 2 to 6 (2: “primary”, 3: “lower secondary”, 4: “secondary vocational and upper secondary”, 5: “higher vocational”, 6: “university”). The dataset did not contain values scored as 1 (no education).

Marital status is measured using the self-reported item “What is your marital status?”. The item is scored from 1 to 5 (1: “married/registered partnership”, 2: “living together with partner”, 3: “divorced (not living together)”, 4: “widow/widower (not living together)”, 5: “single/unmarried”). The values “divorced (not living together)”, “widow/widower (not living together)”, and “single/unmarried” are recoded as 0: “living without partner”, and “married/registered partnership” and “living together with partner” are recoded as 1: “living with partner”.

Contract type (0: “permanent”, 1: “temporary”) is measured using the self-reported item “What contract type do you have?”. The value “permanent contract” is coded as “permanent”, while the values “temporary with outlook on permanent contract” and “temporary contract” are coded as “temporary”.

The dummy variable for the status of the respondent as a civil servant (0: “no”, 1: “yes”) is derived from the self-reported item “How are you currently employed?”. The

values “employee”, “director of a corporation”, “independent with personnel”, “independent without personnel”, and “working in the organisation of a partner or spouse” are coded as “no”. The value “civil servant” is coded as “yes”.

Employment type (0: “employee”, 1: “self-employed”) is derived from the self-reported item “How are you currently employed?”. The values “salaried worker” and “independent” are retained as “employee” and “self-employed”, respectively.

Job level is measured using the self-reported item “What is your current job name or position?”, and is mapped to the standardised job classification scheme (Centraal Bureau voor de Statistiek 2018a). Job level is coded from 1 to 5 (1: “elementary”, 2: “lower”, 3: “middle”, 4: “higher”, 5: “academic”). The variable was already available in the datasets.

Industry is derived from the self-reported item “At what type of company or organisation do you work?”. The industry topology (1: “agriculture”, 2: “manufacturing”, 3: “construction”, 4: “trade, hospitality and catering, repair”, 5: “transportation”, 6: “business services”, 7: “human health and social work”, 8: “other services”, 9: “public administration”, 10: “education”) follows the Dutch Standard Industrial Classification (SBI) (Centraal Bureau voor de Statistiek 2018d, 2019). The variable was already available in the datasets.

Job satisfaction is gauged using the self-reported item “How satisfied are you, everything taken together, with your job?”. The item is scored from 1 to 4 (1: “very satisfied”, 2: “satisfied”, 3: “not satisfied”, 4: “very dissatisfied”).

Contractual working hours per week is calculated using the self-reported item “How many hours do you work per week contractually?”

Total years of paid work is measured using the self-reported item “How many years in total have you performed paid work, both in your current job and in possible earlier jobs?”

Net income in Euros per month is measured using the self-reported item “What is your net income?”. The participant is additionally asked to indicate the timeframe of this accrued income. From this information, net income in Euros per month is calculated. This variable was already available in the datasets.

The variable year of measurement (1: “2010”, 2: “2012”, 3: “2014”) is included to analyse the trend in the preference toward retirement.

Illogical values, and answers such as “I do not want to say” or “not applicable” are treated as missing values. Similarly, to avoid the inclusion of unrealistic values, only the preferred and expected retirement at age 50 or older are retained, while retirement at the age 49 or younger are treated as missing.

Also, we recognize the ongoing discussion about the use of single and multiple item measures. While some researchers tend to consider single items less desirable (Erez and Judge 2001; Wanous et al. 1997), others have applied single item measures successfully (Greenberg and Barling 1999; Ilgen et al. 1981; Morris et al. 1993). Due to limitations of the dataset, most variables in this study are measured using single items.

Dependent Variable

The expected retirement age is measured using the self-reported item “At what age do you expect to retire from work?”. The preferred retirement age is measured using the self-reported item “At what age, if you could decide, would you prefer to retire from

work?”. Thus, the preference toward retirement is determined by evaluating the difference between the preferred and expected retirement age. A preference toward earlier retirement exists when the preferred age is lower than the expected retirement age, while a preference toward later retirement occurs when the preferred age is greater than the expected retirement age. A preference to retire at the expected age exists when the preferred and expected retirement age are equal. The preference toward retirement is therefore coded as an ordinal variable (-1: “retire earlier”, 0: “retire at expected age”, 1: “retire later”).

