Mind the Gap: Risk and Buffer Factors Predicting Pension Adequacy in The Netherlands

Olaf Simonse, Verena Seibel,
Julia van Veelen, Rick Nijkamp,
Dörthe Kunkel, Emma ter Mors,
Mara Yerkes, Wilco van Dijk

Netspar

Industry paper 2026-32

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 2026-32, August 2026

Acknowedgement
This project was supported by the Network for Studies of Pensions, Ageing, and Retirement (Netspar) through the theme grant "Preventing financial vulnerability during retirement: cumulative risk factors and impactful interventions" (2025–2027).

Design Maan
Lay-out Studiodet
Editor Frans Kooymans

Table of contents

Affiliations

Olaf Simonse – Kenniscentrum Psychologie en Economisch Gedrag (KCPEG), Leiden University

Verena Seibel – European Research Centre on Migration and Ethnic Relations (ERCOMER), Utrecht University

Julia van Veelen – Leiden University

Rick Nijkamp – Wijzer in geldzaken

Dörthe Kunkel – Wijzer in geldzaken

Emma ter Mors – Kenniscentrum Psychologie en Economisch Gedrag (KCPEG), Leiden University

Mara Yerkes – Interdisciplinary Social Sciences, Utrecht University

Wilco van Dijk – Kenniscentrum Psychologie en Economisch Gedrag (KCPEG), Leiden University

Abstract

Individual responsibility has increased in the European pension systems, causing concerns to rise regarding pension adequacy, particularly amid the growing life expectancy rate and the increasingly precarious work and family trajectories. This study examines the Dutch case to identify risk and buffer factors associated with pension adequacy. Using a mixed-methods approach that combines a literature review, interviews with experts, a focus group with retirement practitioners, and interviews with pensioners, we analyse how personal, social, and institutional factors interact across the life course. The findings have been structured according to Bronfenbrenner's socio-ecological model and they confirm that women, migrants, and the self-employed are exposed to a higher risk of pension inadequacy. At the same time, pension outcomes are shaped by specific life events and intersecting circumstances, such as divorce, part-time work, or having limited access to the pension system. By highlighting how combinations of risk and buffer factors shape retirement outcomes, this study enhances the way pension adequacy can be understood and how more inclusive pension policies can be developed.

Introduction

In recent decades, European pension systems have shifted from collective, defined-benefit (DB) models toward individual, defined-contribution (DC) arrangements. This transformation has placed a greater responsibility on individuals who wish to secure adequate retirement income and at the same time, it has exposed them to financial and labour market risks. This shift has unfolded against a backdrop of a growing life expectancy rate, increasingly flexible and fragmented labour markets, changing family trajectories, and persistent social and economic inequalities. Together, these developments raise pressing questions about who is the most at risk of inadequate retirement income and which factors are contributing to these inequalities. Central to this discussion is pension adequacy, which can be defined as the extent to which individuals can secure a sufficient income in retirement so as to maintain a reasonable standard of living, thus reflecting the effectiveness of the pension system.

At the core of these concerns lies the concept of *pension adequacy*; the extent to which individuals can maintain a reasonable standard of living after retiring. Yet, despite its centrality, pension adequacy is not a straightforward concept. What counts as “sufficient income” or a “reasonable standard of living” varies across individuals, socioeconomic groups, cultures, countries, and historical periods. As a result, pension adequacy is an inherently context-dependent and contested notion. Clarifying how pension adequacy is defined and measured is therefore an essential first step. Although pension adequacy in the Netherlands has been examined extensively, existing research tends to focus on a narrow set of explanatory factors. As a result, a comprehensive overview of the full range of risk factors (that undermine pension adequacy) and buffer factors (that help safeguard it) remains limited. Moreover, little is known about how these factors accumulate and interact across the life course. Addressing these gaps is important for policymakers and pension providers, who require a broader evidence base to develop targeted and inclusive measures that strengthen financial well-being in later life. With this in mind, the paper investigates pension adequacy in the Netherlands. First, it clarifies the conceptual and empirical foundations of pension adequacy. Second, it identifies a broad spectrum of risk and buffer factors that shape individuals’ capacity to achieve adequate retirement income. In doing so, the paper contributes to a more comprehensive understanding of inequalities in retirement outcomes and it ultimately offers relevant insights for improving policy and practice.

Trends in the Retirement Landscape

Across high-income nations, people are living longer whereas the ratio of working-age individuals to retirees continues to decline. The “support ratio” (workers per retiree) in the Netherlands has fallen from 6.8 in 1997 to 3.9 today and it is projected to drop to 2.0

in 2050[61,90]. At the same time, healthy life expectancy is stagnating or even declining in some countries, thus contributing to the rise in healthcare and long-term care costs later in life[71,113]. Population ageing, therefore, places a growing strain on pension systems of all types, from pay-as-you-go public arrangements to occupational and private pension funds, hence raising concerns about the adequacy of these households' retirement incomes.

Similarly, labour market and family trajectories have undergone significant shifts in recent decades. Traditional full-time, long-term employment is in decline, while flexible, temporary, and freelance work arrangements - such as zero-hour contracts and self-employment - have become increasingly common[46,78]. These non-standard jobs typically offer limited or no access to occupational pensions, which in the end can potentially undermine pension adequacy. Family structures have also become more diverse: divorce rates have risen, single-person households are on the rise, and more people live in non-traditional arrangements such as cohabitation, LAT (Living Apart Together) relationships, or 'blended families'[36,70]. Together, these developments have increased an individual's responsibility for pension accumulation and they have weakened the buffering role of partner pensions. Moreover, they have reduced the opportunities that are available for household-level risk sharing later in life.

These broader demographic and labour market trends are accelerating the structural shift in pension systems from defined-benefit (DB) to defined-contribution (DC) schemes. DB schemes, which guarantee a fixed income in one's retirement scheme, are based on years of service and salary history, and they are increasingly difficult to sustain as populations age and life expectancy rises. In response, many countries, including the Netherlands, are transitioning to DC schemes, in which retirement income depends on individual contributions, investment performance, and financial decision-making across the life course[67,68,74] (see Box 1 for an overview of the Dutch pension system). This shift reflects a broader development in pension reforms in which the balance of risks has gradually moved away from collective institutions towards individuals. In the Netherlands, this transition is materialising through the Future of Pensions Act (*Wet Toekomst Pensioenen*), which came into effect in 2023 and requires all occupational pensions to transition to a DC structure by 2028. Although decisions regarding contribution rates, investment strategies, and risk-sharing mechanisms remain collective and are made by social partners and pension funds, the new system allocates pension assets to individual accounts. As a result, individuals are being exposed more and more to market volatility and uncertainty regarding the level of benefits they will receive. At the same time, they have not gained extensive decision-making authority in this area. These shifts do not equally affect all groups and they could interact with even broader social and labour market inequalities[9,94,95].

One relevant factor in DC schemes in which individuals must actively manage their contributions and withdrawals over time, is that of financial literacy. This can be defined as the "set of awareness, knowledge, skills, attitudes, and behaviours that enable individuals to make informed and smart financial decisions[69]." Financial literacy remains low in many population groups, particularly in domains such as long-term planning, investment choices, and pension products59. This challenge is compounded by the fact that financial literacy tends to decline with age. Longitudinal studies show that adults in their 80s experience an average annual decline of approximately 1% in financial literacy, with age-related reductions in memory, numeracy and executive function accounting for nearly half of this decline1,60. These cognitive changes can impair judgment, reduce confidence in decision-making, and increase vulnerability to financial fraud and mismanagement[37]. Consequently, many older individuals face a heightened risk of pension inadequacy, as the long-term effects of having not previously saved enough pension or suboptimal pension decisions accumulate. Since retirees must still handle routine financial tasks - such as managing withdrawals, responding to benefit adjustments, and organising their taxes - the continued decline in financial literacy remains directly relevant throughout retirement.

All things considered, these structural, behavioural, and demographic developments are placing pension adequacy for future retirees at risk. Individuals with lower incomes, fragmented work histories, limited financial literacy, or without partner-based support are especially vulnerable to pension inadequacy. They face a heightened risk of retiring with inadequate savings or insufficient pension entitlements, which, in turn, can contribute to growing inequalities in later-life financial outcomes. Even in countries with traditionally stable pension systems, such as the Netherlands, a significant minority of retirees report financial difficulties or anxiety, highlighting the limitations of institutional protection[44,82]. Comparative EU evidence also shows that the Netherlands is one of the few countries with relatively low old-age poverty rates, largely due to the universal state pension; however, this favourable position cannot not be guaranteed as structural pressures are intensifying[114]. As longevity increases, work and life trajectories are becoming less predictable, and the responsibility for retirement planning is falling more and more on the shoulders of individuals. This has made it increasingly important to understand which factors support pension adequacy and how these factors contribute to inadequacy.

Box 1. The three pillars of retirement in the Netherlands

1st Pillar. AOW (Algemene Ouderdomswet), or General Old Age Pensions Act, introduced in 1957, provides basic income to residents aged 67 and older, financed via a pay-as-you-go system through national insurance contributions.

2nd Pillar. Occupational pensions, collectively negotiated and administered by pension funds or insurers. These pensions are accrued during employment, based on earnings and years of service, and are typically funded through capital-backed schemes.

3rd Pillar. Voluntary individual pension products, such as annuity insurance or tax-efficient savings accounts. These are typically used by self-employed individuals or employees without collective schemes, allowing them to accrue additional pension benefits tailored to personal needs.

The Current Study

Although many studies have examined pension adequacy in the Dutch context, most focus on a narrow set of explanatory factors. This has exposed important gaps, not only in their having failed to present a comprehensive overview of the various factors associated with household pension adequacy, but also in revealing the limited insight into how these factors interact and how pension adequacy itself is defined and operationalised. This study addresses these research gaps by posing the central question: Which risk and buffer factors are associated with *household pension adequacy*?

