Involuntary Retirement Pathways: The Role of Health, Organizational Pressures, and Mandatory Retirement Policies

Camilla Marabini
Kène Henkens
Hanna van Solinge

Netspar

Industry paper 2025-16

Colophon

Industry papers are papers for pension sector professionals. They are published on the Netspar website after approval by the Netspar Editorial Board (EB). The EB checks the papers for both academic quality and accessibility by non-academic professionals. Industry papers are presented for discussion at Netspar events. Representatives from partners in the academic, pension, and insurance sectors are invited to these events.

Netspar Industry Paper 2025-16, July 2025

Design Maan
Lay-out Bladvulling
Editor Frans Kooymans

Table of contents

Affiliations

Camilla Marabini – Netherlands Interdisciplinary Demographic Institute (NIDI/KNAW) and University Medical Center Groningen (UMCG)

Kène Henkens – Netherlands Interdisciplinary Demographic Institute (NIDI/KNAW) and University Medical Center Groningen (UMCG), University of Amsterdam

Hanna van Solinge – Netherlands Interdisciplinary Demographic Institute (NIDI/KNAW) and University Medical Center Groningen (UMCG)

Abstract

Background and Objectives

Maintaining control over one's transition from retirement is crucial for well-being after retirement. Yet, studies show that one out of four employees experiences involuntary retirement. This study investigates three pathways to involuntary retirement: poor health, organizational pressures, and mandatory retirement regulations. Guided by a life-course framework of agency and structure, we analyze how individual, organizational, and institutional factors shape the likelihood of experiencing one of these involuntary retirement pathways, as opposed to voluntary retirement.

Research Design and Methods

Using multi-level panel data from the Netherlands, we estimate multi-level multinomial regression models on 3,735 respondents nested in 501 organizations. After assessing their consistency within organizations, individual perceptions of organizational climates were aggregated at company level.

Results

One out of four employees experiences their retirement as involuntary. Mandatory measures are the most prevalent reason for involuntary retirement, reported by one third of involuntary retirees, followed by organizational pressures and poor health. Employees with a higher education are more at risk of leaving the workforce involuntarily due to mandatory retirement regulations. Supportive organizational climates are associated with a lower likelihood of involuntary retirement due to poor health or organizational pressures, but they increase the likelihood of perceptions of involuntary retirement due to mandatory retirement rules.

Discussion and Implications

This study sheds light on the interplay of personal, organizational, and institutional factors that shape involuntary retirement transitions. Beyond individual factors, we show that organizations and institutional policies may drive forced exits. By addressing these multi-level factors, policymakers and organizations can promote healthier and more voluntary retirement transitions and support the extension of working lives.

Samenvatting

Achtergrond en doelstellingen

Controle over de pensioentransitie is cruciaal voor het welzijn na pensionering. Een aanzienlijk deel van de werknemers krijgt echter te maken met onvrijwillige pensionering. Deze studie onderzoekt drie trajecten naar onvrijwillige pensionering: slechte gezondheid, organisatorische druk en verplicht pensioen bij het bereiken van de AOW-leeftijd. We gaan na hoe individuele, organisatorische en institutionele factoren de kans bepalen dat iemand een van deze onvrijwillige pensioenpaden bewandelt, in tegenstelling tot vrijwillig pensioen.

Onderzoeksopzet en methoden

Aan de hand van multilevel panelgegevens over 3.735 oudere werknemers werkzaam binnen 501 organisaties in Nederland schatten we multilevel multinomiale regressiemodellen. Om de impact van organisatiebeleid na te gaan werden -na beoordeling van de consistentie binnen organisaties- individuele percepties van het organisatieklimaat geaggregeerd op bedrijfsniveau.

Resultaten

Een op de vier werknemers ervaart zijn pensionering als onvrijwillig. Verplicht pensioen – gerapporteerd door een derde van de onvrijwillig gepensioneerden – is de meest voorkomende reden voor onvrijwillige pensionering, gevolgd door organisatorische druk en slechte gezondheid. Werknemers met een hogere opleiding lopen een groter risico om onvrijwillig de arbeidsmarkt te verlaten als gevolg van verplichte pensioenregelingen. Een ondersteunend organisatieklimaat gaat gepaard met een lagere kans op onvrijwillige pensionering als gevolg van een slechte gezondheid of organisatorische druk, maar verhoogt de kans op de perceptie van onvrijwillige pensionering als gevolg van verplichte pensioenregels.

Discussie en implicaties

Naast individuele factoren (zoals gezondheid) laten we zien dat organisatie- en institutioneel beleid een rol spelen bij ‘gedwongen pensionering’. Beleidsmakers en organisaties kunnen een gezondere en meer vrijwillige pensioentransitie bevorderen door organisatiedruk beter te beheersen en binnen de bestaande mogelijkheden intensiever te kijken naar mogelijkheden voor doorwerken na de AOW-leeftijd.

1. Introduction

As the population in the Western world has aged rapidly, increasing the workforce participation of older workers has become a key priority in policy agendas. Still, studies consistently show that roughly one out of every four employees retires without the intention to do so (Denton et al., 2013; Ebbinghaus & Radl, 2015; Szinovacz & Davey, 2005; Van Solinge & Henkens, 2007; Welsh et al., 2018). Involuntary retirement has consequences not only for society, as it reduces the labor force participation of older workers, but also for personal well-being. It is associated with worse physical and mental health after the retirement transition (Mosca & Barrett, 2016; Rhee et al., 2016), adjustment problems (Dingemans & Henkens, 2014), decreased short-term and long-term well-being (Radó & Boissonneault, 2020), and a higher likelihood of drinking and smoking (Henkens et al., 2008). However, our understanding of the different pathways to involuntary retirement and their main drivers is still limited.

Involuntary retirement has been conceptualized in different ways, resulting in two types of measurement (Stiemke & Hess, 2022). The first approach assumes that certain circumstances, such as poor health and redundancy, result in involuntary retirement, while other circumstances, such as reaching the age of benefit eligibility, reflect voluntary retirement (Ebbinghaus & Radl, 2015; Hyde & Dingemans, 2017; Radl, 2013). Hence, the extent to which retirement is voluntary is assessed indirectly, based on the reasons for retirement that respondents report. This approach ignores the fact that involuntariness of the retirement transition is a highly subjective assessment (Hewko et al., 2018). For example, retirement due to company downsizing can be perceived both as a welcome opportunity to retire early and as coercion, all depending on the financial conditions offered, own retirement preferences, and overall feelings of control over the transition (Clarke, 2007; Gardiner et al., 2007). At the same time, some retirement situations may not be as voluntary as they initially appear, such as retiring due to reaching the statutory pension age. Most OECD countries still have mandatory retirement rules in place (OECD, 2017). This usually entails that when employees reach the statutory pension age, defined as the age when a worker starts to receive a public pension, their employment contracts are automatically terminated. Existing literature seldom acknowledges that this could be regarded as a potential involuntary retirement pathway for retirees who would have preferred to continue working beyond this age (Fritz, 2024; Halliday & Parr, 2022).

The second type of measurement takes a direct approach, following Beehr's definition of involuntary retirement as "the individual's perception of the degree to which he or she retired voluntarily" (Beehr, 1986, p. 34). Hence, respondents are explicitly asked whether they perceived their retirement as voluntary or (partly) involuntary (Dorn & Sousa-Poza, 2010; Szinovacz & Davey, 2005; Van Solinge & Henkens, 2007). Although this approach takes the subjective nature of retirement experiences into account, it treats perceptions of involuntariness as

a broad "umbrella" concept, obscuring the underlying pathways to involuntary retirement. Such a broad approach may hide opposing forces that are at play. For instance, employees in prestigious occupations may be *less* likely to retire involuntarily (versus voluntarily) for health or redundancy reasons, but they may feel more tied to their career and thus may be *more* likely to retire involuntarily for mandatory reasons. In this article we introduce a novel measurement of involuntary pathways to retirement, one that incorporates both retirees' perceptions of voluntariness and the underlying retirement constraints, which operate at the personal, organizational, or institutional level (Moen, 2013; Szinovacz, 2003). More specifically, we distinguish between perceptions of involuntary retirement due to poor health, organizational pressures, institutional mandatory retirement regulations, a combination of poor health and organizational pressures, and a combination of organizational pressures and mandatory retirement, as opposed to experiencing voluntary retirement.

With regards to precursors, existing research on involuntary retirement focused mostly on individual determinants (Maclean et al., 2022; Stiemke & Hess, 2022). This literature generally suggests that individuals with more personal resources have more agency in their retirement transition (Damman & Henkens, 2017). Poor health (Denton et al., 2013; Van Solinge & Henkens, 2007; Welsh et al., 2018) and lower socio-economic status (Ebbinghaus & Radl, 2015; Szinovacz & Davey, 2005; Welsh et al., 2018) are associated with perceived involuntary retirement. However, factors that enhance and inhibit personal agency are present also at the meso- and macro-levels. At the meso-level, organizations shape individual agency by offering or restricting access to organizational policies and practices that allow control over the retirement transition (Henkens & Marabini, 2025; Moen, 2013). The current study focuses in particular on organizational climates, defined as "the shared perceptions of and the meaning attached to the policies, practices, and procedures employees experience" (Schneider et al., 2013, p. 362). At the macro-level, organizations are restricted by sectoral regulations, such as collective labor agreements and mandatory retirement policies.

This article aims to contribute to the literature in three ways. First, we introduce the concept of perceived involuntary retirement pathways, which are explicitly linked to individual (health), organizational (organizational pressures) and institutional (mandatory retirement) constraints. Adopting this measurement allows separate analysis of different circumstances of involuntary retirement, potentially uncovering opposing forces at play. Second, this is one of the first studies that examines involuntary retirement from multiple levels of analysis, and specifically addresses the role of organizational forces and institutional arrangements, which have been overlooked so far. Third, we aim to advance the field empirically by adopting a high-quality dataset that is both longitudinal and multi-level. The NIDI Pension Panel Survey (NPPS) enables multilevel analysis of 3,735 respondents who

transitioned into retirement between 2015 and 2023, nested in 501 organizations (Henkens et al., 2017).