Analyses

The effect of the assumed predictors on the ordinal preference toward retirement is evaluated cross-sectionally using an ordered logit regression. The underlying assumptions of the ordered logit regression are tested. Due to consistent collinearity in each analysis, the variable employment type is omitted from the model.

Because we expect that workers who are closer to their retirement age may have different preferences toward their retirement compared to the overall working population, the model is estimated separately for the entire sample (Group 1) and for a subsample of workers who are 50 years of age or older (Group 2).

As reference categories, we use the following eight categories of variables: Gender (“male”), level of education (“secondary vocational and upper secondary”), marital status (“living without partner”), contract type (“permanent”), civil servant (“no”), job level (“middle”), industry (“human health and social work”), and job satisfaction (“very satisfied”). To reduce the scale of the values of net income in Euros per month, the values were divided by 1000. The analyses are performed for each group and each data wave separately.

To create more statistical power, the analyses are additionally performed for the combined set of all data waves for each group. The variable year of measurement is included in the model to evaluate the changes over time on the preference toward retirement. The reference category is wave 2010.

Results

Descriptive Statistics

The characteristics of both groups (i.e. all workers and workers of age 50 and older) are presented in Table 1.

The composition of both groups by gender is similar and this remains so over time. Group 1 (all workers) is consistently composed of slightly more females than Group 2 (workers of age 50 and older). This reflects the lower labour force participation of older generations of women compared to younger generations.

Overall, the level of education in both groups increases over time. In Group 1, there is a decrease in the share of workers with “lower secondary” education, while the shares with “higher vocational” and “university” education increase most over time. In Group 2, there is a decline in “primary” and “lower secondary” education, while “higher vocational” and “university” education increase over time, which is similar to Group 1.

Table 1 Population characteristics, per data wave

	Group 1: All workers				Group 2: Workers of age 50 and older											
	2010	2012	2014	All years	2010	2012	2014	2014	2010	2012	2014	All years				
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)				
Gender																
Male	2305	47.3	2272	47.0	2328	47.0	6905	47.1	1055	49.7	934	49.3	1000	49.2	2989	49.4
Female	2567	52.7	2565	53.0	2620	53.0	7752	52.9	1070	50.4	960	50.7	1033	50.8	3063	50.6
Level of education																
Primary	213	4.4	225	4.7	214	4.4	652	4.5	73	3.5	52	2.8	54	2.7	179	3.0
Lower secondary	1201	24.8	992	20.6	959	19.5	3152	21.6	658	31.1	539	28.5	556	27.7	1753	29.1
Secondary vocational and upper secondary	1865	38.5	1958	40.6	1940	39.5	5763	39.5	682	32.3	639	33.8	673	33.5	1994	33.2
Higher vocational	1085	22.4	1149	23.8	1217	24.8	3451	23.7	503	23.8	474	25.1	515	25.6	1492	24.8
University	487	10.0	503	10.4	578	11.8	1568	10.8	199	9.4	187	9.9	211	10.5	597	9.9
Marital status																
Living without partner	1346	27.6	1420	29.4	1574	31.8	4340	29.6	319	15.0	261	13.8	345	17.0	925	15.3
Living with partner	3526	72.4	3415	70.6	3374	68.2	10,315	70.4	1806	85.0	1631	86.2	1688	83.0	5125	84.7
Contract type																
Permanent	2706	84.1	2567	80.1	2504	78.9	7777	81.0	1148	94.1	1032	91.7	1099	93.1	3279	93.0
Temporary	513	15.9	637	19.9	670	21.1	1820	19.0	72	5.9	94	8.4	81	6.9	247	7.0
Civil servant																
No	3047	84.6	3192	87.2	3225	88.0	9464	86.6	1071	79.6	1068	83.3	1116	83.0	3255	82.0
Yes	555	15.4	468	12.8	438	12.0	1461	13.4	274	20.4	214	16.7	228	17.0	716	18.0
Employment type																
Employee	3345	93.1	3318	91.2	3308	90.8	9971	91.7	1241	92.8	1142	90.0	1200	89.8	3583	90.9
Self-employed	247	6.9	320	8.8	337	9.2	904	8.3	97	7.3	127	10.0	136	10.2	360	9.1

Table 1 (continued)