To answer this, we examine the following four sub-questions:

1. How is household pension adequacy defined and measured?
2. Which factors heighten the risk of pension inadequacy?
3. Which factors can provide a buffer against pension inadequacy?
4. How do the combinations of risk and buffer factors jointly shape household pension adequacy?

In addressing these questions, this study offers a comprehensive and nuanced understanding of the factors that influence pension adequacy. These findings can serve to inform policymakers and pension providers when designing more effective policies, services, and interventions that can be applied to vulnerable subgroups. At the same time, this study contributes to the literature by showing how pension adequacy emerges at the intersection of individual behaviour, institutional design, and life course dynamics. Whereas the focus is on the Netherlands, the questions raised are of broader relevance. Many countries face similar challenges of a rise in life expectancy, changing labour markets, and persistent inequalities in pension coverage. In this light, pension adequacy provides a valuable framework for understanding - and improving - retirement preparedness.

1. Method

This study employed a mixed-method approach, combining a literature review, interviews with experts, a focus group with retirement practitioners, and interviews with pensioners to examine the factors associated with pension adequacy. By integrating various sources of evidence and perspectives, our study provides a comprehensive understanding of the interplay between personal circumstances, institutional structures, and broader economic conditions, while at the same time identifying gaps in the existing literature.

Literature Review

The literature review was based on searches in Web of Science, Google Scholar, and the Netspar knowledge base. We used a full set of English and Dutch keywords related to pension adequacy: "retirement," "pension," "security," "vulnerability," "adequacy," "Netherlands," "Dutch," and their Dutch equivalents ("pensioen," "weerbaar," "kwetsbaar," "toereikend," "Nederland"). This broad search yielded studies on pension system design, labour market dynamics, social security participation, retirement preparation, and financial outcomes in later life. Because this is an industry-oriented paper aimed at practitioners and policymakers, the academic database search was complemented by a targeted review of Netspar materials. These included relevant empirical and conceptual work and although these materials are highly informative for the Dutch pension context, they have not always been published in international peer-reviewed journals. This is also why we have decided to include a selection of grey literature - such as policy briefs, sector reports, and applied research outputs. Nevertheless, this body of literature provides high-quality, up-to-date insights into pension adequacy; insights that are not always found in academic databases, but ones that are nonetheless frequently used in policy practice.

The reviewed materials covered a wide range of formats, including peer-reviewed academic articles, policy briefs, reports, position papers, and design papers, and comprised both qualitative and quantitative research. To ensure that there is timely relevance to contemporary demographic trends, pension reforms, and the post-financial-crisis policy context, only the literature that has been published from 2010 onwards has been included. The material ranged from broad overviews of pension systems to analyses of specific components such as the state pension (AOW), employer-based pensions, and private pensions or pension assets. A smaller number of studies examined specific financial products, such as reverse mortgages.

To secure alignment with the focus of this paper - household pension adequacy - we applied a two-stage screening process. In the first stage, titles and abstracts were screened to identify which studies examine household-level outcomes during the retirement phase. Studies were excluded if their primary focus lay outside this scope. For example, if work centred on pension system design, contract structures, governance, financial market behaviour, or methodological econometrics, then these studies were deemed irrelevant. This resulted in a subset of studies suitable for full-text assessment. In the second stage, the full texts of the remaining studies were screened for substantive relevance and methodological suitability. Documents were excluded if they focused primarily on general well-being, resilience, or behaviour that was unrelated to pension adequacy. This was applied to those cases which only addressed pensions at the system level without providing household-level insights. This was also true of cases that fell outside the selected publication period (before 2010) or those that had been superseded by more recent evidence. After completing both stages, 91 studies were deemed to be relevant and included in the final analysis.

Interviews and Focus Group

To incorporate both professional expertise and lived experiences, we conducted semi-structured interviews with pension researchers, a focus group with retirement practitioners, and semi-structured interviews with pensioners. This approach ensured that both the perspectives of experts and those who experienced pension adequacy and financial distress during retirement were represented. All of the interviews were guided by an analytical framework centred on two core concepts: pension adequacy and financial distress. Data were analysed thematically, with particular attention being paid to those factors that participants had identified as influencing pension adequacy. These empirically derived factors were then compared with the factors previously identified in the literature, enabling triangulation and refinement of the final factor set.

The study was approved by the Ethics Committee of the Psychology Department at Leiden University (Approval No. 2023-11-21-E. ter Mors-V3-4952). Participants received detailed information in advance, including a description of the interview process and assurance of anonymity. All materials, including the analytical framework, information letters, informed consent forms, interview guides, and debriefing documents, are available on the Open Science Framework (https://osf.io/c4fr2/).

Interviews with Pension Experts

We conducted twelve semi-structured interviews with pension researchers to align our findings with current knowledge and developments in the field. Participants included researchers in pension systems, as well as specialists in vulnerable population groups (primarily Dutch researchers, supplemented by three international researchers from Australia, Canada, and the UK). Interviews were conducted via Microsoft Teams between January 30 and March 7, 2024. Each interview involved two members of the research team and lasted 60-90 minutes. Interview data were first analysed independently by individual team members and then discussed collectively. The findings were subsequently mapped onto Bronfenbrenner’s socio-ecological model (see Box 2), allowing for a systematic comparison with factors identified in the literature review and other expert sources. Overall, the themes and associated risk and buffer factors for pension adequacy aligned with the insights gleaned from the literature. Divergent or complementary perspectives were documented and integrated whenever relevant.

Focus Group with Retirement Practitioners

To validate and enrich the findings, a focus group of retirement practitioners was held in The Hague on 16 May 2024. Participating organisations included the Verbond van Verzekeraars (*Insurers’ Association*), Nationale Nederlanden, Pensioenfederatie (*Pension Federation*), Nibud (*National Institute for Family Finance Information*), Stichting Pensioenregister (*Dutch Pension Register Foundation*), and the Ministry of Social Affairs and Employment. Field notes from the session were compared with findings from the interviews and literature review. Relevant suggestions and nuances were incorporated into the interpretation of results, strengthening the robustness of the final analysis.

Interviews with Pensioners

To ensure that the voices of the target population were represented, eleven semi-structured interviews were conducted with pensioners on 23 February 2024. The interviews took place in a lunchroom in The Hague and lasted between 15 and 45 minutes. Each conversation was attended by two researchers and conducted in a quiet corner to ensure privacy and careful observation. Participants (six men, five women) ranged in age from 67 to 91 years (*M* = 74). The purpose was to gain a deeper understanding of how individual choices and life circumstances impact financial well-being in retirement. To obtain the participants’ perspectives, the interviews began with open-ended questions, allowing them to define their financial situation in their own terms rather than employing a predetermined definition. This inductive approach revealed personal opinions, emotional dimensions, and situational nuances regarding pension adequacy. The findings from these interviews complement the insights acquired from the literature review and expert interviews. To illustrate the broader themes that were identified in the earlier stages of the research, we constructed anonymized composite stories from the interviews, which were presented in the report as illustrative case examples.

Box 2. Bronfenbrenner's Socio-Ecological Model

To better understand the interplay between risk and buffer factors, we applied an analytic framework inspired by Bronfenbrenner's socio-ecological model[14]. Although not widely used in pension research, this model offers a structured approach to classifying factors at different levels (micro, meso, and macro) and to tracing how they accumulate and interact over time and across the life course. It also highlights areas in which targeted support can enhance financial resilience before retirement.

Originally developed to study human development, the model highlights how nested layers of influence shape individual outcomes. In Bronfenbrenner's formulation, these layers are not static: they interact continuously, which implies that individual behaviour is shaped simultaneously by personal characteristics, social contexts, and broader structural conditions. This dynamic, multi-layered logic makes the model well-suited for examining how long-term risks and buffers relevant to pension adequacy accumulate over time.

In our adaptation, we distinguish:

- Micro-level: Personal factors such as health, family, and financial skills. These shape immediatecapacities for decision-making and coping with financial shocks.
- Meso-level: The broader social environment, including neighbourhoods, social networks, and local services. This level captures how support structures, social capital, and access to information influence financial behaviour and resilience.
- Macro-level: Societal factors such as economic conditions, public policies, and institutional structures. These set the structural context in which opportunities for saving, working, and risk-sharing arise.

These levels are interdependent and dynamic, influencing one another and the individual simultaneously. This model served as a reference during all of the phases of our analysis - from the literature review to pensioner interviews – and it was particularly valuable during the integrative phase, where insights from different sources were combined and categorised.

2. Results

This section presents the study's main findings. It begins with an overview of how pension adequacy is defined and how it is measured in the literature, providing an essential context for the subsequent analysis. The second part identifies key factors associated with pension adequacy, having been derived from both the literature and expert interviews. These factors have been structured according to Bronfenbrenner's socio-ecological model (see Box 2), which distinguishes among micro-, meso-, and macro-level factors, providing a comprehensive view of the layers that shape pension outcomes throughout the life course. In each section, insights from the literature are first presented, then they are followed by perspectives obtained from experts which offer practical interpretation and contextual nuance. A detailed overview of all the identified risk and buffer factors, including interactions, exceptions, and nuances, can be found in the Appendix. In the text that follows, we focus on the most relevant issues for policymakers, practitioners, and researchers concerned with the concept of pension adequacy.

The section concludes by presenting the findings from the interviews held with pensioners. Although these interviews did not reveal additional risk or buffer factors, they did provide valuable confirmation and they elaborated on previously identified themes. To illustrate how multiple factors converge in practice, we present two composite case narratives that demonstrate how different factor constellations can lead to financial vulnerability or resilience in retirement.