This study is carried out in the Netherlands. In the Dutch pension system, the state pension age was 65 years until 2013 and was thereafter gradually increased to 67 years in 2024. For most wage-employed workers, mandatory retirement at the state pension age is regulated in the Collective Labor Arrangements. Continuing to work after the state pension age is possible, but that usually requires entering into a new employment contract. The Netherlands witnessed a significant increase in labor market participation by older workers in the past several decades. This is partly due to a healthier and more educated workforce, but also to a series of policies and reforms that blocked early exit routes (Visser et al., 2016). Extending the retirement age has been set as a high priority not only because of concerns about the financial sustainability of the pension system, but also because of growing concerns about labor market shortages, especially in such sectors as healthcare and education.

2. Theoretical framework

The life-course perspective posits that the life course is "actively created by individuals (...) within the confines of the social worlds in which they exist" (Settersten, 2003, p. 30). This concept is often summarized as the interplay of agency and structure. People strive to shape their life course by maintaining control over important transitions (Heckhausen & Schulz, 1995). Individual retirement decisions are also a product of agency and structure. It is often argued that employees decide to retire once the benefits of retirement outweigh the costs (Feldman & Beehr, 2011). However, such considerations only come into play when a real choice arises (Szinovacz, 2003, p. 21). The possibility to personally choose when to exit the labor force enhances perceived control over the retirement process, while limited options can lead to the perception of involuntary transitions (Damman & Henkens, 2017; Szinovacz & Davey, 2005). Moen (1996) defines two types of retirement constraints: situational and structural. Situational constraints originate at the individual or household level, whereas structural constraints stem from external sources, such as employer decisions and institutional rules. Guided by this framework of constrained agency at multiple levels of analysis, we formulate hypotheses on relevant micro-, meso-, and macro-level factors that are associated with involuntary retirement due to health, organizational pressures, and mandatory retirement regulations, as opposed to voluntary retirement.

Individual factors: The role of chronic health conditions and human capital on involuntary retirement pathways

Chronic health conditions. Chronic health conditions are defined as "health problems that are recurrent over a long time" (Bernell & Howard, 2016, p. 2). Individuals suffering from such conditions face challenges which restrict individual agency. They may face limitations in their daily work tasks, or may even be unable to perform their jobs (Rinsky-Halivni et al., 2022; Vanajan et al., 2020). As such, they are likely to more often face involuntary work exit due to poor health (H1a). Because chronic conditions may also lead to a of loss of productivity and increased absenteeism (Leijten et al., 2013), employers may be inclined to pressure such employees into retirement. Employees with chronic health problems are thus also more likely to retire involuntarily due to organizational pressures (H1b). Finally, individuals without chronic health conditions may face less challenge in maintaining their productivity and enjoy the financial and non-financial benefits of staying in the workforce. They may, however, more often experience involuntary retirement due to mandatory retirement regulations (H1c).

Human capital. Older workers reach the end of their career with a certain level of human capital, defined as the "*stock of knowledge and skills that enables people to perform work that creates economic value*" (Nahapiet, 2011, p. 75). Formal education is a key component

of human capital. Individuals with higher educational levels typically have greater agency over their life trajectories, as they are better equipped to plan ahead, make income- and health- enhancing choices, and access fulfilling careers (Hitlin & Kirkpatrick Johnson, 2015; Oreopoulos & Salvanes, 2011). The cumulative disadvantage perspective argues that educational inequalities grow over time, as early advantages lead to lasting differences in opportunities and outcomes later in life. (Dannefer, 2003). As such, older workers with different levels of education are likely to have diverging trajectories when it comes to retirement voluntariness (Riekhoff, 2018).

It is widely recognized that educational inequalities play a role in health outcomes the life-span. Workers with lower education are more exposed to health risks, as they more often work in less rewarding and physically taxing jobs (Breij et al., 2020; Hoven & Siegrist, 2013). Hence, we expect that educational level is negatively associated with involuntary retirement due to poor health (H2a). Furthermore, individuals with higher education enter the labor market with better skills, plus they have more access to training opportunities throughout their career (OECD, 2021). This may give them more bargaining power with their employers towards the end of their career. Their position makes them more difficult to replace, as their skills are important to organizations, which may protect them from being laid off (Phillipson et al., 2019; Wainwright et al., 2019). Hence, we expect that educational level is negatively associated with involuntary retirement due to organizational pressures (H2b). Finally, workers with better education have more opportunity to shape their careers. They are more likely to experience better working conditions and more intrinsic rewards in their jobs, which in turn may increase the opportunity and motivation for working longer compared to workers with lower education (Kanfer & Ackerman, 2004; Radl, 2013). However, in the Netherlands, most employees have their contract terminated as soon as they reach the state pension age. For workers with a high level of education, this may be experienced as a premature transition. Hence, we expect that educational level is positively associated with involuntary retirement due to mandatory retirement regulations (H2c).

Organizational factors: The role of age-friendly organizational climates on involuntary retirement pathways

The retirement transition of employees takes place within the work organization. Employees are influenced by social norms within their work environment and often align their behavior with these norms to secure anticipated benefits and avoid potential sanctions (Dannals & Miller, 2017). Organizational climates, defined as *"the shared perceptions of and the meaning attached to the policies, practices, and procedures employees experience"* (Schneider et al., 2013, p. 362) give insights into how employees experience their work environment. An age-friendly organizational climate may expand or limit the opportunities

available to employees, ultimately affecting how they can shape their exit from paid employment in line with their preferences (Marabini & Henkens, 2023; Moen, 2013).

Employers vary significantly in how they approach an aging workforce. Some primarily adopt practices that keep older workers active and engaged in their profession, while others focus on gradual reduction of their involvement in work (Lössbroek et al., 2019). In this study we consider organizational climates that capture bundles of age-friendly practices, as in Van Dalen et al. (2015), who categorize organizational practices for older workers in development, accommodation, and exit options. Development options refer to training and job mobility, accommodation options refer to reductions in working hours and workload, while exit options refer to opportunities in bridge employment or part-time work after retirement (Van Dalen et al., 2015). In addition to these three types of practices, we also consider the health and safety climate, which represents the perceptions of employees on whether their organization cares about their health, safety, and well-being (Zohar, 2014).

Organizational climate for development of older workers. This refers to the collective perceptions of older employees about how much their organization emphasizes and supports their training (Spell et al., 2014). When employers openly signal training opportunities for older workers, they encourage norms of active aging and adult learning. In such companies, employees are likely to be more willing and able to learn new skills, which may have a protecting effect against health-related or organizational circumstances that lead to involuntary retirement (H3a, H3b). For example, employees suffering from a health condition can use training opportunities to learn a new job within the company (Rinsky-Halivni et al., 2022). On the other hand, because such climate may foster employee attachment to the organization (Hennekam & Herrbach, 2013), it may also increase the likelihood of involuntary retirement due to mandatory retirement regulations (H3c).

Organizational climate for accommodation of older workers. This refers to the collective perceptions of older employees about the possibilities to adjust their workload and working hours. When older workers perceive a positive climate towards workplace accommodation, they may perceive less barriers to stay in the workforce until their retirement age. Moreover, a supportive climate and better communication may encourage employees to disclose their needs to their employer (Gignac et al., 2022; Hewko et al., 2018; Rinsky-Halivni et al., 2022), which may improve productivity and performance. Hence, the accommodation climate may have a protective role against health-related and organization-related involuntary retirement (H4a, H4b). Such climates, however, make it easier and attractive to remain in the workforce after the state pension age, increasing the likelihood of involuntary retirement due to mandatory retirement regulations (H4c).

Organizational climate for health. This refers to shared employee perceptions about the relative concern of employers for their safety, health, and well-being (Zohar, 2014). When employers clearly communicate that health and well-being are priorities, the work organiza-

tion may feel like a safe place to work. Employees may then be more likely to remain in their occupation. Hence, an organizational climate that addresses health and safety may protect against health-related and organization-related involuntary retirement (H5a, H5b). Paradoxically, such a positive climate may also foster feelings of belonging to the organization (Zacher & Yang, 2016), making involuntary retirement due to mandatory retirement regulations more likely (H5c).

Organizational climate for post-retirement work. Mandatory retirement arrangements at the state pension age constitute a strong norm for employers and employees. Employers and employees alike often report that the mandatory retirement age is considered the "normal age" to retire (Ebbinghaus & Radl, 2015; Riekhoff, 2023). However, adherence to these norms may differ by organization. When such norms are less strict, or when employers and managers clearly state that working after the state pension age is possible, employees may consider it as an additional choice factor in their retirement transition. For example, employer support for working until the retirement age has been found to raise the actual retirement age of employees (Van Solinge & Henkens, 2014). Employees who are unaware of the possibilities of working after the retirement age may more often face involuntary retirement. We posit that an organizational climate for post-retirement work decreases the likelihood to experience involuntary retirement due to organizational pressures (H6b) and mandatory retirement regulations (H6c).

Institutional factors: The role of sectoral mandatory retirement regulations

At the macro level, employees and their organizations are constrained by laws and regulations, which ultimately shape personal agency in the retirement transition. Mandatory retirement regulations are still common in many European countries. However, in 2008, this policy was abolished for Dutch civil servants, granting them greater control over their retirement decision (Oude Mulders, 2018). Mandatory retirement was re-introduced for employees who reached the state pension age as from January 1, 2020 (Koninkrijksrelaties, 2024). As a result, it is expected that civil servants who retired between 2008 and 2019 will experience a lower incidence of involuntary retirement due to more lenient mandatory retirement regulations (H7c). It is also expected that civil servants who retired during this time frame may have experienced pressure from their employer to retire more often, as no formal policy existed for termination of their employment (H7b).

3. Data and design

We use data from three waves of the NIDI Pension Panel Study (NPPS), a longitudinal, multi-level study conducted among Dutch older workers (Henkens et al., 2017). Our first step was to select the three largest occupational pension funds in the Netherlands, as these include five sectors (government, education, construction, healthcare, and social work) that cover approximately half of the Dutch national workforce. This selection leads to relative overrepresentation of public sector organizations. The second step was to select a random sample of older employees, between 60 and 65 years of age, who worked 12 hours per week or more (CBS, 2015). Employees are embedded in their corresponding organizations, and the sample was stratified by organizational size, defined as small (10-49 employees), medium (50-249 employees) or large (more than 250 employees). The three data collection waves took place in 2015, 2018, and 2023. Questionnaires were sent to 15,480 older workers, with 6,793 being returned in the first wave (44% response rate). Panel attrition was limited, as 5,312 respondents returned the questionnaire in the second wave (79% of the first wave sample), and 4,258 in the third wave (83%). For our multivariate multilevel analysis, we excluded respondents who completed a short version of the questionnaire that excluded some of the organizational climate items (N = 498). Moreover, to justify the representative character at the organizational level, we excluded organizations with a response rate below 20% and with fewer than three respondents (N = 2,170), following the approach used by Li et al. (2023). This left a sample of 4,125 older workers embedded in 501 organizations who returned the first wave questionnaire. Due to panel attrition (N = 304) and missing items in the dependent variable (N = 86), the resulting final sample consisted of 3,735 older workers embedded in 501 organizations.