Retire earlier	2266	46.5	2422	50.1	2473	50.0	7161	48.9	852	40.1	859	45.4	979	48.2	2690	44.5	
Retire at expected age	2420	49.7	2249	46.5	2312	46.7	6981	47.6	1188	55.9	977	51.6	1004	49.4	3169	52.4	
Retire later	186	3.8	166	3.4	163	3.3	515	3.5	85	4.0	58	3.1	50	2.5	193	3.2	
Year of measurement																	
2010							4872	33.2								2125	35.1
2012							4837	33.0								1894	31.3
2014							4948	33.8								2033	33.6
	Group 1: All workers																
	2010		2012		2014		All years		2010		2012		2014		All years		
	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)	
Age on October 1	44.4	14.4	43.1	14.6	43.2	14.9	43.6	14.7	57.5	4.8	57.6	4.8	57.7	4.8	57.6	4.8	
Contractual working hours	30.0	10.8	30.2	10.6	30.4	10.5	30.2	10.6	31.0	10.0	30.6	10.0	30.8	9.6	30.8	9.9	
Total years of paid work	23.3	12.0	22.7	12.1	23.0	12.4	23.0	12.2	30.4	11.1	30.9	10.8	31.1	10.9	30.8	11.0	
Net income in Euros per month	1599.5	1148.6	1658.5	1060.0	1739.3	1123.0	1666.5	1112.4	1799.1	933.6	1872.6	1038.9	1968.8	1082.6	1880.8	1022.5	
Expected retirement age	64.5	3.6	65.7	4.0	66.1	4.4	65.4	4.1	64.3	2.8	65.3	2.8	65.8	3.4	65.1	3.1	
Preferred retirement age	61.2	4.7	61.9	5.0	62.2	5.4	61.8	5.0	62.3	4.1	62.9	3.7	63.1	4.4	62.8	4.1	
<i>M</i> Mean																	
<i>SD</i> Standard Deviation																	

The share of respondents living without a partner increases over time, more in Group 1 than in Group 2. In Group 1, almost one-third is living without a partner, while this is almost half in Group 2.

The majority of respondents have a permanent contract, but the share of workers with a temporary contract increases over time. This increase was greater in Group 1, while the strong increase in Group 2 in 2012, reduced somewhat in 2014. Workers in Group 2 more often have a permanent contract compared to Group 1.

The majority of workers are not civil servants. While the number of civil servants in Group 1 declines over time, a similar decrease is observed only until 2012 in Group 2.

The share of self-employed workers in both groups increases over time, but this increase is greater for Group 2. In both groups, almost 1 in 10 are self-employed workers.

Overall, the job level of workers in both groups increases over time. While the share of job level “lower” decreased consistently over time, the levels “higher” and “academic” have increased. A notable decrease of the level “elementary” is only observed for Group 1 in 2012.

Most respondents work in the industry “human health and social work”. Agriculture is the smallest industrial sector. While for both groups, the share of workers working in manufacturing decreased, the share of workers in business services increased over time. Although public administration becomes less popular in Group 1, it becomes more popular in Group 2, over time.

Most respondents report being satisfied or very satisfied with their job and the shares are fairly consistent across years and groups.

There was a high preference toward earlier retirement or retirement at the expected age in both groups. While the preference for earlier retirement also increased in both groups over time, the increase was greatest in Group 2. The preference toward later retirement decreased in both groups over time.

When all data waves are combined, there are some differences in participation over time between both groups. In contrast to Group 2, a similar number of workers participated in the three measurements in Group 1. However, in Group 2, notably more workers participated in the survey in 2010 and fewer workers participated in the data collection in 2012, compared to Group 1.

While the age of respondents reduces slightly in Group 1, it remains the same in Group 2.

The contractual working hours per week are comparable for both groups but decreased slightly.

Workers aged 50 and older have around eight years more work experience than workers in Group 1.

Net income in Euros per month increased on average over time in both groups. Workers in Group 2 report earning around 215 euros per month more than workers in Group 1.

The expected retirement age perceived by workers in both groups consistently increased over time. Likewise, the preferred retirement age of workers in both groups also increased slightly over time, but this increase is smaller than the expected retirement age, making that fewer workers prefer working longer than the expected retirement age over time and more workers prefer to retire earlier.