How Pension Adequacy Is Measured

Pension adequacy refers to the extent to which individuals possess sufficient income during their retirement to maintain a reasonable standard of living and it usually is compared to their pre-retirement income. It provides a lens through which the effectiveness of the pension system can be understood. Studies employ a range of approaches to evaluate pension adequacy. Below, we have highlighted the measures most frequently applied in the Dutch context.

Substitution Ratio

The most widely-used measure of pension adequacy is the substitution ratio, which compares a person's pre-retirement income with their post-retirement income[5,8,11,12,15,26,31,50–52,62,73,115]. It indicates the extent to which retirees can sustain their pre-retirement lifestyle and it can be calculated as the ratio of pre-retirement to post-retirement income 1. Different versions of this measure emerge from the reviewed literature. Some studies consider only the first or second pillar of the pension system, while others include all three (see Box 1 for an overview of the Dutch pension pillars). Pre-retirement income can be defined as either the last-earned income or the average income across a person's working life. In the Netherlands, the average substitution ratio is 74% of the most recently-earned net income, with considerable variation across individuals. The government and the pension sector are currently targeting a gross replacement rate of about 70%, which means that retirees are expected to receive around 70% of their former gross employment income as gross pension income. However, about 34% of the Dutch population falls short of this benchmark. The literature highlights several limitations of this substitution ratio, particularly its normative nature and its limited ability to capture the differences in minimum income needs across various income groups.

Experts confirmed these limitations, noting that the substitution ratio does not account for individual differences or major life events, such as illness or divorce. Moreover, it may misrepresent adequacy across some income groups. For lower-income earners, a substitution ratio of 70% is often the minimum required to maintain a basic standard of living. In contrast, to high-income earners, it may still ensure a comfortable standard of living. As a result, it is possible that the substitution ratio not only underestimates the vulnerability for some groups, but it might also overestimate it for others.

Poverty Threshold

Another commonly-used approach to assess pension adequacy is to compare retirees' income with the social minimum, which indicates whether their income exceeds the relative poverty threshold[10,11,24-27,34,35,50,51,53,73,84,112,114]. The poverty threshold is typically defined as a fixed percentage of median household income (in the EU and OECD countries, often 60%), adjusted for household composition. Individuals with incomes below this threshold are classified as relatively income poor.

Other approaches

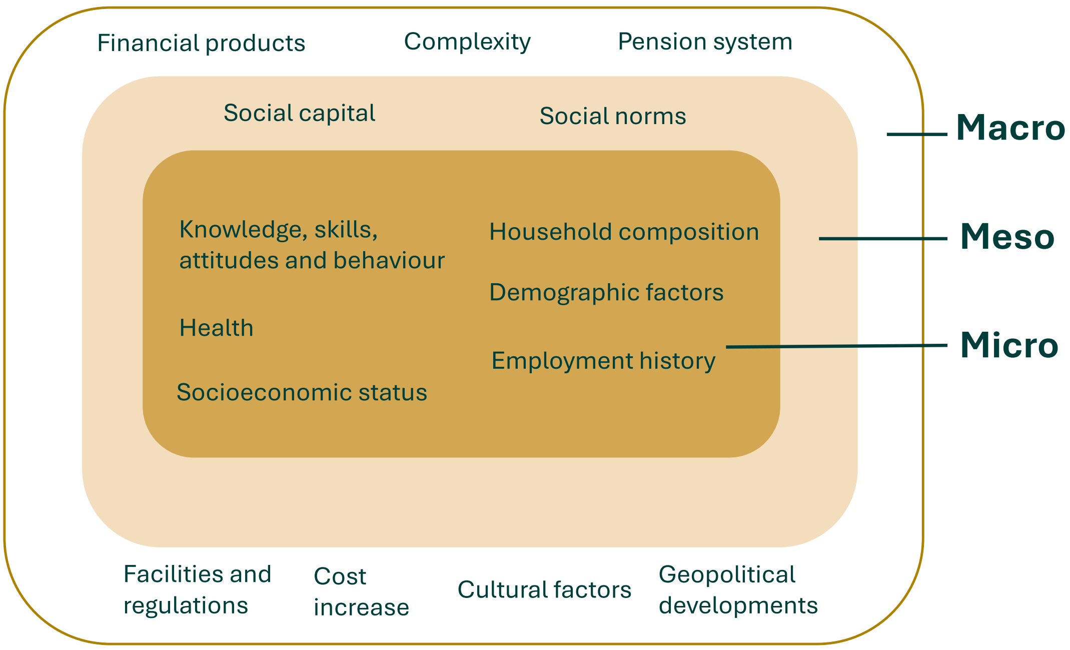
Beyond these two dominant measures, the literature highlights additional ways of defining pension adequacy. Some studies define pension adequacy in terms of financial literacy, future financial preparedness, and individuals' experience of financial stress [17,18,21,93,96,98,103,106]. Other studies emphasise general financial well-being and expectations regarding future income in relation to desired expenses[29,31,55,86,112]. Several studies incorporate subjective dimensions of pension adequacy, examining individuals' expectations about their future pension income, their perceived preparedness for retirement, reported financial strain, concerns about potential income shortfalls, satisfaction with their financial situation, and perceived adequacy of their retirement savings[2,41,42,72,91,102,110]. Still, other studies often focus on indicators of financial buffers, such as outstanding debts or financial difficulties, or analyse retirement-related saving behaviour that can protect one from inadequate income in later life[41,82,112]. In addition, some research shows that expectations about replacement rates shape preferences for the timing and flexibility of pension payouts, suggesting that individuals evaluate income adequacy not only by its level, but also by how it is received over time33. All in all, these studies show that pension adequacy can be conceptualised not only through objective financial metrics, but also through subjective expectations, psychological responses, and behaviour aimed at building financial resilience.

To sum up, although objective indicators such as the substitution rate or the income related to the social minimum are widely used to assess retirement financial adequacy, they have significant limitations. These measures often fail to account for individual circumstances - such as health problems, divorce, disability, or differences in lifestyle and spending needs – as these can strongly affect financial well-being. As a result, they risk oversimplifying reality and they may even overlook vulnerable groups whose needs cannot be obtained by using standardised benchmarks. More individualised approaches exist, but they are not often applied in practice, limiting our ability to understand fully who is genuinely at risk of experiencing financial insecurity in later life.

Buffers and risk factors associated with pension adequacy

This subsection summarises the key factors related to pension adequacy as they have been categorised according to Bronfenbrenner's socio-ecological framework, at the micro-, meso-, and macro-levels (see Box 3). For each level, the findings from the literature are complemented by the perspectives of experts.

Box 3. Factors related to pension adequacy using Bronfenbrenner's framework



Micro-level factors

Knowledge, Skills, Attitudes, and Behaviour. The literature consistently shows that an individual's knowledge, skills, attitudes, and behaviour are closely related to pension adequacy[2,4,13,16,17,20,21,24,30,38,41,73,75,79,82,83,91,93,99,101,102,105,110,112]. Although effective financial planning is crucial to ensuring financial security in retirement, many people find it complex. Pension preparation requires weighing multiple uncertainties, whereas navigating financial products and services can prove challenging. Behavioural barriers - including inertia, procrastination, limited attention, and higher risk tolerance - further increase the risk of pension inadequacy by preventing timely or effective action. Uncertainty about one's pension situation can either stimulate or inhibit saving and information-seeking behaviour, depending on whether people believe that their current preparation is adequate. Conversely, those with a distant future time perspective tend to save more. In the Netherlands, only four in ten people have a clear understanding of their financial situation after retirement. Many underestimate the income they will need, and nearly half of those expected to face a shortfall fail to recognise it in time, leading to a lack of corrective action. Despite some recent improvements, knowledge of pensions remains limited. Gaps in financial literacy - including numeracy, reading comprehension, and digital skills - reduce individuals' ability to make informed choices. Effective planning is further impeded when there is a low sense of self-control, an inability to assess their financial situation, low self-esteem, a distrust in financial institutions, reluctance to use home equity, and the stress associated with ageing. Lower levels of financial literacy are also associated with overly optimistic or inaccurate expectations about future pension income, whereas active planning behaviour helps individuals form more realistic assessments. At the same time, some studies note that increasing financial literacy alone is unlikely to resolve these challenges. As pension reforms shift more responsibility to individuals, many feel that they cannot navigate the resulting complexity, leaving a substantial share of households structurally ill-equipped to manage these risks.

Experts echo these findings and add important nuances. They emphasise not only financial, digital, and language skills, but also institutional skills - the ability to navigate complex systems - as essential for sound financial decision-making and pension adequacy. Experts often note that many people postpone retirement planning until it is too late to make meaningful adjustments. They also emphasise the importance of broader life skills, the basic capabilities necessary for coping with everyday challenges and seeking help when needed. Some individuals avoid seeking support or perhaps they are unable to do so, which hence increases their vulnerability to pension inadequacy. Low cognitive ability is also identified as a risk factor. At the same time, personality traits appear to function as risks or buffers: impulsivity tends to undermine financial stability, whereas conscientiousness is often associated with better financial management. Finally, adaptability - the capacity to adjust to changes in income and expenses after retirement - is widely regarded by experts as a critical buffer for achieving pension adequacy.

> “In a perfect world, there would be one front desk where someone helps you identify the right organisation and connects you directly. That kind of warm referral would make a huge difference.” - Expert interview.

Household Composition. The literature review reveals that household composition and its ensuing changes are closely linked to pension adequacy. Individuals who are single, divorced, or widowed, as well as cohabiting couples, and parents with ongoing care responsibilities are generally more at risk of having insufficient pension resou rces[4,5,12,22,24,29,41,53,64,80,85,107,111,115].