Measures

Dependent variable

The dependent variable – involuntary pathways to retirement – was constructed based on responses to two survey questions, which were asked both at Waves 2 and 3 of the survey to those who had retired (in Wave 1 everyone was in paid work). For participants who retired in Wave 2, the information on retirement voluntariness was taken from Wave 2 (N = 2,292). For those still working at Wave 2 (N = 1,443), the information was taken from Wave 3, when all participants had already reached the mandatory retirement age. Participants were first asked: “Was your decision to stop working voluntary or not?” They could respond: “Yes, it was fully voluntary”, “No, it was partly involuntary”, or “No, it was fully involuntary”. Participants who responded negatively were asked a follow-up question: “What made your decision fully or partly involuntary?”. In both waves, they could choose “Poor health”, “Pres-

sures from employer", "Mandatory retirement", or "Other reasons". In Wave 2 only, more reasons were defined ("My partner's health", "Difficult to combine work and care", "Pressure from co-workers", "My partner wanted me to stop"). Pressure from co-workers was included in the pathway that consisted of organizational pressures, while the other categories were combined in a residual category due to their low incidence. Respondents could select multiple options. Based on these answers, five pathways were determined: (1) poor health, (2) organizational pressures, (3) mandatory retirement, (4) poor health combined with organizational pressures, and (5) mandatory retirement combined with organizational pressures. A residual category, consisting of other reasons, captured fewer responses. Analyses for this residual category were conducted but are not presented. Voluntary retirees were the baseline category for our analyses.

Independent variables

All independent variables were taken from Wave 1. Detailed information is provided in Table 1.

Chronic health conditions. Respondents were asked whether they suffered from one or more chronic health conditions, including musculoskeletal disorders, migraines, cardiovascular diseases, respiratory diseases, mental health conditions, life-threatening diseases, and sleep problems.

Human capital. Respondents were asked about their highest level of education. This was recoded into low, medium, and high education. Since the Dutch education system features parallel tracks, all levels were split further into vocational and general education (Luijkx & de Heus, 2008; OECD, 2023). This information was complemented with dummy variables on whether the respondent had a manual occupation, based on the Goldthorpe class scheme (Goldthorpe, 2000), and on whether they held a supervisory position.

Organizational climate for developing older workers is based on a scale consisting of two items: "In this organization, managers stimulate older workers to keep their knowledge up to date" and "Training of older workers has a high priority in this organization". A similar measure was used in Li et al. (2023). Pearson's correlation coefficient at the organizational level is 0.63.

Organizational climate for accommodation of older workers is based on a scale consisting of two items: "If work becomes too burdensome, it is possible to decrease the workload in this organization" and "If work becomes too burdensome, working hours can be adjusted in this organization". Pearson's correlation coefficient at the organizational level is 0.81.

Organizational climate in support of health is based on a scale consisting of two items: "Health and well-being of employees are important in this organization" and "In this organization attention is paid to health and safety at work". Pearson's correlation coefficient at the organizational level is 0.70.

Organizational climate for post-retirement work is based on one item: "In this organization you can continue working after the state pension age". Using a referent-shift consensus model, we assume that individual perceptions of the collective climate can be aggregated and treated as an organization-level variable (Chan, 1998). To investigate whether aggregation is theoretically justified, we computed within-group agreement indexes such as r*wgJ (Lindell & Brandt, 1999), awgJ (Brown & Hauenstein, 2005), ADMj (average deviation from the mean), and ADMdj (average deviation from the median) (Burke et al., 1999). For detailed information, see Appendix 1. The values of the indexes show that respondents rate their organizational climates similarly and justify aggregation of individual items at the organizational level, by taking individual averages of the climate items and computing organizational means. Measures were calculated using the ira package in Stata 18 (Graf-Vlachy, 2017). The lowest correlation between the four types of climate is 0.18 (Development*post-retirement work), while the highest is 0.48 (accommodation*health); the average correlation is 0.31.

Control variables. At the individual level, we controlled for age, gender, and marital status. All variables were taken from Wave 1 except for marital status, which was taken at Wave 2 or 3, depending on when the participant retired. At the organizational level we controlled for company size (small, medium, and large) and sector.

Missing values. All independent variables containing missing information were imputed. The range of missing items was between 0.37% and 2.39%. Missing data were handled with multiple imputation with 20 datasets. For multi-item scales, we imputed at item level (Eekhout et al., 2014). The dependent variable was included in the imputation model, but analyses were only run on the original cases..

Analysis

We carried out our analyses in two steps. First, we presented descriptive findings that show the prevalence of the different involuntary pathways by sector of industry and education. Second, we adopted a multilevel multinomial regression design to analyze involuntary pathways to retirement. That involved estimating a generalized linear model for multinomial outcomes with random effects at the organization level. The Intraclass Correlation Coefficient (ICC) for the multilevel multinomial model, which indicates the proportion of the total variance in the outcome variable explained by organization level, was manually calculated as $ICC=(variance^{individual})/(variance^{individual} + variance^{organization}) = 0.036$. This means that, on average, 3.6% of the variation in the outcome variable is explained by organization-level features[1]. The explained variance of the estimated model was manually calculated using

1 Note that the ICC varies depending on the specific pathway looked at. For example, for involuntary retirements due to organizational pressures it is higher (12.3%), while for involuntary retirements due to mandatory retirement it is lower (1.7%). This suggests that organizational features play a larger role in involuntary retirement pathways related to organizational pressures than in health-related and mandatory retirement-related pathways.

McFadden's pseudo-R2 formula (Hox et al., 2017, p. 149). All analyses were performed in Stata 18.

Descriptive results

Descriptive statistics show that one out of four employees experience involuntary retirement. Figure 1 illustrates the incidence of involuntary retirement pathways and their combinations. Mandatory retirement was the most frequently mentioned reason (29%), followed by organizational pressures (24%) and health issues (20%). Poor health along with organizational pressures was the most common combination (14%), followed by organizational pressures along with mandatory retirement (6%).

The average retirement age of the voluntary retirees is 64 years and 6 months. Involuntary retirement age due to poor health or employer-driven occurs at earlier ages (on average 62 years and 6 months due to poor health and 63 years for organizational pressures). Involuntary retirement due to mandatory retirement regulations occurs later (on average 65 years and 6 months). The most frequently mentioned health conditions among involuntary retirees in the poor health pathway are musculoskeletal disorders, cardiovascular diseases, and life-threatening conditions (i.e., cancer).

Figure 1. Involuntary retirement pathways (N = 978)

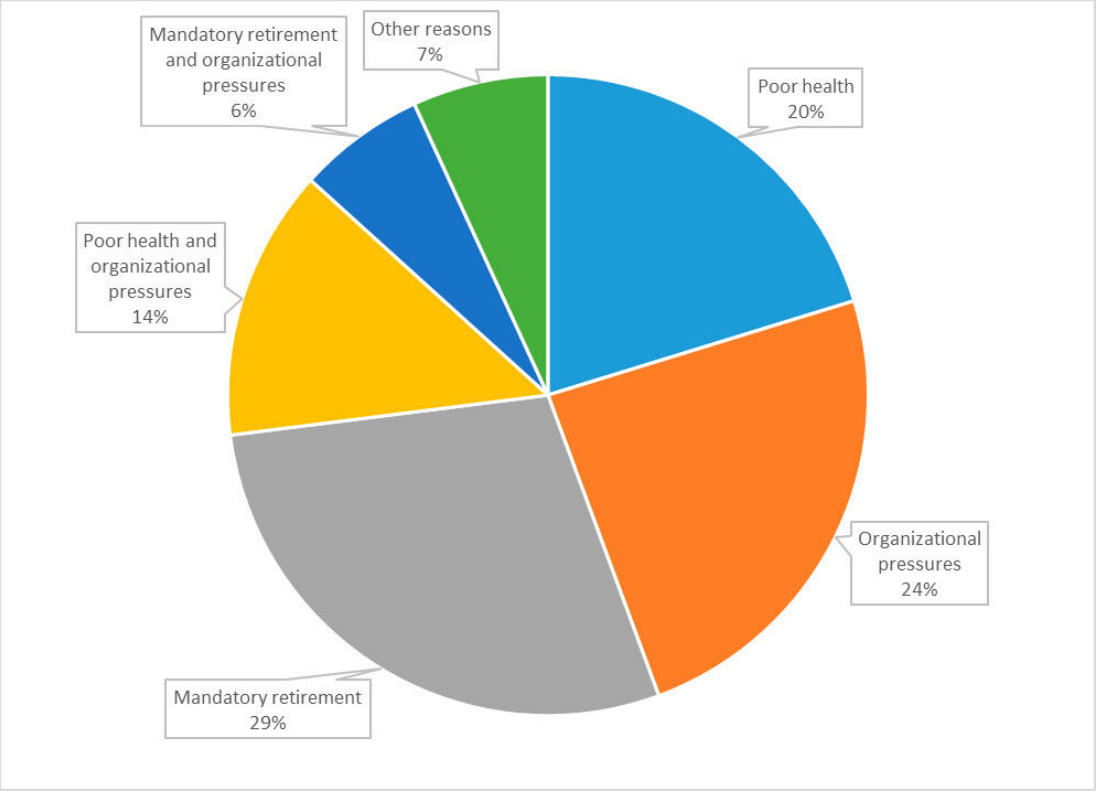
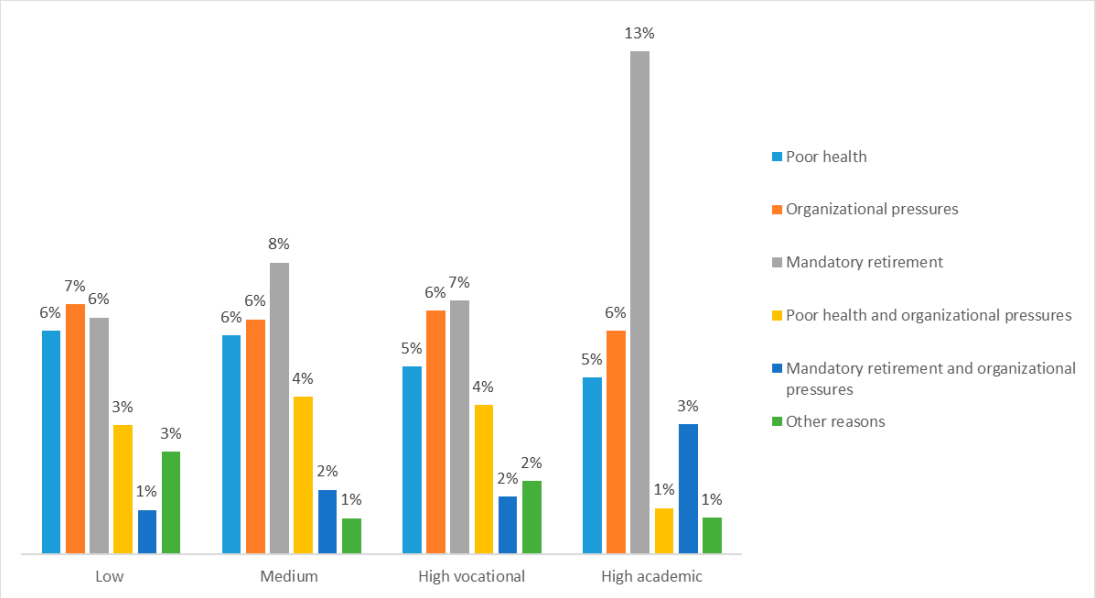