Determinants of Retirement Preferences Among all Workers

The ordered logit regression results are presented in Table 2. The overall model significantly predicts the retirement preferences in all data waves.

In the 2010 model, seven independent variables have a statistically significant association with the preference toward retirement. The preference toward later retirement is higher if the worker has either a lower secondary or a university education, compared to workers with secondary vocational and upper secondary education. In addition, workers prefer earlier retirement more when living with a partner, relative to those living without a partner. Furthermore, persons working for an organisation in agriculture, construction, or other services are more likely to prefer later retirement, compared to the reference group of those having human health and social work. Also, relative to very satisfied persons, workers who are either satisfied or not satisfied with their job, are less likely to prefer later retirement. Workers are more likely to prefer later retirement when they are older, but they become more likely to prefer earlier retirement when their contractual working hours or total years of paid work increase.

Five determinants are significantly associated with retirement preferences in the 2012 model. The preference toward later retirement increases if the worker has a university education, compared to workers with secondary vocational and upper secondary education. In addition, workers prefer earlier retirement more when living with a partner, relative to those living without a partner. Persons with a temporary contract are more likely to prefer later retirement, relative to workers with a permanent contract. Furthermore, relative to very satisfied persons, workers who are either satisfied or not satisfied with their job are more likely to prefer earlier retirement. Lastly, there is a greater preference toward earlier retirement when the contractual working hours are higher.

Four predictors have a significant association with retirement preferences in 2014. Compared to males, females prefer earlier retirement. Second, workers educated at the university-level are more likely to prefer later retirement, compared to workers with a secondary vocational or upper secondary degree. However, workers prefer earlier retirement if their contractual working hours increase. Furthermore, workers with a higher net income in Euros per month are more likely to prefer later retirement.

Determinants of Retirement Preferences Among Workers of Age 50 and Older

Six variables are significantly associated with retirement preferences of workers aged 50 and older in the 2010 model. Females in this age group are less likely to prefer later retirement compared to males. In addition, workers in the 50+ age group with a higher vocational or university education are more likely to prefer later retirement than those with a secondary vocational and upper secondary education. Satisfied, not satisfied, and very dissatisfied workers in the 50+ age group are less likely to prefer later retirement, compared to workers who are very satisfied with their job. The preference toward earlier retirement among the 50+ participants strengthens when the level of job satisfaction decreases. Furthermore, workers prefer later retirement more when their age increases, but are less likely to prefer later retirement if their contractual working hours or the total years of paid work increase.

Table 2 Ordered logit regression coefficients for relationship with preference toward retirement, per data wave

Predictors	Dependent variable: Preference toward retirement (-1: "retire earlier", 0: "retire at expected age", 1: "retire later")												
	Group 1: All workers					Group 2: Workers of age 50 and older							
	2010	2012	2014	All years	2010	2012	2014	All years	2010	2012	2014	All years	
β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Gender													
Male (reference)	-	-	-	-	-	-	-	-	-	-	-	-	-
Female	-0.168 (0.122)	-0.099 (0.117)	-0.201* (0.117)	-0.155** (0.068)	-0.555*** (0.206)	-0.089 (0.199)	-0.007 (0.200)	-0.198* (0.114)					
Level of education													
Primary	0.516 (0.398)	0.646 (0.398)	0.083 (0.526)	0.438* (0.244)	-0.170 (0.562)	-0.629 (0.630)	0.141 (0.858)	-0.158 (0.364)					
Lower secondary	0.342** (0.134)	0.171 (0.141)	0.213 (0.148)	0.252*** (0.080)	0.160 (0.208)	0.102 (0.207)	0.089 (0.220)	0.121 (0.119)					
Secondary vocational and upper secondary (reference)	-	-	-	-	-	-	-	-					
Higher vocational	0.206 (0.167)	0.116 (0.147)	0.122 (0.146)	0.152* (0.087)	0.490* (0.263)	0.034 (0.248)	-0.314 (0.230)	0.025 (0.139)					
University	0.422* (0.229)	0.509** (0.217)	0.506** (0.197)	0.500*** (0.122)	0.668* (0.388)	0.225 (0.375)	0.280 (0.329)	0.383* (0.204)					
Marital status													
Living without partner (reference)	-	-	-	-	-	-	-	-					
Living with partner	-0.272** (0.108)	-0.241** (0.108)	-0.052 (0.108)	-0.178*** (0.068)	-0.291 (0.108)	0.027 (0.108)	0.158 (0.108)	-0.030 (0.108)					