- *Single Individuals*. Individuals who are not married or cohabiting at the time of retirement face a greater risk of having an inadequate pension. They tend to have a lower substitution ratio, fewer assets, and lack potential buffers such as pension equalisation after divorce[I] or a survivor’s pension[II].
- *Divorced Individuals*. Divorce in later life has complex and varied financial implications that can impact retirement. While some individuals may experience income gains - for instance, through increased labour market participation - divorce often leads to higher living costs, disrupted savings, and financial stress. Gender disparities are notable; women’s financial capital typically declines by around 25% after divorce, compared to just 2% for men. Although pension equalisation is designed to protect the lower-earning partner - often women - it can result in lower-than-expected pension entitlements.
- *Widows and Widowers*. The death of a partner generally reduces household retirement income, despite the temporary relief that a survivor’s pension may provide. Women are particularly vulnerable, often experiencing larger drops in income than men. Cohabiting unmarried partners face heightened risks if no survivor’s pension has been arranged, as this can drastically reduce resources after a partner’s death.

I Pension Equalization (*Pensioenverevening*): Under Dutch law, pension rights accrued during a marriage or registered partnership are divided equally in the event of divorce, as mandated by Article 1:155 of the Dutch Civil Code. This process requires both parties to submit a form to the pension fund within two years of the divorce.

II Survivor’s Pension (*Nabestaandenpensioen*): In the Netherlands, a survivor’s pension is a benefit provided to the surviving partner upon the death of the pension holder. For married or registered partners, this pension is automatically included in the pension scheme. However, for cohabiting partners, entitlement depends on formal partner registration with the pension fund. If a cohabiting partner is not registered with the deceased partner’s fund, they may not be entitled to a survivor’s pension.

- *Cohabiting Couples*. In households of cohabiting couples in which only one partner has accrued significant pension rights or savings, pension adequacy may be at risk. Cohabiting retirees may also encounter challenges when living with another adult, such as a caregiver or an adult child. Because household income is assessed collectively, this situation can reduce eligibility for elderly income supplements (AIO)[III], even if the retiree's own resources are limited.
- *Parents*. Parenthood can both protect and undermine pension adequacy. Individuals without children who receive AOW tend to face lower poverty risks, as they typically have fewer ongoing financial obligations. In contrast, retirees who continue to provide financial or housing support to their children may have less flexibility to adjust their lifestyle, thereby increasing their financial vulnerability. On the other hand, households with children are more inclined to save for retirement.

Experts largely confirm these findings while also adding nuances. They stress that widows and widowers are especially vulnerable when grief impedes cognitive functioning, making it harder to manage financial matters - particularly if the deceased partner handled household finances. Experts also highlight the risk faced by cohabiting unmarried couples if no survivor pension has been arranged. Children are viewed as both a potential buffer and a risk: adult children may provide essential support, but their presence can also impose ongoing care or financial responsibilities that limit retirees' resilience.

> "People tend to get into trouble when something unexpected happens, and they don't know what to do - either in the moment or to prevent it in the future." - Expert interview.

Socio-Economic Status. The literature relates several dimensions of socioeconomic status to pension adequacy, including asset ownership, education level, and income[2,6,11,12,15,16,21-24,26,26,29,31,33,41,65,73,76,93,94,98,100,105,106,115]. While assets and education generally have a positive association with pension adequacy, the relationship between income and pension adequacy is more complex.

- *Assets*. Assets play a significant role in pension adequacy. A distinction is made between liquid assets (savings and investments) and non-liquid assets (home ownership, pension rights). Limited liquid assets make individuals more prone to experiencing financial

III The AIO supplement is a means-tested benefit provided by the Dutch government to individuals who have reached the state pension age but who receive less than the full AOW pension due to insufficient prior residence in the Netherlands. It ensures that their income reaches the guaranteed minimum level. Eligibility criteria include limited income and assets, and the benefit is not exportable outside the Netherlands.

distress, such as unexpected expenses or income loss. Around 8% of 65-year-olds in the Netherlands have almost no liquid assets - less than half a month's income - and 4% even have debts. Home ownership can enhance pension adequacy, both by reducing the housing costs related to renting and by providing a potential source of supplemental income. However, home equity is neither liquid nor readily accessible when urgent needs arise. Moreover, concentrating wealth in a single asset creates risks, including market volatility and residual debt.

- *Type of Education*. Having a theoretical (e.g., academic/tertiary) education is associated with greater financial literacy, higher earnings, and higher asset accumulation. Conversely, those with a practical (e.g., vocational or lower tertiary) education tend to have less financial knowledge, lower incomes, and fewer assets. Notably, however, their pension income may sometimes decline less sharply from pre-retirement levels - or even improve - due to higher substitution ratios.
- *Income*. The relationship between income and pension adequacy is nuanced. Lower-income groups often have relatively high substitution ratios, which implies that at retirement their income falls only slightly and, in some cases, their pension income even exceeds their previous earnings. At the same time, they are generally less likely to save for retirement, more likely to worry about their retirement income, more likely to lack financial knowledge, and more likely to have limited financial buffers. They may risk an insufficient AOW accrual, particularly if they have lived abroad. Median-income groups can also face challenges; while they may have more financial knowledge than lower-income earners, they often spend most of their income and accrue meagre savings. High-income earners are typically better positioned financially, but they face a larger gap between their retirement income and their desired standard of living. Nearly 70% of this group underestimates the extent of the shortfall, creating a risk of pension inadequacy.

Understanding the role of socio-economic status in financial vulnerability also requires a life-course perspective, as experts emphasise that financial vulnerability often persists over time; individuals who were vulnerable before retirement frequently remain so afterwards. Individuals relying solely on the AOW - typically due to low earnings or interrupted careers - are particularly at risk, despite suggestions in the literature that AOW can improve their post-retirement income. Experts also emphasise that growing up in poverty or experiencing financial stress has long-term effects, reinforcing financial vulnerability into retirement. While homeownership can provide security, experts note that converting housing wealth into usable income is often difficult, especially with interest-only or variable mortgages that remain burdensome as income declines. Renters in the unregulated housing sector - accounting for 43% of the Dutch housing market - are considered to be particularly vulnerable, as they could face steep rental increases. Finally, experts highlight the risk of entering retirement without having sufficient savings, which appears to be a challenge that is more prevalent among those with lower levels of education. Those affected in this group may find themselves struggling when trying to navigate complex pension systems.

> "We see people who are already struggling financially before retirement - and they often just continue struggling afterwards. Whether they can make ends meet depends on whether they have built up a pension in addition to the AOW. There are quite a few who only have the AOW." - Expert interview.

Employment History. The literature indicates that a person's employment history has a major impact on pension adequacy[4,7,11–13,17,25,29,40–42,49,56,62,64,72,73,94,101,105,108–111,115]. Steady employment generally increases pension accrual and reduces the risk of inadequate retirement income. In contrast, periods of freelance work, part-time employment, unemployment, job interruptions, incapacity, or extended spells outside the labour force tend to increase vulnerability. Interestingly, some studies indicate that individuals transitioning into retirement from steady employment, experience a larger decline in subjective economic well-being than those transitioning from other statuses - such as sickness, disability, care responsibilities, or inactivity - because their pension income represents a more substantial relative cutback compared to previous earnings. Employment in physically or mentally demanding jobs can also affect pension accrual negatively, because these jobs are associated with more frequent health-related interruptions, lower wages, limited career progression, and a higher likelihood of early labour market exit. Periods of working abroad similarly tend to reduce pension accrual when they fall outside Dutch pension schemes.

- *Self-Employed Individuals*. Self-employed individuals, particularly freelancers, are at a high risk of inadequate pensions. The vast majority (94%) do not accrue second-pillar pension rights, and those who do typically accumulate far fewer rights than employees do. Even when factoring in other assets, roughly half fail to reach the 70% substitution ratio. Some studies show that self-employed individuals who enter self-employment out of necessity rather than by choice face an even higher risk of inadequate pension accrual. While some self-employed save through third-pillar arrangements or other methods, these are often flexible and can be used for non-retirement expenses, making them a less reliable source of retirement income. Longevity risk - the possibility of outliving one's retirement savings - is also higher among this group. Self-employed individuals also differ from employees in several pension-relevant behavioural and attitudinal characteristics - such as higher risk tolerance, lower institutional trust, and lower engagement with pension information - which further increases their vulnerability to suffer from pension inadequacy. Freelancers, in particular, face additional challenges, especially those in the bottom 30% to 50% income bracket: they often have meagre pension savings, irregular income, and tend to avoid engaging with pension information. While some individuals accumulate significant savings or business assets, most have business assets valued at under €10,000, and achieving the 70% substitution ratio is particularly challenging in service and specific agricultural sectors. Households consisting solely of freelancers have lower substitution ratios than those consisting solely of employees, though mixed households tend to perform similarly to employee-only households. After retirement, freelancers may face higher expenses than former employees, for instance, due to residual debts or the loss of mortgage interest deductions. Although freelancers often own more expensive homes, they typically have repaid a larger portion of their mortgage, so monthly housing costs tend to be relatively low despite higher expected expenses in other areas.

- *Job Insecurity and Part-Time Work*. Stable, long-term employment protects against financial vulnerability, whereas gaps in employment due to unemployment, illness, or early exit reduce pension accrual and substitution ratios. Part-time workers may not fully consider the long-term effects of reduced hours on their retirement income. Individuals in physically or mentally demanding jobs are also at risk, as health problems can further constrain financial resources. Consistent with evidence on transitions into retirement, individuals retiring directly from inactivity, such as illness, disability, or care responsibilities, may experience an improvement in economic well-being, as pension income is often more stable and predictable than in their pre-retirement years.

Experts largely confirm these findings. They note that freelancers are a high-risk group due to inadequate pension accrual and a lack of insurance against incapacity to work. This is especially true for so-called involuntary freelancers; individuals who would prefer dependent employment but who are self-employed due to a lack of salaried alternatives or because employers only offer freelance contracts. Experts also note vulnerabilities among those who regularly switch jobs, hold part-time roles, or exit the workforce before retirement. People in physically or mentally demanding jobs may also face long-term health issues, further reducing their pension adequacy.