Figure 2. Involuntary retirement pathways by education level (N = 3703)



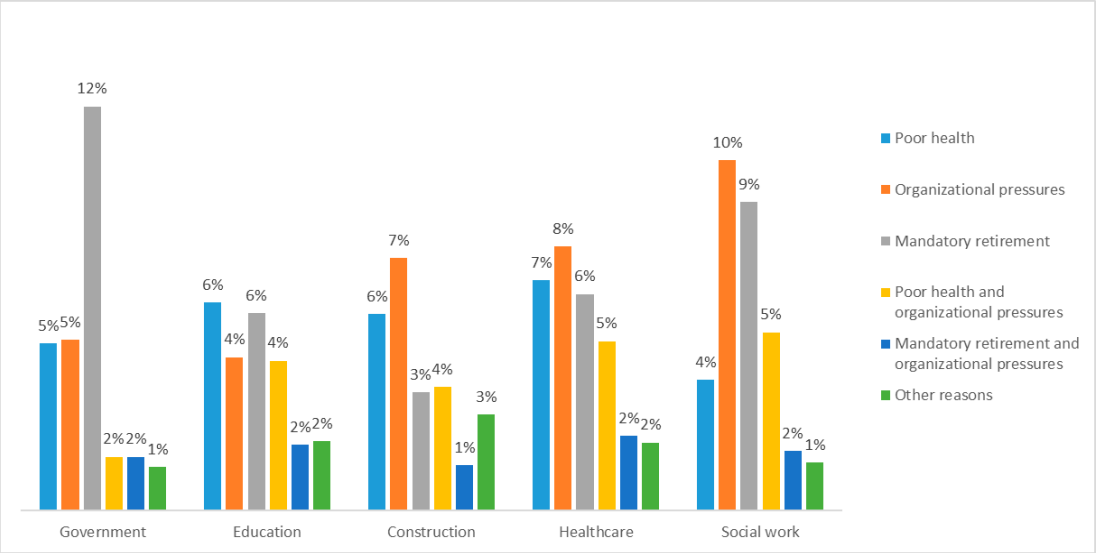
Note: Voluntary retirements are not shown. Sample size differs from the main analysis due to missing cases (N = 32) for the education variable.

Figure 2 shows the incidence of different pathways to retirement by educational level (low, medium, high vocational, and high academic; voluntary retirements are not shown).

The shares of involuntary retirements that occur due to poor health, organizational pressures, or a mix of both are rather similar across all educational groups. However, involuntary retirement due to mandatory retirement regulations appears to be much more common among employees with academic degrees. The total share for this category is 13%, and it reaches 16% when adding involuntary retirement due to both mandatory retirement regulations and organizational pressures. This suggests that one out of every six employees with an academic degree perceives retirement as being forced by mandatory retirement rules. Though the restriction of mandatory retirement rules are most strongly felt by those with an academic degree, also among employees with lower education roughly one out of ten mentions the mandatory retirement regulation as the reason for involuntary retirement.

Figure 3 shows the incidence of involuntary retirement pathways by economic sector. The incidence of involuntary retirement that occurs due to poor health is rather similar by economic sector, although it does seem to be lowest in the government sector (5% due to poor health, and 7% when combining poor health and organizational pressures). Involuntary retirement due to organizational pressures seems most common in the healthcare and social work sectors, representing 8% and 10% respectively of all retirement transitions, and 13% and 15% respectively when including involuntary retirement due to the combination of poor health and organizational pressures. Involuntary retirement due to mandatory retirement policies occurs more frequently in the government sector, repre-

Figure 3. Involuntary retirement pathways by company sector (N = 3735)



Note: Percentages of voluntary retirements not shown.

senting 12% of the retirement transitions and 14% when including combined organizational pressures and mandatory retirement reasons.

4. Multivariate Multilevel Results

Table 1 summarizes the sample characteristics for the multivariate analysis. Table 2 summarizes findings from a multilevel multinomial regression model that examines the main effects of chronic health conditions, human capital, organizational climate, and mandatory retirement arrangements on the likelihood of experiencing involuntary retirement due to poor health (Pathway 1), organizational pressure (Pathway 2), and mandatory retirement (Pathway 3). Aside from the three main pathways, we included poor health along with organizational pressure (Pathway 4) and organizational pressure along with mandatory retirement (Pathway 5). We found that chronic health conditions played an important role in health-related involuntary retirement pathways. Having one chronic health condition was associated with increased likelihood of involuntary retirement due to poor health ($B = 0.91$, $p < 0.001$) and the combination of poor health and organizational pressures ($B = 1.21$, $p < 0.001$). The association in both pathways was even stronger for respondents with two or more chronic health conditions ($B = 1.74$, $p < 0.001$; $B = 1.01$, $p < 0.001$). These results support Hypothesis 1a. No negative association was found between chronic health conditions and involuntary retirement due to organizational pressure or mandatory retirement. Therefore Hypotheses 1b and 1c were rejected.

Higher education levels were generally not associated with distinct patterns of involuntary retirement. Employees with an academic education were significantly more likely to retire involuntarily due to mandatory retirement ($B = 0.90$, $p < 0.001$), thus supporting Hypothesis 2c. However, no support was found for the hypotheses that employees with lower education were more likely to experience involuntary retirement due to poor health (Hypothesis 2a) or organizational pressure (Hypothesis 2b). Having a supervisory role was associated with a higher likelihood of involuntary retirement due to organizational pressure ($B = 0.61$, $p < 0.001$)

Supportive organizational climates also played a role in different involuntary retirement pathways. First, we investigated the role of development climate in the organization, defined as the perception of opportunities for training and learning for older workers. A positive development climate was associated with less involuntary retirement due to organizational pressure ($B = -0.72$, $p < 0.001$). This supports Hypothesis 3b. However, no significant association was found with the other pathways, thus providing no support for Hypotheses 3a and 3c. Second, we investigated the role of accommodation climate for older workers, defined as the perception of support for adjustment of working hours and workload. No significant negative associations were found between accommodation climate and involuntary retirement due to poor health or organizational pressure. As expected, accommodation climate was positively associated with involuntary retirement due to mandatory retirement rules ($B = 0.46$, $p < 0.05$), in line with Hypothesis 4c. Third, we investigated the role of supportive

health climate, defined as the perception of the organization as caring for one's health and well-being. In line with our expectations, a stronger climate for health was negatively associated with involuntary retirement due to organizational pressure ($B = -0.50$, $p < 0.05$) and due to poor health and organizational pressure ($B = -0.84$, $p < 0.01$), in support of Hypothesis 5b. We found no evidence that a supportive health climate is associated with a lower likelihood of involuntary exit due to poor health, nor that it is positively associated with retirement due to mandatory retirement. Finally, we investigated the role of a post-retirement work climate, defined as the perception of possibilities to stay in the organization after the state pension age. However, no significant associations were found between a climate for post-retirement work and involuntary retirement due to mandatory retirement rules. Hence, Hypotheses 6b and 6c are not supported.

The absence of a mandatory retirement policy was significantly associated with a lower likelihood of involuntary retirement due to mandatory retirement rules ($B = -1.95$, $p < 0.001$), thus supporting Hypothesis 7c. However, we do not find support for the hypothesis that a lack of mandatory retirement policy would be associated with a higher prevalence of involuntary retirement due to organizational pressure (Hypothesis 7b).

With regard to control variables at the individual level, we found that other important covariates have differential associations with involuntary retirement pathways. Age at baseline is negatively associated with involuntary retirement due to health reasons ($B = -0.23$, $p < 0.001$) and positively associated with involuntary retirement due to mandatory retirement regulations ($B = 0.18$, $p < 0.001$). Moreover, the results show that women are less likely to experience involuntary retirement compared to men, but only in the health-related pathway ($B = -0.38$, $p < 0.001$). Perceptions of involuntary retirement are also deemed to depend on older workers' retirement preferences. In Appendix 2 we tested whether the results presented still hold when controlling for preference to work in the following two years in Wave 1 in the explanatory model. This sensitivity check was conducted to rule out that the effect of our examined predictors would disappear when accounting for individual predispositions towards work and retirement. Such a finding would suggest that involuntary retirement is mostly explained by individual preference and not by the factors we examined. The results show that older workers with strong retirement preference are less likely to perceive their retirement as involuntary. However, the effects of all other predictors in the model do not change, suggesting that the examined predictors still play an important role when accounting for individual preferences.