Table 2 (continued)

Predictors		Dependent variable: Preference toward retirement (-1: "retire earlier", 0: "retire at expected age", 1: "retire later")												
		Group 1: All workers					Group 2: Workers of age 50 and older							
		2010	2012	2014	All years	2010	2012	2014	All years	2010	2012	2014	All years	
β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	
Contract type														
Permanent (reference)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temporary	0.235	(0.159)	0.260*	(0.136)	0.032	(0.141)	0.163**	(0.083)	0.037	(0.351)	-0.096	(0.337)	0.018	(0.185)
Civil servant														
No (reference)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yes	-0.002	(0.173)	0.133	(0.187)	0.007	(0.190)	0.060	(0.105)	-0.140	(0.251)	0.390	(0.270)	0.143	(0.153)
Job level														
Elementary	0.170	(0.253)	-0.199	(0.277)	-0.104	(0.274)	-0.008	(0.152)	0.315	(0.424)	0.377	(0.433)	0.073	(0.247)
Lower	-0.016	(0.141)	-0.040	(0.153)	-0.032	(0.162)	-0.020	(0.086)	0.237	(0.223)	-0.186	(0.245)	0.003	(0.134)
Middle (reference)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Higher	0.069	(0.167)	-0.112	(0.148)	0.022	(0.146)	-0.004	(0.087)	-0.134	(0.265)	-0.176	(0.241)	-0.010	(0.138)
Academic	0.066	(0.246)	0.146	(0.238)	-0.031	(0.223)	0.063	(0.134)	-0.275	(0.412)	0.605	(0.392)	0.129	(0.220)

Table 2 (continued)

Predictors		Dependent variable: Preference toward retirement (-1: "retire earlier", 0: "retire at expected age", 1: "retire later")												
		Group 1: All workers					Group 2: Workers of age 50 and older							
		2010	2012	2014	All years	2010	2012	2014	All years	2010	2012	2014	All years	
β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	
Industry														
Agriculture	1.427** (0.660)	0.757 (0.489)	0.246 (0.472)	0.748** (0.295)	-0.992 (1.106)	-0.659 (0.997)	-1.727 (1.141)	-0.789 (0.563)						
Manufacturing	0.197 (0.176)	-0.077 (0.178)	-0.175 (0.183)	-0.022 (0.103)	-0.207 (0.281)	0.106 (0.278)	-0.400 (0.307)	-0.160 (0.162)						
Construction	0.663*** (0.251)	-0.211 (0.261)	-0.211 (0.269)	0.079 (0.148)	0.476 (0.395)	-0.084 (0.457)	-0.126 (0.463)	0.157 (0.243)						
Trade, hospitality and catering, repair	0.073	-0.090	0.204	0.063	-0.342	-0.690**	0.279	-0.242						
Transportation	(0.176)	(0.177)	(0.170)	(0.100)	(0.312)	(0.325)	(0.299)	(0.177)						
	0.082	-0.114	-0.267	-0.113	-0.221	-0.383	-0.513	-0.390*						
	(0.224)	(0.223)	(0.236)	(0.130)	(0.357)	(0.364)	(0.385)	(0.208)						
Business services	0.067 (0.154)	-0.037 (0.148)	-0.172 (0.150)	-0.048 (0.086)	-0.213 (0.263)	-0.349 (0.266)	-0.253 (0.261)	-0.248* (0.149)						
Human health and social work (reference)	-	-	-	-	-	-	-	-						
Other services	0.379* (0.220)	0.028 (0.223)	-0.104 (0.239)	0.128 (0.129)	-0.246 (0.317)	0.014 (0.336)	-0.875** (0.421)	-0.322 (0.196)						
Public administration	0.078 (0.230)	-0.383 (0.239)	-0.042 (0.234)	-0.137 (0.134)	-0.053 (0.345)	-0.785** (0.383)	-0.274 (0.337)	-0.327 (0.201)						

Table 2 (continued)