> "We see people who have worked as self-employed and are approaching retirement without any financial overview or reserves. There's often no buffer, no insurance, and little or no pension accumulation." - Expert interview.

Health. The literature shows that both physical and mental health issues are significant risk factors for pension inadequacy[12,22,32,39,41,47,49,50,57,58,64,66,98,100]. Health-related stress, particularly among informal caregivers - those regularly providing unpaid care to family members or others - can hinder effective pension planning and reduce financial security in later life. Declines in health after retirement often lead to shifts in spending patterns, as non-medical expenses may decrease while medical costs typically rise. The impact depends on the type of health issue: physical health problems can increase overall spending as individuals attempt to maintain their quality of life through leisure activities, whereas mental health issues often reduce overall spending due to lower engagement in such activities.

Experts note that during working life health problems often lead to lower pension accrual, and these problems continue to drive higher costs after retirement. Mental health conditions, including ADHD or autism, can complicate pension preparation, as affected individuals may struggle with adapting to the changes that retirement brings.

> "You see cases where someone loses their partner or becomes ill themselves, and suddenly the person who handled all the finances is gone. People don't know what to do. There's emotional strain and financial uncertainty, especially when someone is alone."
> - Expert interview.

Demographic factors. According to the literature, several demographic factors influence financial security in retirement, particularly gender, migration background, and age[11,12,22,32,39,41,47,49,57,58,64,66,80,98,100,114]. Women and non-Western migrants are consistently identified as belonging to vulnerable groups.

- *Women*. Women are generally at a greater risk of having inadequate pensions. This is often associated with lower lifetime earnings, a higher likelihood of part-time employment, and greater representation in sectors with less favourable pension arrangements. These factors contribute to lower pension accumulation over the life course. Although the gender pension gap has narrowed, it persists. Cross-national analyses, however, show that the Netherlands is one of the few EU countries in which old-age poverty rates for women do not substantially exceed those of men, reflecting the equalising effect of the state pension. Women often have less knowledge about their pension situation and rely more on partners for pension-related decisions. Interestingly, the proportion of men and women who expect to receive a low pension is similar; 15.7% of men and 13.9% of women, suggesting broad concern and uncertainty about pension adequacy. Single women, especially after divorce or the death of a partner, are particularly at risk of pension inadequacy.
- *Migrants with Non-Western Backgrounds*. First-generation migrants from countries such as Turkey, Morocco, former Yugoslavia, and Afghanistan face a high risk of inadequate pension income in the Netherlands. In contrast, migrants from other EU countries and

former colonies tend to be less at risk of inadequate pensions. Non-Western migrants often do not fully accrue AOW due to periods spent abroad before retirement and receive lower supplementary pensions as a result of limited labour market participation and higher unemployment. Additionally, they tend to have lower take-up rates for social welfare programs, including the Supplementary Income Provision for the Elderly (AIO). These disadvantages persist after retirement, as many have limited savings or assets, lower financial literacy, and little trust in pension institutions, often stemming from complex or poorly aligned administrative processes. Approximately 40% of this group lives below the subsistence level for extended periods, compared with 2.5% - 5% of the native elderly population.

- *Age*. Age is associated with differences in pension adequacy. Young adults tend to have lower expected pension benefits and engage in less financial planning; approximately 40% expect not to receive any pension. Older workers are generally better informed but increasingly concerned about insufficient pension savings and declining health. The share of individuals aged 50–57 who are worried about their retirement increased from 31% in 2015 to 42% in 2022. Current pensioners frequently mention such issues as frozen or reduced pension payments, inadequate AOW, and high medical costs. Many avoid using home equity to supplement their income, and those with limited supplementary pensions - especially migrants - often experience a decline in purchasing power.

The interviews held with experts for the most part confirm these findings from the literature. Women face challenges in pension adequacy due to a higher likelihood of part-time work - an issue particularly prevalent in the Netherlands - resulting in lower pension accumulation. Moreover, in many households, pension matters are often managed by men, which can increase dependence on partners or others for pension planning. Migrants are at risk of lower pension adequacy due to their incomplete AOW accrual and this can be traced to their possessing limited knowledge or skills thus effectively preventing them from utilising pension and other provisions. Reliance on social networks for financial management can further affect their pension outcomes. Older adults are considered to be vulnerable due to health issues, limited digital skills, and declining cognitive abilities, which can both hinder individuals' understanding of complex pension information and increase their susceptibility to financial scams.

> "There was this woman who said, 'I'm not stupid, but I can't figure this out.' Her husband always handled the paperwork. Now that he's retired and unwell, she's completely lost. Asking for help was a huge step." - Expert interview.

Meso-level factors

Social Capital. Although the literature remains relatively limited, some studies focus on social capital - support from family, friends, community groups, non-profits, employer programs, and local organisations - as a key buffer factor shaping pension adequacy[4,21,79]. During retirement, individuals often face complex financial decisions and may lack the knowledge or skills needed to manage them effectively. A strong social support network can significantly ease these challenges, helping to maintain adequate pension outcomes and reduce financial insecurity in later life.

Social Norms. One study in our review finds that social norms - particularly the expectations and behaviours observed within one's social environment - significantly shape perceptions of pension savings adequacy, as individuals who compare themselves to peers or who rely on prevalent norms regarding saving and planning are more likely to judge their own pension as being insufficient when such norms signal higher preparedness[91].

Experts also emphasise the importance of social capital. Individuals with strong safety nets, such as close family ties, tend to be more financially resilient, as they can rely on others in times of need. However, social networks can also have certain drawbacks. In some communities, cultural expectations and social norms discourage individuals from using social benefits or support programs, as self-sufficiency is strongly valued. Moreover, obligations to support family members abroad can place further pressure on retirees, thereby limiting their financial security.

> "In some communities, everything is handled internally - there's a lot of informal borrowing and lending. That doesn't mean there aren't financial problems, but people don't reach out for structural help. Issues stay invisible." - Expert interview.

Macro-level factors

Pension System. The Dutch pension system, illustrated in Box 1, is often praised for its broad coverage and layered structure. Yet, several structural vulnerabilities have been identified, especially in cases where individuals have not accrued full entitlements in the first or second pillar. The Dutch pension system generally protects most individuals from poverty in retirement and helps maintain their standard of living[77]. Nevertheless, structural issues arise that pose risks to specific groups, including insufficient AOW accumulation, vulnerabilities to funding shortfalls, and the so-called 'white' and 'grey' spots in pension coverage (discussed below)[6,7,35,40,48,48,65,87,88]. Comparative research shows that pension systems with a greater public component are associated with lower levels of income inequality and poverty is particularly found among older households. In contrast, systems that rely more heavily on occupational or private pensions tend to produce more unequal retirement outcomes[10].

- *Incomplete AOW accumulation*. Although the AOW provides a strong equalising effect by offering a universal state pension, not all individuals accrue a full AOW entitlement. AOW entitlements accrue over the fifty years preceding the state pension age, at a rate of 2% per insured year of residence and/or employment in the Netherlands, with fifty insured years required for a full benefit. Individuals with migration backgrounds or long periods spent abroad often accrue fewer AOW years and therefore receive reduced benefits, increasing their risk of inadequate income in retirement.
- *Funding shortfalls*. In funded occupational schemes, financial shocks can prompt recovery measures, such as reduced indexation, temporary benefit reductions, or higher premiums. These adjustments do not affect all households equally. Workers may face reduced net incomes and slower accruals during periods of high contribution pressure, whereas retirees can experience lower real pension benefits when indexation is limited or suspended. Households with limited savings or fragmented careers are particularly vulnerable to these adjustments, increasing their exposure to pension inadequacy during economic downturns.
- *White spots*. White spots (*witte vlekken*) refer to gaps in supplementary pension coverage (the second pillar) among individuals in the workforce. This includes employees without access to a collective pension scheme as well as self-employed workers. Small or newly- established companies without formal pension arrangements are overrepresented in this category. Recent estimates indicate that this affects approximately 9–11% of employees. Certain sectors, such as advertising and market research, are particularly affected, where many workers rely solely on the basic AOW pension because they lack access to any secondpillar pension scheme.
- *Grey spots*. Grey spots refer to pension schemes with unfavourable conditions—such as low accrual rates or a high franchise (i.e., below the salary threshold in which earnings do not count toward pension accrual). As a result, individuals in grey spot schemes often rely primarily - or even solely - on the AOW as their primary source of retirement income.

Experts agree that insufficient AOW accumulation is a significant risk factor for pension inadequacy, especially for migrants. They also highlight the vulnerabilities posed by white and grey-spot pensions, particularly in sectors such as IT and the creative industries, where pension accumulation is often limited or inconsistent. These structural gaps reduce long-term financial security and increase the likelihood of pension inadequacy.

> "There are definitely people who haven't built up a pension, or only very little. That often depends on their employment history [in the new pension system]. Some people don't even realise they've missed out on years of accrual until it's almost too late." - Expert interview.

New Pension System. The Netherlands will be introducing a new pension system in 2027, which will change how pensions are accrued. While there is limited literature on its anticipated effects, early indications suggest that women may become more vulnerable under the new rules40. This is especially true for women who work fewer hours early on in their careers due to childcare responsibilities. Pension accumulation during this early phase will become increasingly important under the new system, and employment later in life may only partially compensate for initial gaps, particularly if this takes the form of part-time work. As a result, existing disparities in pension accrual between men and women are likely to persist.