We also found differences in involuntary retirement pathways by sector. Remarkably, employees in the government sector, which was the baseline category, experience involuntary retirement due to organizational pressures less often compared to employees in construction ($B = 0.56$, $p < 0.05$), healthcare ($B = 0.64$, $p < 0.05$), and social work ($B = 0.66$, $p < 0.001$), and involuntary retirement less often due to personal poor health compared

to healthcare workers (B = 0.57, $p < 0.05$). Moreover, they experience involuntary retirement due to mandatory retirement rules more often compared to education (B = -0.75, $p < 0.001$), construction (B = -0.98, $p < 0.001$) and healthcare (B = - 0.58, $p < 0.01$) workers. This suggests that typically early exits that are driven by health issues and redundancy are less common among government workers. Instead, they seem to be forced out of their organizations due to mandatory retirement rules.

Finally, we investigated whether a supportive health climate is particularly effective in reducing the risk of involuntary retirement due to poor health and organizational issues (Pathway 4) among employees with chronic health conditions. To test this, we included in the model an interaction term between chronic health conditions and supportive health climate. The interaction effect was not statistically significant, indicating that a supportive health climate does not differentially influence involuntary retirement for employees with or without chronic health problems.

5. Discussion

Retirement is a major life course transition in life. Being able to maintain control over the later phase of one's life has important consequences for post-retirement health, adjustment and well-being (Dingemans & Henkens, 2014; Mosca & Barrett, 2016; Radó & Boissonneault, 2020). Existing studies, including ours, show that retirement comes involuntarily for roughly one out of every four employees (Ebbinghaus & Radl, 2015; Szinovacz & Davey, 2005; Van Solinge & Henkens, 2007). Despite the importance of this topic, a comprehensive investigation of the drivers of different types of involuntary retirement transition has been missing in the literature. Understanding these transitions and what came before is crucial, because strategies to reduce involuntary retirement may depend on the specific constraints involved. This study introduces an innovative measure of involuntary retirement pathways, as it integrates retirees' subjective perceptions of voluntariness with the underlying constraints that shape their work exits. Our findings reveal that poor health, organizational pressures, and mandatory retirement regulations each constitute distinct trajectories to involuntary retirement, which differ in their precursors. This highlights the relevance of measuring involuntary retirement pathways in a detailed way.

First of all, our findings show that involuntary retirement most commonly is the result of mandatory retirement rules. This finding highlights how institutional frameworks at macro level constrain retirement choices (Moen, 2013). Mandatory retirement has been abolished in some countries such as the United States, but it is still persistent in most OECD countries (OECD, 2017). Our results show that there might be some friction between new demographic realities, where improvements in life expectancy allow workers to be productive until a higher age, and current retirement policies, as these may represent an obstacle for individuals who wish to continue working beyond the state pension age. This is especially the case for employees with academic degrees, who enjoy better working conditions that allow them to work longer (Visser et al., 2016b). These results might fuel discussion about more flexible routes to leave the workforce. Mandatory retirement regulations are grounded in seniority-based wage systems that are common in The Netherlands. Since tenured older employees can be costly and difficult to dismiss, mandatory retirement provides employers with an opportunity to part from employees whom they consider too expensive (OECD, 2017, p.66). It is important to note that employers are not required to pay certain premiums (e.g. for AOW, disability, and unemployment) for older workers who work beyond the public pension age. It is worth thinking, however, of new ways to balance pay and productivity for those who wish to stay engaged in the labor force. Part-time employment, demotion, and temporary arrangements might be elements in arrangements between employers and employees to facilitate longer working lives in an aging society that deals with structural labor shortages.

Poor health and organizational pressures are also important pathways to involuntary retirement. We found only limited support for the hypothesis that employees with limited human capital experience these involuntary retirement pathways more often. While previous research suggests that involuntary retirement due to poor health and redundancy measures disproportionately affect individuals in lower socio-economic positions (Ebbinghaus & Radl, 2015), our findings indicate that the perception of voluntariness – when controlling for chronic health problems – are not as socially stratified. In fact, we see that managers experience involuntary work exit due to organizational pressures more often. This finding may reflect shifts in workplace dynamics in recent decades, as organizations strive to become less centralized and to reduce bureaucracy, which often results in layoffs in middle-management roles (Foster et al., 2019)

The current study is one of the first to investigate the impact of age-inclusive organizational climates on involuntary retirement, based on aggregation of individual perceptions at the organizational level. Our findings suggest that organizational climates affect individuals' control over retirement transition and that their impact varies depending on the experienced pathway. A supportive organizational climate can have a protective effect against involuntary work exit that is typically premature, namely when driven by health reasons and organizational pressures. We found that a positive training climate is negatively associated with involuntary retirement due to organizational pressures. Employees who have had the opportunity to keep their skills up-to-date may have more leverage when lay-offs or company restructuring occurs. In organizations that show support and interest in employee health, retirees less often report involuntary retirement due to a combination of health and organizational reasons. This result aligns with previous literature as it suggests that employers, by providing a healthy working climate, are key actors in supporting employees to work until their preferred retirement age (Leijten et al., 2013; Rinsky-Halivni et al., 2022; Vanajan et al., 2020), thereby enabling more voluntary retirement transition.

When it comes to involuntary retirement transitions driven by mandatory retirement rules, our results indicate that formal policies overrule informal arrangements. We found no evidence that a normative climate that supports post-retirement work is associated with a lower chance of involuntary retirement due to reaching the state pension age. However, this chance was lower in organizations that formally abolished mandatory retirement. Interestingly, we found no evidence that in such organizations the lack of mandatory retirement was offset by more organization-driven involuntary exits. This suggests that employers do not compensate for the absence of mandatory retirement by pressuring more employees to retire. Therefore, abolishing mandatory retirement appears to effectively eliminate a barrier for workers to extend their career beyond the retirement age. Paradoxically, the perception of opportunities for accommodation (lighter tasks and flexible hours) leads to an increased risk of involuntary retirement due to mandatory retirement rules. This aligns with research

showing that older workers value organizations that offer flexible work arrangements that allow them control over their time (Armstrong-Stassen, 2008; Moen et al., 2017). These conditions may foster a stronger desire to remain employed beyond the state pension age, a desire that is ultimately restricted by mandatory retirement policies.

Our study has some strong features. The longitudinal design of the study allowed us to follow retirees in their transition from work to retirement and thus to study retirement as a life event. Also, this study is one of the very few among older workers that apply a true multilevel design. Since employees in our study were nested in their work organization, we were able to disentangle the individual and organizational levels of analysis. This approach allowed us to study the collective perceptions of organizational climates and their impact on involuntary retirement. Finally, the large organization sample, stratified by sector and size, ensures representativeness of the wage-employed older worker population in the Netherlands.

However, our study also involved limitations. First of all, our measures of the organizational climate consisted of only one or two items and may thus not fully capture all underlying dimensions of the social climate in organizations. This limitation is due to the comprehensive nature of the study, where respondents were asked a wide range of questions on different life domains, requiring us to reduce the burden on respondents. Second, our youngest respondents were 60 years of age at baseline, while we are aware that health-related involuntary work exit can occur at an earlier age due to disability. These experiences are not captured in our data. Finally, our study was conducted in the Netherlands, a country with generous pension schemes, strict mandatory retirement policies, and a tight labor market. While our findings provide valuable insights into the multi-level forces that shape retirement transition, the prevalence of the different involuntary pathways may not be apply to countries with different institutional and labor market characteristics.

Many countries are promoting policies to extend working lives as a measure to deal with an aging population. Traditionally, restricting the opportunities for early exit and increasing the state pension age have been implemented to extend the working lives of older workers. This study clearly shows that, even in a labor market that is characterized by large employee shortages, involuntary retirement is widespread. By examining the individual, organizational, and institutional factors associated with distinct involuntary retirement pathways, this article has contributed to our understanding of constrained choices in later working life. We show that not only individual risk factors, but also wider organizational circumstances and sectoral policies shape individual agency in the exit from work. Policies aimed at empowering employees in the final stage of their career may not only ensure higher labor force participation, but also enable healthier pathways to retirement.

References

Bernell, S. & Howard, S. W. (2016). Use Your Words Carefully: What Is a Chronic Disease? *Frontiers in Public Health*, *4*. https://doi.org/10.3389/fpubh.2016.00159

Breij, S. de, Huisman, M., & Deeg, D. J. H. (2020). Work characteristics and health in older workers: Educational inequalities. *PLOS ONE*, *15*(10), e0241051. https://doi.org/10.1371/journal.pone.0241051

CBS. (2015). *Beroepsbevolking (12-uursgrens)* [Webpagina]. Centraal Bureau voor de Statistiek. https://www.cbs.nl/nl-nl/onze-diensten/methoden/begrippen/beroepsbevolking--12-uursgrens--

Clarke, M. (2007). Choices and constraints: Individual perceptions of the voluntary redundancy experience. *Human Resource Management Journal*, *17*(1), 76–93. https://doi.org/10.1111/j.1748-8583.2007.00023.x

Damman, M. & Henkens, K. (2017). Constrained Agency in Later Working Lives: Introduction to the Special Issue. *Work, Aging and Retirement*, *3*(3), 225–230. https://doi.org/10.1093/workar/wax015

Dannals, J. E. & Miller, D. T. (2017). Social Norms in Organizations. In J. E. Dannals & D. T. Miller, *Oxford Research Encyclopedia of Business and Management*. Oxford University Press. https://doi.org/10.1093/acrefore/9780190224851.013.139

Dannefer, D. (2003). Cumulative Advantage/Disadvantage and the Life Course: Cross-Fertilizing Age and Social Science Theory. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *58*(6), S327–S337. https://doi.org/10.1093/geronb/58.6.S327

Denton, M., Plenderleith, J., & Chowhan, J. (2013). Health and Disability as Determinants for Involuntary Retirement of People with Disabilities. *Canadian Journal on Aging / La Revue Canadienne du Vieillissement*, *32*(2), 159–172. https://doi.org/10.1017/S0714980813000202

Dingemans, E. & Henkens, K. (2014). Involuntary retirement, bridge employment, and satisfaction with life: A longitudinal investigation. *Journal of Organizational Behavior*, *35*(4), 575–591. https://doi.org/10.1002/job.1914