Predictors	Dependent variable: Preference toward retirement (-1: "retire earlier", 0: "retire at expected age", 1: "retire later")												
	Group 1: All workers					Group 2: Workers of age 50 and older							
	2010	2012	2014	All years	2010	2012	2014	All years	2010	2012	2014	All years	
β	SE	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Education	0.141 (0.182)	-0.134 (0.185)	-0.063 (0.182)	-0.015 (0.105)	-0.361 (0.283)	-0.376 (0.293)	-0.198 (0.275)	-0.282* (0.161)					
Job satisfaction													
Very satisfied (reference)	-	-	-	-	-	-	-	-	-	-	-	-	-
Satisfied	-0.262*** (0.095)	-0.407*** (0.093)	-0.126 (0.096)	-0.269*** (0.054)	-0.422*** (0.152)	-0.664*** (0.153)	-0.038 (0.157)	-0.367*** (0.087)					
Not satisfied	-0.693*** (0.198)	-0.448** (0.181)	-0.181 (0.177)	-0.432*** (0.106)	-1.602*** (0.366)	-1.150*** (0.320)	-0.389 (0.303)	-0.960*** (0.186)					
Very dissatisfied	-0.783 (0.490)	0.198 (0.536)	0.544 (0.398)	-0.034 (0.265)	-2.168** (0.853)	-1.421 (1.212)	-2.212 (0.775)	-1.291*** (0.499)					
Age on October 1	0.031*** (0.008)	0.010 (0.009)	0.001 (0.009)	0.014*** (0.005)	0.225*** (0.023)	0.178*** (0.023)	0.144*** (0.022)	0.177*** (0.013)					
Contractual working hours	-0.032*** (0.007)	-0.024*** (0.007)	-0.030*** (0.007)	-0.027*** (0.004)	-0.048*** (0.012)	-0.035*** (0.011)	-0.057*** (0.012)	-0.046*** (0.006)					
Net income in Euros per month ^a	0.054 (0.048)	0.094 (0.077)	0.160** (0.069)	0.085** (0.035)	0.176 (0.143)	0.123 (0.117)	0.500*** (0.123)	0.274*** (0.069)					
Total years of paid work	-0.015* (0.008)	-0.002 (0.009)	-0.007 (0.009)	-0.009* (0.005)	-0.030*** (0.011)	-0.017 (0.012)	-0.011 (0.012)	-0.020*** (0.007)					
Year of measurement													

Table 2 (continued)

Predictors	Dependent variable: Preference toward retirement (-1: "retire earlier", 0: "retire at expected age", 1: "retire later")											
	Group 1: All workers					Group 2: Workers of age 50 and older						
	2010	2012	2014	All years		2010	2012	2014	All years			
2010 (reference)												
2012				-0.162*** (0.063)								-0.348*** (0.100)
2014				-0.248*** (0.063)								-0.657*** (0.102)
/cut1	0.821** (0.389)	0.361 (0.383)	0.143 (0.403)	0.320 (0.227)		10.163*** (1.237)	8.802*** (1.228)	8.041*** (1.232)	8.802*** (1.228)			8.439*** (0.692)
/cut2	3.340*** (0.402)	2.661*** (0.393)	2.368*** (0.412)	2.656*** (0.233)		13.336*** (1.277)	11.827*** (1.265)	10.937*** (1.261)	13.336*** (1.277)			11.421*** (0.711)
Observations	2407	2584	2632	7623		1011	991	1098	1011			3100

Standard errors in parentheses

β Regression Coefficient

SE Standard Error

^a Divided by 1000

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

In the 2012 model, four predictors have a significant association with retirement preferences. Persons in the 50+ group working for an organisation in trade, hospitality and catering, repair, or in public administration, are less likely to prefer later retirement, relative to workers in human health and social work. Second, satisfied and not satisfied 50+ workers are more likely to prefer earlier retirement, compared to workers who are very satisfied with their job. Lastly, the preference toward later retirement increases if a worker in the 50+ age group is older, but the preference toward later retirement decreases when the contractual working hours increase.

Four predictors have a significant association with retirement preferences in 2014. First, 50+ workers who work for an organisation in the industry other services are less likely to prefer later retirement, compared to workers in human health and social work. In addition, the preference toward later retirement increases once a worker in the 50+ age group is older, but this preference decreases when the contractual working hours increase. Furthermore, 50+ workers with a higher net income in Euros per month are more likely to prefer later retirement.