Experts note several areas of concern under the new system:

- *Fluctuating Pension Payments*. Pension benefits are expected to fluctuate more than they did under the previous system. These fluctuations may increase insecurity regarding the monthly pension income, particularly for those individuals who have limited financial reserves or smaller supplementary pensions, and who are less able to withstand financial pressure.
- *Self-Employed Workers and White Spots*. The new system does not explicitly address the needs of self-employed individuals or employees who do not accrue pension rights. These groups, who often lack sufficient savings, remain highly vulnerable.
- *Importance of Early Pension Accumulation*. Early-career pension accumulation is becoming increasingly important. This shift can make young people and women particularly vulnerable. Career and family planning choices made early in life present long-term consequences for pension outcomes. Women, in particular, remain vulnerable if they work part-time after childbirth or experience career interruptions, as these circumstances limit pension accrual under the new system.

> "Women who work part-time after having children miss out on pension accrual, and that adds up over the years. You don't see it right away, but it becomes clear once retirement is near." - Expert interview.

Facilities and Regulations. Older adults in the Netherlands have access to various social welfare programs that can enhance their pension adequacy. However, the literature indicates that not all eligible individuals use these benefits[3,4,63,66]. While nearly all eligible individuals receive the AOW, the number of cases in which they actually take advantage of supplementary schemes is relatively low. For instance, around 50% of those eligible do not claim the Supplementary Income Provision for the Elderly (AIO), and approximately 45% do not receive the AOW Bridging Allowance (OBR); a temporary income supplement for those affected by the increased AOW retirement age. In addition, approximately 14% of individuals aged 65 and over do not claim housing allowance (*huurtoeslag*), despite being eligible. Similarly, around 14% do not receive the child-related budget, although the eligible population for this benefit within the over-65 group is likely to be very small. No specific data is available on the uptake of other allowances or municipal schemes for older adults.

Financial Products. Various financial products can supplement pension income, but their use remains limited[12,15,16,115]. Although several tax-advantaged instruments exist to support voluntary retirement savings, the take-up remains limited, and this includes freelancers whose contribution levels tend to be modest. Moreover, homeowners have options to unlock the value of their property, but these are often complex and underutilised.

System Complexity. The complexity of the pension system, social support schemes, and financial products can hinder individuals' abilities to understand their rights and take informed action [4,21,24]. Individuals and households in financially vulnerable positions, in particular, may struggle due to chronic stress and financial uncertainty.

Cultural Factors. Unequal division of caregiving responsibilities between men and women remains a significant factor affecting women's financial security. In the Netherlands, women are more often expected to assume care responsibilities than men, whether implicitly or explicitly. These deeply ingrained cultural norms about the roles of men and women are reinforced by several institutional factors, including high childcare costs and school schedules that often do not align with standard working hours. Moreover, parental leave regulations, childcare availability, and school timetables are often not tailored to the needs of working parents[22,47,64]. As a result, women are more likely to experience pension inadequacy.

During the interviews held with experts, it was revealed that several additional macro-level factors could possibly influence retirees' financial resilience in the years to come. These include rising energy costs driven by climate change, higher costs associated with sustainability requirements, and inflation driven by geopolitical developments. Experts also noted that limited pension indexation in recent years means that pension incomes may no longer keep pace with inflation. Furthermore, a lack of regulation in the private rental sector could lead to sharp increases in housing costs.

Results of Interviews with Pensioners

To conclude the results section, we present two composite pensioner stories based on interviews with pensioners (Box 4) that illustrate how the multiple factors identified in the previous sections interact in practice. These interviews did not reveal new risk or buffer factors; rather, they confirmed the complex interplay of factors across micro, meso, and macro levels. Rather than emphasising any single factor, these stories illustrate how risks and buffers interact, showing that individuals might face vulnerabilities but that they can still remain financially resilient because of other buffer factors. This complexity makes it hard to predict pension adequacy by examining factors in isolation. These cases add a human dimension to our findings, reminding us that pension adequacy depends on a complex interplay of factors. While the names and details are fictional, the stories are grounded in the lived experiences of the pensioners we spoke to and demonstrate how buffer factors can outweigh financial risks for many pensioners.

Box 4. Composite Stories: Fouad and Anja

Fouad's Life Story

Fouad (a 76-year-old man) moved to the Netherlands from Morocco in his mid-twenties and worked in construction throughout his career until he became ill. Together with his wife, he bought a house where their children were raised. Now that their children have moved out, they rent out one of the floors and are considering selling the house to move to a smaller home.

Fouad has always saved little and has limited command of Dutch. As a result, he is not digitally literate and struggles to manage his financial affairs. His daughter assists him with this and supports him financially. His other children also have good jobs and can help when necessary. Fouad currently receives AOW, a pension from his employer, and an allowance for medical expenses. His wife is still working.

Anja's Life Story

Anja (a 67-year-old woman) has been retired for a few months. She worked in retail for many years, but her job was eventually terminated. When she had children, she stopped working for several years but later returned to work once her children were older.

Her husband always managed their joint finances, which means Anja has limited financial knowledge. When their children were still young, her husband became ill and passed away. Fortunately, he had arranged a good survivor's pension, which ensured that Anja did not encounter financial difficulties. Her children, who now have stable jobs, assist her in managing her finances. Anja now has a new partner who also has a solid pension.

These two composite stories highlight how micro-level factors, such as financial knowledge or socio-economic position, shift dynamically across the life course, for example, through the loss of a partner or re-partnering, and how such factors interact with one's social network, one's access to other forms of social support, or the cultural norms attached to caregiving. These composite stories highlight the complexity of our findings, showing that pension inadequacy is a multidimensional phenomenon that requires an approach that takes these dynamics and interactions into account, rather than one that focuses on a select set of isolated factors.

3. Conclusions and implications

Overall, the percentage of pension adequacy among retirees in the Netherlands is quite high. However, the national average masks a more complex reality. Significant groups remain at risk of financial problems in retirement, while others tend to oversave and accumulate more pension than strictly necessary. This study focuses on individuals who have accumulated less pension than desired and subsequently it examines the factors that increase the risk of pension inadequacy and those that provide a buffer against this ocurring.

Differences between groups - based on gender, migration background, or type of employment - are substantial, making it challenging to draw uniform conclusions. Whereas research and policy often focus on individual characteristics, the broader environment in which individuals live also plays a crucial role in shaping financial outcomes later in life. In most cases, pension adequacy is determined by a combination of personal circumstances, life events, risks, individual choices, and environmental factors, all of which operate at intersecting micro, meso, and macro levels.

The scientific literature typically addresses a narrow set of risk and buffer factors. In contrast, interviews with pensioners reveal a more complex picture, highlighting the importance of buffer factors that enable individuals to remain resilient in the face of adverse life events. Effective policy and communication interventions must extend beyond broad categories to account for the combination of factors that contribute to financial vulnerability, as well as buffer factors that help ensure a solid and secure pension.

Financially Vulnerable Groups during Retirement

To understand how multiple factors influence pension adequacy, we structured them within Bronfenbrenner's multilevel framework, encompassing the micro, meso, and macro levels. However, isolating the impact of individual factors - or a specific combination of factors - remains challenging. Despite this complexity, certain population groups, as listed below, require special attention due to cumulative risk exposure or limited awareness of their financial situation.

Women. Women with multiple-risk factors and limited buffers are particularly vulnerable to having inadequate pensions. This is especially true for single women and those working in sectors with less favourable pension schemes, such as healthcare. Many lack stabilising factors, such as a steady income, wealth, or partner support, which increases their susceptibility to pension inadequacy.

Women who, due to divorce, widowhood, or child-rearing, have been unable to save or build up an adequate pension are at increased risk. Interventions should focus on key life events - such as buying a home or having children - to account for their effects on pension accrual in decisions about work and caregiving. Early awareness of financial choices strengthens long-term financial well-being. Pension communication should also consider that women generally report lower levels of financial confidence, a significant factor reflected in lower financial literacy[19].

First-Generation Non-Western Migrants. First-generation non-Western migrants, especially those from Turkey and Morocco, are vulnerable to pension inadequacy. They may have incomplete state pension (AOW) entitlements and they may have made limited use of the provisions available, such as the Supplementary Income Provision for the Elderly (AIO) and social welfare programs, such as rental and healthcare benefits. This lack of financial support can place them in a precarious situation during retirement.

Targeted information and education are crucial for increasing the awareness of financial support options and encouraging their utilisation. Social networks, including those involving children or relatives, play a critical buffering role; however, cultural perceptions of state assistance and structural barriers can limit engagement. To reduce the persistent non-take-up of the AIO, policy efforts should prioritise making access as straightforward as possible for eligible older migrants, ideally through forms of automatic or proactive enrolment. Systematic interventions and policy measures are needed to equip migrants and their support networks to prepare effectively for retirement. Understanding migrants' expectations regarding returning to their country of origin, including family support and associated financial implications, is also essential for strengthening their financial security during retirement.

Households with Solely Self-Employed Workers. Households composed entirely of self-employed workers, including freelancers, face considerable risks of pension inadequacy, especially in the service sector, which is characterised by low incomes and low rates of home ownership. Having limited financial reserves reduces their ability to handle unexpected expenses or economic crises, and the absence of a sellable business or property as a pension buffer further increases their vulnerability. Many self-employed individuals have limited access to social security and pension schemes, which can weaken their pension adequacy. Active financial planning, pension savings strategies, and enhancing financial literacy are essential for achieving sustainable retirement preparation. As many freelancers begin working at a young age, financial literacy and pension planning should be integrated into their education or careers early on to ensure long-term financial health.

Future Research

This study highlights the need for additional research regarding a range of factors – interrelated – factors which influence pension adequacy among retirees in the Netherlands.