Dorn, D. & Sousa-Poza, A. (2010). 'Voluntary' and 'involuntary' early retirement: An international analysis. *APPLIED ECONOMICS*, *42*(4), 427–438. https://doi.org/10.1080/00036840701663277

Ebbinghaus, B. & Radl, J. (2015). Pushed out prematurely? Comparing objectively forced exits and subjective assessments of involuntary retirement across Europe. *Research in Social Stratification and Mobility*, *41*, 115–130. https://doi.org/10.1016/j.rssm.2015.04.001

Eekhout, I., de Vet, H. C. W., Twisk, J. W. R., Brand, J. P. L., de Boer, M. R., & Heymans, M. W. (2014). Missing data in a multi-item instrument were best handled by multiple imputation at the item score level. *Journal of Clinical Epidemiology*, *67*(3), 335–342. https://doi.org/10.1016/j.jclinepi.2013.09.009

Feldman, D. C. & Beehr, T. A. (2011). A three-phase model of retirement decision making. *American Psychologist*, *66*(3), 193–203. https://doi.org/10.1037/a0022153

Fritz, J. M. (2024). Mandatory Retirement and Involuntary Retirement: Addressing a Social Justice Issue. In J. Zajda & Y. Vissing (Eds.), *Globalisation, Cultural Diversity and Human Rights* (pp. 163–183). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-55478-0_9

Gardiner, J., Stuart, M., Forde, C., Greenwood, I., MacKenzie, R., & Perrett, R. (2007). Work-life balance and older workers: Employees' perspectives on retirement transitions following redundancy. *The International Journal of Human Resource Management*, *18*(3), 476–489. https://doi.org/10.1080/09585190601167904

Gignac, M. A. M., Bowring, J., Shahidi, F. V., Kristman, V., Cameron, J. I., & Jetha, A. (2022). Workplace Disclosure Decisions of Older Workers Wanting to Remain Employed: A Qualitative Study of Factors Considered When Contemplating Revealing or Concealing Support Needs. *Work, Aging and Retirement*, waac029. https://doi.org/10.1093/workar/waac029

Goldthorpe, J. H. (2000). *On Sociology: Numbers, Narratives, and the Integration of Research and Theory*. Oxford University Press.

Halliday, D. & Parr, T. (2022). Ageing, Justice, and Work: Alternatives to Mandatory Retirement. In C. S. Wareham (Ed.), *The Cambridge Handbook of the Ethics of Ageing* (1st ed., pp. 228–242). Cambridge University Press. https://doi.org/10.1017/9781108861168.017

Heckhausen, J. & Schulz, R. (1995). A life-span theory of control. *Psychological Review*, *102*(2), 284–304. https://doi.org/10.1037/0033-295X.102.2.284

Henkens, K. & Marabini, C. (2025). Forge Healthy Pathways to Retirement with Employer Practices: An Extended Multilevel Model. *Netspar*, *AP 2025-02*. https://www.netspar.nl/en/knowledge-hub/forge-healthy-pathways-to-retirement-with-employer-practices-an-extended-multilevel-model/

Henkens, K., Van Solinge, H., & Gallo, W. T. (2008). Effects of retirement voluntariness on changes in smoking, drinking and physical activity among Dutch older workers. *The European Journal of Public Health*, *18*(6), 644–649. https://doi.org/10.1093/eurpub/ckn095

Hennekam, S. & Herrbach, O. (2013). HRM practices and low occupational status older workers. *Employee Relations*, *35*(3), 339–355. https://doi.org/10.1108/01425451311320512

Hewko, S., Reay, T., Estabrooks, C., & Cummings, G. (2018). Conceptual Models of Early and Involuntary Retirement among Canadian Registered Nurses and Allied Health Professionals. *Canadian Journal on Aging - Revue Canadienne du Vieillissement*, *37*(3), 294–308. https://doi.org/10.1017/S0714980818000223

Hitlin, S. & Kirkpatrick Johnson, M. (2015). Reconceptualizing Agency within the Life Course: The Power of Looking Ahead. *American Journal of Sociology*, *120*(5), 1429–1472. https://doi.org/10.1086/681216

Hoven, H. & Siegrist, J. (2013). Work characteristics, socioeconomic position and health: A systematic review of mediation and moderation effects in prospective studies. *Occupational and Environmental Medicine*, *70*(9), 663–669. https://doi.org/10.1136/oemed-2012-101331

Hox, J., Moerbeek, M., & Schoot, R. van de. (2017). *Multilevel Analysis: Techniques and Applications, Third Edition* (3rd ed.). Routledge. https://doi.org/10.4324/9781315650982

Kanfer, R. & Ackerman, P. L. (2004). Aging, Adult Development, and Work Motivation. *The Academy of Management Review*, *29*(3), 440–458. https://doi.org/10.2307/20159053

Koninkrijksrelaties, Ministerie van Buitenlandse Zaken. (2024, June 27). *CAO Rijk* [Webpagina]. https://www.caorijk.nl/download-de-cao-rijk-en-meer

LeBreton, J. M. & Senter, J. L. (2008). Answers to 20 Questions About Interrater Reliability and Interrater Agreement. *Organizational Research Methods*, *11*(4), 815–852. https://doi.org/10.1177/1094428106296642

Leijten, F., Heuvel, S. van den, Geuskens, G., Ybema, J. F., Wind, A. de, Burdorf, A., & Robroek, S. (2013). How do Older Employees with Health Problems Remain Productive at Work? A Qualitative Study. *Journal of Occupational Rehabilitation*, *23*(1), 115–124. https://doi.org/10.1007/s10926-012-9390-0

Li, Y., Turek, K., Henkens, K., & Wang, M. (2023). Retaining retirement-eligible older workers through training participation: The joint implications of individual growth need and organizational climates. *Journal of Applied Psychology*, *108*(6), 954–976. https://doi.org/10.1037/apl0001065

Lössbroek, J., Lancee, B., Lippe, T. V. D., & Schippers, J. (2019). Understanding old-age adaptation policies in Europe: The influence of profit, principles and pressures. *Ageing & Society*, *39*(5), 924–950. https://doi.org/10.1017/S0144686X17001295

Luijkx, R. & de Heus, M. (2008). The educational system of the Netherlands. In Schneider, S.L. (Ed.), *The international standard classification of education (ISCED-97). An evaluation of content and criterion validity for 15 European countries* (pp. 47–75). Mannheimer Zentrum für Europäische Sozialforschung. https://research.tilburguniversity.edu/en/publications/58c10c50-765f-4a2d-ac38-81fd228ae8b1

Maclean, M., Morassaei, S., & Pedlar, D. (2022). Factors Explaining Involuntary Retirement: A Systematic Review. *The Journal of Ageing and Social Change*.

Marabini, C. & Henkens, K. (2023). Age□inclusive HR policies and organizational climate: Are older workers and employers on the same page? *Netspar*, *AP 2023-006*. https://www.netspar.nl/kennisplein/age%E2%80%90inclusive-hr-policies-and-organizational-climate-are-older-workers-and-employers-on-the-same-page/

Moen, P. (1996). A Life Course Perspective on Retirement, Gender, and Well-Being. *Journal of Occupational Health Psychology*, *1*, 131–144. https://doi.org/10.1037/1076-8998.1.2.131

Moen, P. (2013). Constrained Choices: The Shifting Institutional Contexts of Aging and the Life Course. In *New Directions in the Sociology of Aging*. National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK184352/

Mosca, I. & Barrett, A. (2016). The Impact of Voluntary and Involuntary Retirement on Mental Health: Evidence from Older Irish Adults. *The Journal of Mental Health Policy and Economics*, *19*(1), 33–44.

Nahapiet, J. (2011). A Social Perspective: Exploring the Links between Human Capital and Social Capital. In A. Burton□Jones & J.□C. Spender (Eds.), *The Oxford Handbook of Human Capital* (p. 0). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199532162.003.0003

OECD (2017). *Pensions at a Glance 2017*. https://www.oecd-ilibrary.org/content/publication/pension_glance-2017-en

OECD (2021). *OECD Skills Outlook 2021: Learning for Life*. OECD. https://doi.org/10.1787/0ae365b4-en

OECD (2023). *International Standard Classification of Education (ISCED)*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_Standard_Classification_of_Education_(ISCED)

Oreopoulos, P. & Salvanes, K. G. (2011). Priceless: The Nonpecuniary Benefits of Schooling. *Journal of Economic Perspectives*, *25*(1), 159–184. https://doi.org/10.1257/jep.25.1.159

Phillipson, C., Shepherd, S., Robinson, M., & Vickerstaff, S. (2019). Uncertain Futures: Organisational Influences on the Transition from Work to Retirement. *Social Policy and Society*, *18*(3), 335–350. https://doi.org/10.1017/S1474746418000180

Radl, J. (2013). Labour Market Exit and Social Stratification in Western Europe: The Effects of Social Class and Gender on the Timing of Retirement. *European Sociological Review*, *29*(3), 654–668. https://doi.org/10.1093/esr/jcs045

Radó, M. & Boissonneault, M. (2020). Short and long-term change in subjective well-being among voluntary and involuntary retirees. *The Journal of the Economics of Ageing*, *17*, 100178. https://doi.org/10.1016/j.jeoa.2018.11.003

Rhee, M.-K., Mor Barak, M. E., & Gallo, W. T. (2016). Mechanisms of the Effect of Involuntary Retirement on Older Adults' Self-Rated Health and Mental Health. *Journal of Gerontological Social Work*, *59*(1), 35–55. https://doi.org/10.1080/01634372.2015.1128504

Riekhoff, A.-J. (2018). Institutional and socio-economic drivers of work-to-retirement trajectories in the Netherlands. *Ageing & Society*, *38*(3), 568–593. https://doi.org/10.1017/S0144686X16001252

Riekhoff, A.-J. (2023). Employers' Retirement Age Norms in European Comparison. *Work, Aging and Retirement*, waad015. https://doi.org/10.1093/workar/waad015

Rinsky-Halivni, L., Hovav, B., Christiani, D. C., & Brammli-Greenberg, S. (2022). Aging workforce with reduced work capacity: From organizational challenges to successful accommodations sustaining productivity and well-being. *Social Science & Medicine*, *312*, 115369. https://doi.org/10.1016/j.socscimed.2022.115369

Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational Climate and Culture. *Annual Review of Psychology*, *64*(1), 361–388. https://doi.org/10.1146/annurev-psych-113011-143809

Settersten, R. A. (2003). Propositions and Controversies in Life-Course Scholarship*. In *Invitation to the Life Course: Toward New Understandings of Later Life*. Routledge.