Association of All Years of Measurement with Retirement Preferences

The data from the three waves are combined for Group 1 and Group 2 to create more statistical power to investigate the association of the year with the retirement preferences. The overall model significantly predicts the retirement preferences for both groups (see Table 2).

In both groups, the year of observation has a negative association with the retirement preferences. Workers in the 2012 and 2014 datasets are less likely to prefer later retirement, and this negative association is stronger for workers of age 50 and older than for all workers.

Furthermore, this analysis with all respondents included, confirms the findings of the separate analyses presented above. There were no changes in the direction of the relationships. As a result of more statistical power, some relationships were however more statistically significant.

Discussion

The purpose of this study was to identify the personal and work-related determinants of retirement preferences, and to investigate how these determinants and preferences have changed over time. Understanding these factors is important to influence decisions about the retirement age and the labour force participation (Axelrad and McNamara 2018; Polanec et al. 2013; Szubert and Sobala 2005; Zappalà et al. 2008). This research objective was operationalised using two research questions, namely “Do personal and work-related determinants influence one’s preference toward earlier or later retirement, and if so, which determinants have an effect?” and “Have these determinants and preferences toward retirement changed over time?”

We find that personal characteristics rather than job characteristics, job satisfaction, and net income are primarily related to retirement preferences. Workers with a university diploma, a high level of job satisfaction, and a higher net income are more likely to prefer later retirement.

First, the finding that higher-educated workers prefer later retirement is consistent with previous studies (Coile 2015; Dingemans et al. 2017; Komp et al. 2010). These workers may be more committed and intrinsically motivated to participate on the labour market (Jones and McIntosh 2010; Wang et al. 2008), and may have better opportunities that prolonged labour force participation (Komp et al. 2010). Identifying the precise conditions that promote later retirement among higher-educated workers, can be relevant to improve the working conditions and prolonged labour force participation of lower-educated workers. It also suggests that a differentiated retirement age by education level may more cater to the needs and preferences of lower and higher educated workers.

Second, our finding that workers with a high job satisfaction are more likely to retire later is consistent with a large body of literature (Arber and Ginn 1995; Axelrad and McNamara 2018; Davidson et al. 2001; Kalokerinos et al. 2015; Kautonen et al. 2012; McGoldrick and Cooper 1990; Mein et al. 2000; Schreurs et al. 2011; Sibbald et al. 2003). Continued labour force participation may be explained by satisfied workers having less incentive to actively plan earlier retirement, or having stronger motives to remain employed, which naturally increases the probability of later retirement (Kautonen et al. 2012). Improving job satisfaction is therefore an important tool to induce workers not to retire early and to continue participation in the labour market. Human resource policies targeted at improving job satisfaction of older workers may therefore be worthwhile to invest in.

Third, the finding that workers prefer earlier retirement more when their net income is higher, contradicts previous research that reports that workers prefer to retire earlier when they can afford it (Boumans et al. 2008). These workers may however decide to continue working part-time beyond their official retirement age, for example because they enjoy their work and profession, or to decrease the consumption of their financial savings (Cahill et al. 2016). Instead of abruptly terminating their labour force participation completely upon reaching the retirement age, they may more gradually reduce their working hours to continue working beyond the retirement age. This rather new phenomenon is called bridge employment, which involves a gradual withdrawal from work that already starts before the expected retirement age (Dingemans et al. 2017; Schultz 2003; Zhan et al. 2009). Therefore, in the process of bridge employment, the worker may reduce the working hours prior to reaching the retirement age but then choose to continue labour force participation part-time.

In addition, consistent with previous literature, we find that females often are more likely to prefer earlier retirement (Boumans et al. 2008; Isaksson and Johansson 2000; Lain and Vickerstaff 2014; Lee 2005; Luce et al. 2002). The preference toward earlier retirement by females can be explained by traditional family informal caregiving responsibilities (Boumans et al. 2008; Zimmerman et al. 2000) and by evaluating work as less central to their lives (Isaksson and Johansson 2000). However, this finding contradicts another stream of literature (Axelrad and McNamara 2018; Finch 2014) that reports that women are more probable to continue labour force participation beyond retirement than males, primarily for reasons of necessity. This stream suggests that women build up less pension because they more frequently take traditional family commitments (Finch 2014; Léime 2017). Perhaps this relationship is influenced by moderator and mediator variables, and it therefore requires an additional investigation.