- **Subjective Experiences**. Existing research often emphasises objective indicators such as income, yet growing evidence shows that subjective experiences of financial insecurity are equally important for understanding retirees' economic lives. A long-standing body of literature has demonstrated that subjective measures can capture those dimensions of financial strain that have not yet been captured by material indicators alone[89]. These perceptions matter because they shape how individuals evaluate their circumstances and possibilities, reflecting aspirations, expectations, and perceived constraints[43,45]. Future research on retirement adequacy could further systematically integrate both the objective and subjective dimensions of financial wellbeing.
- **Social Environment**. The role of family, friends, neighbours, and local organisations in supporting financial security remains underexplored. Investigating the influence of social networks could provide valuable insights into how social capital acts as a buffer against financial vulnerability.
- **Spending Patterns**. While many studies focus primarily on income, one's expenses - such as mortgage payments or rent - have a significant impact on financial security. Future research could investigate the relationship between spending patterns and pension adequacy.
- **International research**. Although this study focuses on the Dutch context, cultural and systemic differences across countries could influence retirees' financial vulnerability. Comparative international research could then deepen the understanding of how financial security develops in diverse societal settings.

Moreover, there is a need for applied research to strengthen the buffers and to mitigate the risk factors affecting pension adequacy through targeted interventions. Experimental approaches could identify effective strategies for specific subgroups, such as the self-employed, women and migrants, thereby supporting more tailored and impactful policy responses.

References

1. Agarwal S, Driscoll JC, Gabaix X, Laibson D. The age of reason: Financial decisions over the life-cycle with implications for regulation. *Brook Pap Econ Act*. 2009;(Fall):51-101.
2. Alessie R, Van Rooij M, Lusardi A. *Financial Literacy, Retirement Preparation and Pension Expectations in the Netherlands*. Vol 17109. National Bureau of Economic Research; 2011. doi:10.3386/w17109
3. Algemene Rekenkamer. *Ouderdomsregelingen Ontleed*. 2019.
4. Atkinson A, Overton L. Planning for retirement in the workplace: Focus on defined contribution pensions in the UK. OECD Forum. 2023. https://www.oecd.org/en/blogs/2023/09/planning-for-retirement-in-the-workplace-focus-on-defined-contribution-pensions-in-the-uk.html
5. Autoriteit Financiële Markten. Fiscaal-gefaciliteerde opbouw van individueel pensioenvermogen in de derde pijler: Een analyse van de afnemerskant op basis van CBS-microdata. Published online 2023. https://www.afm.nl/~/profmedia/files/doelgroepen/pensioenuitvoerders/2023/pensioenopbouw-derde-pijler.pdf
6. Autoriteit Financiële Markten. Keuzevrijheid en maatwerk bij pensioeninleg: Literatuurstudie en consumentenonderzoek. Published online September 2018. https://www.afm.nl/~/profmedia/files/publicaties/2018/onderzoek-keuzevrijheid-pensioendeelnemers.pdf
7. Autoriteit Financiële Markten. Pensioenrisicoanalyse: Onderzoek naar de verwachte hoogte van toekomstige pensioeninkomens. Published online February 2012. https://www.afm.nl/~/profmedia/files/rapporten/2012/rapport-pensioenrisicoanalyse.ashx
8. Balter AG, Kallestrup-Lamb M, Rangvid J. Variability in pension products: A comparison study between The Netherlands and Denmark. *Ann Actuar Sci*. 2020;14(2):338-357. doi:10.1017/S1748499520000056
9. Been J, Caminada K, Goudswaard K, Van Vliet O. Public/Private Pension Mix, Income Inequality and Poverty among the Elderly in Europe: An Empirical Analysis Using New and Revised OECD Data. *Soc Policy Adm*. 2017;51(7):1079-1100. doi:10.1111/spol.12282
10. Biesenbeek C, Been J, Caminada K, Goudswaard K, Knoef M. De toereikendheid van pensioenen Naar een completer beeld van pensioeninkomen van de Nederlandse bevolking. *Nederlandsche Bank*. Published online 2024. https://www.dnb.nl/publicaties/publicaties-onderzoek/analyse/de-toereikendheid-van-pensioenen/
11. Biesenbeek C, Van Voss BH, Mastrogiacomo M. Werkenden zonder pensioenopbouw. *DNB Occas Stud*. 2020;20(3). https://www.dnb.nl/media/ft2pioiv/werkenden-zonder-pensioenopbouw.pdf
12. Bokern P, Linde J, Riedl A, Schmeets H, Werner P. A comparison of pension-relevant preferences, traits, skills, and attitudes between the Dutch self-employed and employees. *Netspar Des Pap*. 2023;(48).
13. Bronfenbrenner U. Ecological models of human development. *Int Encycl Educ*. 1994;3(2):37-43.
14. Brounen D, Kortleve N, Ponds E. Pensioenaanvullingen uit het eigen woningbezit. *Netspar Des Pap*. 2019;(123). https://www.netspar.nl/assets/uploads/P20190613_Paper_DP123_Brounen-2.pdf
15. Brounen D, Van Ewijk C, Gielen A, Knoef M, Mastrogiacomo M. Laat pensioenfondsen overwaarde huis te gelde maken via participatiehypotheek. *Econ Stat Ber*. 2023;108(4820):182-185. 182-185_EwijkBrounen.pdf (uvt.nl)
16. Brüggen L, Post T. Meer keuze leidt niet automatisch tot hogere pensioenbetrokkenheid. *Netspar Des Pap*. 2018;(15). https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/Netspar-brief-15-keuze-pensioenbetrokkenheid.pdf
17. Brzozowski M, Visano BS. "Havin' money's not everything, not havin' it is" The importance of financial satisfaction for life satisfaction in financially stressed households. Published online 2017. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3087227
18. Bucher-Koenen T, Alessie RJM, Lusardi A, Van Rooij M. Fearless woman: financial literacy and stock market participation. Preprint posted online March 2, 2021:3798304. doi:10.2139/ssrn.3798304

19. Canada FCA of. Canadians' financial well-being: Summary of FCAC survey findings. April 30, 2021. Accessed April 15, 2024. https://www.canada.ca/en/financial-consumer-agency/programs/research/summary-covid-19-surveys.html
20. Canada FCA of. Make change that counts: National financial literacy strategy 2021-2026. July 14, 2021. Accessed April 15, 2024. https://www.canada.ca/en/financial-consumer-agency/programs/financial-literacy/financial-literacy-strategy-2021-2026.html
21. CBS. Welvaart in Nederland. Published online 2019. https://longreads.cbs.nl/welvaartinnederland-2019/armoede-en-risicogroepen/
22. Centraal Bureau voor de Statistiek (CBS). *Woningvoorraad Naar Eigendom; 2012-2023*. Centraal Bureau voor de Statistiek; 2024. https://www.clo.nl/indicatoren/nl216407-woningvoorraad-naar-eigendom-2012-2023
23. Ciurila N, Kramer B, Luginbuhl R, Smid B. Sturen naar vermogen: De vermogensopbouw bezien vanuit de levensloop. *CPB Policy Brief*. Published online 2021. https://www.cpb.nl/sites/default/files/omnidownload/CPB-Policy-Brief-Sturen-naar-vermogen.pdf
24. Ciurila N, Luginbuhl R. Hand-to-mouth-huishoudens: een vergelijking tussen Nederland en andere Europese landen. *CPB*. Published online 2023. https://www.cpb.nl/hand-mouth-huishoudens-een-vergelijking-tussen-nederland-en-andere-europese-landen
25. Ciurila N, Van Heuvelen H, Luginbuhl R, Smid B. Are the savings of Dutch households optimal? *CPB Policy Brief*. Published online 2020. https://www.cpb.nl/sites/default/files/omnidownload/CPB-Communication-feb2020-Are-the-savings-of-dutch-households-optimal.pdf
26. CNV Vakcentrale. *Grote Zorgen Om Koopkracht Senioren. Position Paper t.b.v. Het Rondetafelgesprek in de Tweede Kamer Op 10 Maart 2022 over de Koopkracht van Ouderen*. 2022.
27. Commissie Sociaal Minimum. Een zeker bestaan - Naar een toekomstbestendig stelsel van het sociaal minimum. Rapport II. Published online 2023.
28. De Bresser J, Knoef M. Can the Dutch meet their own retirement expenditure goals? *Labour Econ*. 2015;34:100-117. doi:10.1016/j.labeco.2015.03.014
29. De Bresser J, Knoef M, Kools L. Cutting one's coat according to one's cloth – How did the great recession affect retirement resources and expenditure goals? *J Econ Behav Organ*. 2021;188:126-166. doi:10.1016/j.jebo.2021.05.010
30. De Bresser J, Knoef M, Kools L. Pensioenwensen voor en na de crisis. *Netspar Des Pap*. 2017;(85). Accessed April 11, 2024. https://www.netspar.nl//assets/uploads/Netspar-Design-Paper-85-WEB.pdf
31. De Regt S, Das M, Fokkema T. Migrantenouderen in Nederland: Een beschrijvende analyse van de leefsituatie van ouderen uit de 20 grootste herkomstgroepen. *CBS*. Published online 2022. https://www.cbs.nl/nl-nl/longread/statistische-trends/2022/migrantenouderen-in-nederland
32. Dillingh R, Prast H, Rossi M, Urzì Brancati C. *The Psychology and Economics of Reverse Mortgage Attitudes: Evidence from the Netherlands*. CeRP; 2013. https://www.netspar.nl/kennisplein/the-psychology-and-economics-of-reverse-mortgage-attitudes-evidence-from-the-netherlands-2/
33. Ebbinghaus B, Nelson K, Nieuwenhuis R. Poverty in old age. In: Greve B, ed. *Routledge International Handbook of Poverty*. Routledge; 2019:256-267.
34. Een zeker bestaan - Naar een toekomstbestendig stelsel van het sociaal minimum. Rapport I. *Comm Soc Minim*. Published online a 2023. https://www.rijksoverheid.nl/documenten/rapporten/2023/06/30/een-zeker-bestaan-rapport-i-commissie-sociaal-minimum
35. Eurofound. *Household Composition and Well-Being*. Publications Office of the European Union; 2019. https://www.eurofound.europa.eu/system/files/2019-12/ef19040en1.pdf
36. Gamble KJ. *Challenges for Financial Decision Making at Older Ages*. Vol 1. Oxford University Press; 2017. doi:10.1093/oso/9780198808039.003.0003
37. García JM, Vila J. Financial literacy is not enough: The role of nudging toward adequate long-term saving behavior. *J Bus Res*. 2020;112:472-477. doi:10.1016/j.jbusres.2020.01.061