Smith-Crowe, K., Burke, M. J., Kouchaki, M., & Signal, S. M. (2013). Assessing Interrater Agreement via the Average Deviation Index Given a Variety of Theoretical and Methodological Problems. *Organizational Research Methods*, *16*(1), 127–151. https://doi.org/10.1177/1094428112465898

Spell, H. B., Eby, L. T., & Vandenberg, R. J. (2014). Developmental climate: A cross-level analysis of voluntary turnover and job performance. *Journal of Vocational Behavior*, *84*(3), 283–292. https://doi.org/10.1016/j.jvb.2014.02.001

Stiemke, P. & Hess, M. (2022). Determinants of (in-)voluntary retirement: A systematic literature review. *Journal of European Social Policy*, *32*(3), 348–358. https://doi.org/10.1177/09589287221089465

Szinovacz, M. E. (2003). Contexts and Pathways: Retirement as Institution, Process, and Experience. In *Retirement: Reasons, Processes, and Results*. Springer Publishing Company.

Szinovacz, M. E. & Davey, A. (2005). Predictors of Perceptions of Involuntary Retirement. *The Gerontologist*, *45*(1), 36–47. https://doi.org/10.1093/geront/45.1.36

Van Dalen, H. P., Henkens, K., & Wang, M. (2015). Recharging or Retiring Older Workers? Uncovering the Age-Based Strategies of European Employers. *The Gerontologist*, *55*(5), 814–824. https://doi.org/10.1093/geront/gnu048

Van Solinge, H. & Henkens, K. (2007). Involuntary Retirement: The Role of Restrictive Circumstances, Timing, and Social Embeddedness. *The Journals of Gerontology: Series B*, *62*(5), S295–S303. https://doi.org/10.1093/geronb/62.5.S295

Van Solinge, H. & Henkens, K. (2014). Work-related factors as predictors in the retirement decision-making process of older workers in the Netherlands. *Ageing & Society*, *34*(9), 1551–1574. https://doi.org/10.1017/S0144686X13000330

Vanajan, A., Bültmann, U., & Henkens, K. (2020). Health-related Work Limitations Among Older Workers—The Role of Flexible Work Arrangements and Organizational Climate. *The Gerontologist*, *60*(3), 450–459. https://doi.org/10.1093/geront/gnz073

Visser, M., Gesthuizen, M., Kraaykamp, G., & Wolbers, M. H. (2016). Trends in labour force participation of older men: Examining the influence of policy reforms, normative change and de-industrialization in the Netherlands, 1992–2009. *Economic and Industrial Democracy*, *37*(3), 425–447. https://doi.org/10.1177/0143831X14546239

Wainwright, D., Crawford, J., Loretto, W., Phillipson, C., Robinson, M., Shepherd, S., Vickerstaff, S., & Weyman, A. (2019). Extending working life and the management of change. Is the workplace ready for the ageing worker? *Ageing & Society*, *39*(11), 2397–2419. https://doi.org/10.1017/S0144686X18000569

Welsh, J., Strazdins, L., Charlesworth, S., Kulik, C., & D'Este, C. (2018). Losing the workers who need employment the most: How health and job quality affect involuntary retirement. *Labour & Industry - A Journal of the Social and Economic Relations of Work*, *28*(4), 261–278. https://doi.org/10.1080/10301763.2018.1522609

Zacher, H. & Yang, J. (2016). Organizational Climate for Successful Aging. *Frontiers in Psychology*, *7*. https://www.frontiersin.org/articles/10.3389/fpsyg.2016.01007

Zohar, D. (2014). Safety Climate: Conceptualization, Measurement, and Improvement. In B. Schneider & K. M. Barbera (Eds.), *The Oxford Handbook of Organizational Climate and Culture* (p. 0). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199860715.013.0017

Tables

Table 1. Means or percentages, Coding, and Wording of Survey Items for Variables Included in the Analysis (N = 3,735)

Variable	Mean (SD)	Coding and psychometric properties	Item description/wording
Type of retirement transition		**Categorical variable** indicating the type of retirement transition.	**Combined measure consisting of two items.** The first item refers to the voluntary character of the transition ("Whas your decision to work voluntary or not?"). The responses were "Voluntary", "Partly involuntary" and "Fully involuntary". The last two categories were collapsed into a single involuntary category. The second question asked for the reasons for involuntariness ("What made your decision (partly) involuntary"?). The two items were combined to form the dependent variable of the study. The responses were taken from the second or third wave, depending on when participants retired.
– Voluntary	0.74		
– Involuntary, health reasons	0.05		
– Involuntary, organizational pressures	0.06		
– Involuntary, due to reaching mandatory retirement	0.08		
– Involuntary, due to health and organizational pressures	0.04		
– Involuntary, due to organizational pressures and reaching mandatory retirement	0.02		
– Other reasons	0.02		
Age	62.12 (1.62)	Continuous variable	In what year were you born?
Gender		Categorical variable, 0 = male, 1 = female.	"Are you a man or a woman?"
Male	0.54		
Female	0.46		
Partnership status		Categorical variable 0 = partnered, 1 = single.	Do you have a partner? 1 = yes, I am married; 2 = yes, I cohabit with a partner; 3 = yes, I do have a partner but we do not live together, 4 = no, I am single. The answers were recoded in 2 categories, partnered and single.
Partnered	0.79		
Single	0.21		
Chronic health conditions		Categorical variable 0 = no health conditions, 1 = one health condition, 2 = two or more health conditions	Do you have one or more of the following longstanding diseases, conditions, or handicaps (diagnosed by a doctor)? Complaints of the hand or arms, Complaints of the hips, legs, or feet (1/0), Complaints of the back and neck (1/0), Migraine or severe headache (1/0), Cardiovascular diseases (1/0), Ashtma, bronchitis, emphysema (1/0), Gastrointestinal disorders (1/0), Diabetes (0/1), Psychological complaints/ disorders (1/0), Life-threatening diseases (i.e., cancer, AIDS) (1/0), Sleep problems (1/0). If respondents ticked one of these conditions they were classified as "One health condition"; if they ticked two or more "Two or more health conditions"; if they were all 0 or missing they were classified as "No health condition"
No health conditions	0.36		
One health condition	0.27		
Two or more health conditions	0.37		

Variable	Mean (SD)	Coding and psychometric properties	Item description/wording
Education level		Categorical variable coded 1-6, 1 = Low vocational, 2 = Low general, 3 = Medium vocational, 4 = Medium general, 5 = High vocational, 6 = Academic	"What is the highest level of education you completed? 1 = Elementary school, 2 = Lower vocational education, 3 = Lower general secondary education, 4 = Intermediate vocational education, 5 = Upper general secondary education, 6 = Higher vocational education, 7 = University. Subsequently re-coded into six categories (Primary school and lower general secondary were combined into a single category of low general education)
Lower vocational	0.14		
Lower general	0.9		
Medium vocational	0.20		
Medium general	0.05		
High (vocational)	0.41		
High (academic)	0.11		
Supervisory position		Categorical variable 0 = no, 1 = yes.	"Do you have a supervisory position?"
No	0.76		
Yes	0.24		
Type of work		Categorical variable 0 = non-manual, 1 = manual.	"In which category is your profession?" 1 = Higher intellectual or liberal profession, 2 = Higher managerial profession, 3 = Secondary intellectual or liberal profession, 4 = Secondary vocational or commercial profession, 5 = Overall service work, 6 = Skilled or managerial manual work, 7 = Semi-skilled manual worked", 8 = Non-skilled manual work
Non-manual	0.84		
Manual	0.16		
Climate for training of older workers	3.07 (0.37)	Continuous variable at the organizational level, constructed from individual-level items on a 5-item scale (1 = Strongly agree, 5 = Strongly disagree) and reverse-coded.	"In this organization managers stimulate older workers to keep their knowledge up-to-date" and "Training of older employees has a high priority in this organization". Items were reverse-coded, averaged, and then an organization-level mean was calculated.
Climate for accommodation	3.05 (0.41)	Continuous variable at the organizational level, constructed from individual-level items on a 5-item scale (1 = Strongly agree, 5 = Strongly disagree) and reverse coded.	"If work becomes too burdensome, it is possible to decrease workload in this organization" and "If work becomes too burdensome, working hours can be adjusted in this organization". Items were reverse-coded, averaged, and then an organization-level mean was calculated.
Climate in support of health	3.49 (0.48)	Continuous variable at the organizational level, constructed from individual-level items on a 5-item scale (1 = Strongly agree, 5 = Strongly disagree) and reverse coded.	"Health and well-being of employees are important in this organization" and "In this organization a lot of attention is paid to health and safety at work". Items were reverse-coded, averaged, and then an organization-level mean was calculated.
Climate for post-retirement work	2.69 (0.50)	Continuous variable at the organizational level, constructed from individual-level item on a 5-item scale (1 = Strongly agree, 5 = Strongly disagree) and reverse coded.	"In this organization you can continue working after the state pension age". Item was reverse-coded and averaged at the organizational level.
Mandatory retirement policy		Categorical variable 0 = presence of mandatory retirement policy, 1 = absence	This variable identifies a subgroup of workers for which mandatory retirement policy was abolished as from 2008 (national level civil servants).
Present	0.96		
Absent	0.04		

Variable	Mean (SD)	Coding and psychometric properties	Item description/wording
Size of company		Categorical variable. 1 = small, 2 = medium, 3 = large	Information obtained from the pension funds. Small = less than 50 employees, Medium = between 50 and 250 employees, Large = more than 250 employees
Small	0.06		
Medium	0.47		
Large	0.47		
Sector of company		Categorical variable. Coded = 1 Government, 2 = Education, 3 = Construction, 4 = Healthcare, 5 = Social work	Information obtained from the pension funds.
Government	0.28		
Education	0.26		
Construction	0.17		
Healthcare	0.14		
Social services	0.16		

Note: Values of the first imputed dataset are presented.