We also find that workers living with a partner are also more likely to prefer earlier retirement. This is consistent with earlier studies. For example, some researchers explain this preference by a human need for social interaction. If the worker lives with a partner, this partner can substitute for the social interaction that this worker would otherwise have with colleagues at work (Kim and Feldman 2000; Kubicek et al. 2010). However, if the worker has no partner, then continuing labour force participation may be considered an alternative source of receiving social interaction (Damman et al. 2013b; Dingemans et al. 2016).

Furthermore, the preference toward earlier retirement has increased over time. Compared to 2010, workers in 2012 had a higher preference toward earlier retirement, and an even greater preference toward earlier retirement in 2014. This trend towards earlier retirement may be explained by the pension reform in the Netherlands that took effect in 2013, which gradually increases the official retirement age from 65 years in 2012 to 67 years in 2023 (Bernal and Vermeulen 2014; Rijksoverheid 2012). There was, and still exists, a strong public resistance against this pension reform (Boschman and Van Alphen 2018; Henkens et al. 2016; MAX Vandaag 2016; PlusOnline 2016). This policy reform may have influenced the perceptions of workers. Therefore, workers may have developed an increasing preference for earlier retirement over time because they object against the obligatory increase of this retirement age. Perhaps they perceive the obligatory work participation beyond the traditional retirement age as a penalty, which decreases their satisfaction in work, and therefore prefer earlier retirement instead. In this scenario, the psychological effect may mediate the relationship between the policy intervention and retirement preferences.

Strengths and Limitations

This study has two noteworthy strengths.

One strength is the estimation of the effect of personal and work-related determinants on retirement preferences. Limited research has so far been conducted on the determinants of preferences toward the age of retirement (cf. Suadcani et al. 2013). The investigation of these determinants helps to understand why certain groups of workers prefer earlier or later retirement. In addition, this study analysed how these determinants and retirement preferences changed over time. This is particularly relevant because the reformed retirement regulation in the Netherlands took effect in 2013, but evidence of the effect of this policy reform on retirement preferences remained scarce.

Another strength involves the data used. The analyses were performed on three waves of a large dataset. In each wave, new participants were pre-selected to replace workers who dropped out of the panel, and to maintain sufficient external validity for the Dutch population. Therefore, the reported findings may have good generalisability to the entire Dutch population.

A noteworthy limitation of the study is the limited information that the survey provides. The literature indicates that also health-related determinants may predict retirement decisions (cf. Fisher et al. 2016; Olesen et al. 2012; Siegrist et al. 2006). Also, personality characteristics and the intensity of the job may be important for retirement preferences. However, the dataset does not contain information on these variables. Consequently, the effect of the health and personality traits of workers, and of the intensity of the job, on their retirement preferences could not be investigated.

Therefore, this study could not provide a complete holistic understanding of all possible predictors of retirement preferences.

Conclusions and Recommendations for Future Research and Practice

To conclude, we find that the preference toward retirement is primarily explained by personal characteristics, job satisfaction, and net income. Furthermore, the preference towards an earlier retirement age has increased over time. The main contribution of this study is to provide empirical evidence on the determinants of the preference toward retirement, and how these preferences have changed over time. Thus, this study has increased our understanding of the determinants that affect retirement preferences and has provided insight into how these preferences changed after a policy reform that increased the statutory retirement age in the Netherlands.

To achieve a broader understanding of the determinants of retirement decision-making by older workers, we recommend that in future studies, the health-related determinants, personality traits, and the intensity of the job are included in the investigation. In addition, we recommend that future studies investigate how these determinants and preferences changed over a larger period of time, preferably including measurements before, during, and after the increase of the statutory retirement age.

We also make a policy suggestion. Because workers in the Netherlands are obliged to prolong their labour force participation, they should also be supported to remain active on the labour market. Policymakers and employers ought to consider facilitating these workers to remain employed, by supporting these people to work longer, e.g., by making their work more attractive, tailoring the work and related working conditions to the situation of the worker, and by allowing these workers to work fewer hours. In addition, policymakers may consider flexible pension schemes, where eligibility to pension benefits is based on the number of years worked instead of a fixed age.

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Compliance with Ethical Standards The authors declare that they performed this study in compliance with the ethical standards

Competing Interests The authors declare that they have no competing interests.

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