Table 2. Multinomial multilevel logistic regression coefficients (log-odds)

	Involuntary retirement pathway 1: poor health		Involuntary retirement pathway 2: organizational pressures		Involuntary retirement pathway 3: mandatory retirement		Involuntary retirement pathway 4: poor health and organizational pressures		Involuntary retirement pathway 5: organizational pressures and mandatory retirement	
	B	SE	B	SE	B	SE	B	SE	B	SE
Chronic health conditions (ref. none)										
One health condition	0.91***	(0.25)	0.35*	(0.17)	-0.05	(0.16)	1.21***	(0.32)	-0.58	(0.39)
Two or more health conditions	1.74***	(0.22)	0.15	(0.17)	-0.08	(0.15)	1.91***	(0.29)	0.47	(0.29)
Education (reference: low vocational)										
Low general	-0.26	(0.34)	0.07	(0.31)	0.41	(0.31)	0.04	(0.42)	-0.32	(0.69)
Middle vocational	0.04	(0.28)	-0.07	(0.27)	0.33	(0.28)	0.18	(0.36)	0.08	(0.58)
Middle general	-0.83	(0.53)	-0.00	(0.40)	0.32	(0.38)	0.28	(0.50)	0.98	(0.67)
High vocational	-0.19	(0.30)	0.06	(0.28)	0.28	(0.29)	0.11	(0.38)	0.22	(0.57)
Academic	0.02	(0.37)	-0.04	(0.34)	0.90***	(0.31)	-0.72	(0.58)	1.01	(0.61)
Supervisory position (1/0)	-0.15	(0.19)	0.61***	(0.16)	-0.12	(0.17)	0.13	(0.23)	-0.29	(0.36)
Manual worker (1/0)	0.03	(0.27)	0.11	(0.25)	-0.12	(0.25)	0.18	(0.34)	-0.57	(0.58)
Organizational support for development	-0.13	(0.24)	-0.72***	(0.22)	-0.20	(0.22)	-0.10	(0.29)	-0.77	(0.42)
Organizational support for accommodation	-0.27	(0.23)	0.10	(0.22)	0.46*	(0.21)	-0.44	(0.28)	0.47	(0.43)
Organizational support for health	0.18	(0.25)	-0.50*	(0.23)	-0.09	(0.22)	-0.84**	(0.32)	-0.62	(0.45)
Organizational support for post-retirement work	0.05	(0.16)	-0.13	(0.15)	-0.07	(0.14)	-0.02	(0.21)	0.56*	(0.28)
Civil servant retired between 2008 and 2019 (no mandatory retirement)	0.27	(0.49)	-0.34	(0.56)	-1.95***	(0.54)	-	-	-2.25*	(1.08)
Age	-0.23***	(0.05)	-0.05	(0.04)	0.18***	(0.04)	-0.29***	(0.06)	0.58***	(0.09)
Female (0/1)	-0.38*	(0.19)	0.13	(0.18)	0.10	(0.16)	-0.24	(0.23)	-0.05	(0.32)
Single (0/1)	0.11	(0.20)	0.07	(0.18)	0.16	(0.16)	0.33	(0.22)	0.68*	(0.31)
Organizational size (ref. small)										
Medium	-0.53	(0.29)	-0.10	(0.28)	0.27	(0.28)	-0.10	(0.46)	-0.51	(0.50)
Large	-0.66*	(0.30)	-0.37	(0.29)	0.20	(0.29)	-0.04	(0.46)	-0.27	(0.51)
Organizational sector (ref. government)										
Education	0.35	(0.26)	-0.39	(0.26)	-0.75***	(0.21)	0.45	(0.36)	-0.04	(0.42)
Construction	-0.15	(0.29)	0.56*	(0.27)	-0.98***	(0.28)	0.91*	(0.42)	0.78	(0.55)
Healthcare	0.57*	(0.29)	0.64*	(0.26)	-0.58*	(0.24)	0.99**	(0.37)	0.32	(0.48)
Social work	-0.04	(0.29)	0.66***	(0.23)	-0.28	(0.20)	1.02***	(0.34)	0.05	(0.45)
Intercept	11.42***	(3.22)	0.29	(2.80)	-13.43***	(2.52)	13.42***	(4.02)	-40.13***	(5.87)
Intercept variance	0.05	(0.05)								
Pseudo R^2	0.08									
Observations	3735									

Standard errors in parentheses * p<0.05, ** p<0.01, *** p<0.005

Appendix 1. Within-group agreement indexes

Construct	R^*_{wgJ}		A_{wgJ}		ADM (j)		ADMd(j)	
	Mean	*Median*	*Mean*	*Median*	*Mean*	*Median*	*Mean*	*Median*
Climate for developing older workers	0.56	0.60	0.63	0.67	0.66	0.67	0.59	0.60
Climate for accommodation of older workers	0.56	0.58	0.63	0.65	0.69	0.65	0.62	0.63
Climate in support of health	0.63	0.69	0.70	0.71	0.60	0.60	0.53	0.50
Climate for post-retirement work	0.51	0.54	0.60	0.60	0.72	0.73	0.65	0.67

Note. r^*_{wgJ} = interrater agreement index for judges; a_{wgJ} = average interrater agreement index for judges; ADM(j) = average deviation index for judges; ADMd(j) = average median deviation index for judges. For r^*_{wgJ} and a_{wgJ}, ., cutoffs of .00 to .30 is considered lack of agreement, .31 to .50 weak agreement, . 51 to .70 moderate agreement, .71 to .90 strong agreement, and .91 to 1.00 very strong agreement (LeBreton & Senter, 2008). For AD indexes, the cutoff for substantive agreement is considered at 0.69 (Smith-Crowe et al., 2013).

Appendix 2. Multinomial multilevel logistic regression coefficients (log-odds), including preference for working the year after at baseline

	Involuntary retirement pathway 1: poor health		Involuntary retirement pathway 2: organizational pressures		Involuntary retirement pathway 3: mandatory retirement		Involuntary retirement pathway 4: poor health and organizational pressures		Involuntary retirement pathway 5: organizational pressures and mandatory retirement	
	B	SE	B	SE	B	SE	B	SE	B	SE
Chronic health conditions (ref. none)										
1 health condition	0.89***	(0.25)	0.35*	(0.17)	-0.03	(0.16)	1.18***	(0.32)	-0.51	(0.39)
2 or more health conditions	1.68***	(0.22)	0.16	(0.17)	0.01	(0.16)	1.86***	(0.29)	0.61*	(0.30)
Education (reference: low vocational)										
Low general	-0.29	(0.35)	0.06	(0.31)	0.38	(0.31)	0.03	(0.43)	-0.39	(0.69)
Middle vocational	0.01	(0.28)	-0.06	(0.27)	0.37	(0.29)	0.16	(0.36)	0.11	(0.58)
Middle general	-0.91	(0.53)	-0.00	(0.40)	0.34	(0.38)	0.19	(0.50)	1.01	(0.67)
High vocational	-0.22	(0.30)	0.06	(0.28)	0.25	(0.29)	0.08	(0.39)	0.21	(0.57)
Academic	0.07	(0.37)	-0.05	(0.34)	0.75*	(0.32)	-0.68	(0.58)	0.83	(0.61)
Supervisory position (1/0)	-0.14	(0.20)	0.61***	(0.16)	-0.14	(0.17)	0.15	(0.23)	-0.33	(0.36)
Manual worker (1/0)	-0.07	(0.27)	0.12	(0.25)	-0.03	(0.25)	0.11	(0.34)	-0.44	(0.59)
Work preference	-0.24***	(0.05)	0.02	(0.05)	0.34***	(0.05)	-0.21***	(0.06)	0.48***	(0.09)
Organizational support for development	-0.13	(0.24)	-0.73***	(0.22)	-0.25	(0.22)	-0.11	(0.29)	-0.82	(0.42)
Organizational support for accommodation	-0.22	(0.23)	0.10	(0.22)	0.45*	(0.22)	-0.39	(0.28)	0.47	(0.44)
Organizational support for health	0.23	(0.25)	-0.50*	(0.23)	-0.14	(0.22)	-0.77*	(0.32)	-0.70	(0.46)
Organizational support for post-retirement work	0.07	(0.16)	-0.13	(0.15)	-0.06	(0.14)	-0.01	(0.21)	0.59*	(0.29)
Civil servant retired between 2008 and 2019 (no mandatory retirement)	0.25	(0.49)	-0.35	(0.56)	-2.01***	(0.54)	0.00	(.)	-2.33*	(1.09)
Age	-0.31***	(0.05)	-0.04	(0.05)	0.29***	(0.04)	-0.36***	(0.07)	0.75***	(0.10)
Female (0/1)	-0.35	(0.19)	0.13	(0.18)	0.04	(0.16)	-0.22	(0.23)	-0.09	(0.33)
Single (0/1)	0.16	(0.20)	0.07	(0.18)	0.11	(0.16)	0.39	(0.22)	0.62*	(0.31)
Organizational size (ref. small)										
Medium	-0.56	(0.30)	-0.08	(0.28)	0.31	(0.29)	-0.17	(0.46)	-0.40	(0.51)
Large	-0.70*	(0.30)	-0.35	(0.29)	0.25	(0.29)	-0.10	(0.46)	-0.17	(0.52)
Organizational sector (ref. government)										
Education	0.42	(0.26)	-0.40	(0.26)	-0.77***	(0.21)	0.55	(0.36)	-0.15	(0.42)
Construction	-0.14	(0.29)	0.56*	(0.27)	-0.99***	(0.29)	0.90*	(0.42)	0.78	(0.56)
Healthcare	0.68*	(0.29)	0.63*	(0.26)	-0.65**	(0.24)	1.09***	(0.37)	0.29	(0.48)
Social work	0.07	(0.29)	0.66***	(0.23)	-0.33	(0.20)	1.13***	(0.34)	0.01	(0.46)
Intercept	16.82***	(3.45)	-0.26	(3.01)	-21.34***	(2.76)	18.36***	(4.29)	-52.18***	(6.46)
Intercept variance	0.04	(0.05)								
Pseudo R^2	0.09									
Observations	3735									

Standard errors in parentheses* p<0.05, ** p<0.01, *** p<0.005

Netspar

Network for Studies on
Pensions, Aging and Retirement

This is a publication of Netspar
July 2025

T +31 13 466 2109
E info@netspar.nl

netspar.nl