38. Goudswaard KP, Beetsma RMJW, Nijman TE, Schnabel P. Een sterke tweede pijler. Naar een toekomstbestendig stelsel van aanvullende pensioenen. *Univ Leiden*. Published online 2010. https://hdl.handle.net/1887/15639
39. Goudswaard MK Kees. Effecten van de hervorming van het pensioenstelsel. ESB. November 9, 2022. Accessed March 12, 2024. https://esb.nu/effecten-van-de-hervorming-van-het-pensioenstelsel/
40. Hershey DA, van Dalen HP, Conen W, Henkens K. Are "voluntary" self-employed better prepared for retirement than "forced" self-employed? *Work Aging Retire*. 2017;3(3):243-256. doi:10.1093/workar/wax008
41. Hershey DA, Henkens K, van Dalen HP. What drives retirement income worries in Europe? A multilevel analysis. *Eur J Ageing*. 2010;7(4):301-311. doi:10.1007/s10433-010-0167-z
42. Hobson B. Gendered Dimensions and Capabilities: Opportunities, Dilemmas and Challenges. *Crit Sociol*. 2018;44(6):883-898. doi:10.1177/0896920516683232
43. Hoff S, van Hulst B. Armoede in kaart: 2019. 2019. https://digitaal.scp.nl/armoedeinkaart2019/wat-is-armoede
44. Inglehart R. *Culture Shift in Advanced Industrial Society*. Princeton University Press; 1990. doi:10.2307/j.ctv346rbz
45. International Labour Organization. Global employment trends 2024. Published online 2024. doi:10.54394/ZUUI5430
46. Kali S, Been J, Knoef M, Kooy A van M. Gelijke rechten, maar geen gelijke pensioenen: de gender gap in Nederlandse tweedepijlerpensioenen. *Netspar Des Pap*. 2021;(178). https://www.netspar.nl//assets/uploads/P20210916_Netspar-Design-Paper-178-WEB.pdf
47. Kastelein PB, Romp WE. Pension fund restoration policy in general equilibrium. *Macroecon Dyn*. 2020;24(7):1785-1814. doi:10.1017/S1365100518001049
48. Knoef M, Been J, Alessie R, Caminada K, Goudswaard K, Kalwij A. Measuring retirement savings adequacy: developing a multi-pillar approach in the Netherlands. *J Pension Econ Finance*. 2016;15(1):55-89. doi:10.1017/S1474747214000341
49. Knoef M, Been J, Caminada K, Goudswaard K, Rhuggenaath J. De toereikendheid van pensioenopbouw na de crisis en pensioenhervormingen. *Netspar Des Pap*. 2017;(68). Accessed April 11, 2024. https://www.netspar.nl//assets/uploads/Netspar-Design-Paper-68-WEB.pdf
50. Knoef M, Goudswaard K, Been J, Caminada K. Nederlandse pensioenopbouw in internationaal perspectief. *Netspar Des Pap*. 2014;(41). https://www.netspar.nl/assets/uploads/Netspar_design_41-WEB-1.pdf
51. Kooiman T, Marcel L, Van De Meerendonk E, Rhuggenaath J. Income and wealth during the course of life. *CPB*. Published online June 2019. https://www.cpb.nl/sites/default/files/omnidownload/cpb-background-document-income-and-wealth-during-the-course-of-life.pdf
52. Kools L, Knoef M. Bestedingsbehoeften bij een afnemende gezondheid na pensionering. *Netspar Des Pap*. 2017;(78). https://www.netspar.nl/assets/uploads/Netspar-Design-Paper-78-WEB.pdf
53. Kools L, Knoef M. Health and consumption preferences; estimating the health state dependence of utility using equivalence scales. *Eur Econ Rev*. 2019;113:46-62. doi:10.1016/j.euroecorev.2018.12.007
54. Kraaykamp G, Damman M. Retirement preparation of self-employed individuals during the COVID-19 crisis. 2022;(204). https://www.netspar.nl/en/publication/retirement-preparation-of-self-employed-individuals-during-the-covid-19-crisis/
55. Lössbroek J. De ongelijkheid van pensioeninkomens van migranten. *NIDI*. 2024;Jaargang 40(1). https://nidi.nl/demos/de-ongelijkheid-van-pensioeninkomens-van-migranten/
56. Lössbroek J, Fokkema T. Waar komt armoede onder gepensioneerde migranten vandaan? *NIDI*. Jaargang 38(10). https://nidi.nl/demos/waar-komt-armoede-onder-gepensioneerde-migranten-vandaan/#:~:text=Pensioenarmoede%20komt%20veel%20vaker%20voor,pensioen%20en%20minder%20eigen%20woningbezit

57. Lusardi A, Mitchell OS. Financial literacy around the world: An overview. *J Pension Econ Finance*. 2011;10(4):497-508. doi:10.1017/S1474747211000448
58. Lusardi A, Mitchell OS. The economic importance of financial literacy: Theory and evidence. *J Econ Lit*. 2014;52(1):5-44. doi:10.1257/jel.52.1.5
59. Madgavkar A, Canal Noguer M, Bradley C, White O, Smit S, Radigan T. *Dependency and Depopulation? Confronting the Consequences of a New Demographic Reality*. McKinsey Global Institute; 2025.
60. Mastrogiacomo M. De pensioenpuzzel van zelfstandigen Zelfstandigen maken pensioenambities niet waar. *Netspar Des Pap*. 2016;(Netspar Brief 7). https://www.netspar.nl/assets/uploads/D20161108_NetsparBrief7_Mastrogiacomo.pdf
61. Ministerie van Sociale Zaken en Werkgelegenheid. Beleidsdoorlichting Artikel 8 Oudedagsvoorziening. Published online 2019. https://www.tweedekamer.nl/debat_en_vergadering/ commissievergaderingen/details?id=2020A00348
62. Mosman A. Werk aan de winkel. Op weg naar financiële onafhankelijkheid van vrouwen. *APG*. Published online 2023. https://eeneerlijkverhaal.nl/wp-content/uploads/2023/06/APG-Whitepaper_Werk-aan-de-winkel.pdf
63. Muns S, Van Soest A. Kwetsbare groepen hebben vaak ook een pensioengat. *Econ Stat Ber*. 2023;108(4819):140-141. https://esb.nu/wp-content/uploads/2023/03/140-141_Muns.pdf
64. Netwerk van Organisaties van Oudere Migranten (NOOM). Position paper t.b.v. rondetafelgesprek Tweede Kamercie. Published online 2022. https://www.tweedekamer.nl/kamerstukken/detail?id=2022Z03713&did=2022D07622
65. OECD. *Pensions at a Glance 2023: Country Note – Netherlands*. OECD Publishing; 2023. https://www.oecd.org/publications/pensions-at-a-glance-2023-country-notes-2e11a061-en.htm
66. OECD. *Pensions at a Glance 2023: OECD and G20 Indicators*. OECD Publishing; 2023. doi:10.1787/b6d3dcfc-en
67. OECD. *Recommendation of the Council on Financial Literacy*. Organisation for Economic Co-operation and Development; 2025. https://legalinstruments.oecd.org/api/print?ids=663&lang=en
68. Oláh LS. *Changing Families in the European Union: Trends and Policy Implications*. United Nations Expert Group Meeting on Family Policy Development; 2015. https://www.un.org/esa/socdev/family/docs/egm15/Olahpaper.pdf
69. Organisation for Economic Co-operation and Development. *Health at a Glance 2023: Long-Term Care Spending and Unit Costs*. OECD; 2023. https://www.oecd.org/en/publications/health-at-a-glance-2023_7a7afb35-en/full-report/long-term-care-spending-and-unit-costs_cc989a20.html
70. Palomäki LM. Does it matter how you retire? Old-age retirement routes and subjective economic well-being. *Soc Indic Res*. 2019;142(2):733-751. doi:10.1007/s11205-018-1929-9
71. Parlevliet J, Kooiman T. Wealth formation of Dutch households: a policy assessment. Published online 2015. https://www.dnb.nl/media/5baicukv/201502_nr-_1_-2015-_wealth_formation_of_dutch_households_a_policy_assessment.pdf
72. Poterba JM. Retirement security in an aging population. *Am Econ Rev*. 2014;104(5):1-30. doi:10.1257/aer.104.5.1
73. Prast HM, van Soest A. Financial literacy and preparation for retirement. *Intereconomics*. 2016;51(3):113-118. doi:10.1007/s10272-016-0588-9
74. Rijksoverheid. *IBO Pensioenopbouw in Balans*. 2024. Accessed May 12, 2025. https://www.rijksoverheid.nl/documenten/kamerstukken/2024/06/27/bijlage-1-ibo-pensioenopbouw-in-balans
75. Rijksoverheid. *Licht Uit, Spot Aan: De Vermogensverdeling. IBO Vermogensverdeling*. 2022. https://open.overheid.nl/documenten/ronl-c2da23e05fef0df2b0cd79ff09c88c673d3b3e95/pdf
76. Rodríguez Ferrari A, Verner M, Mazoni Silva Martins N, Kashiwase H, Galiano E. Flexibility at work: Insights from 50 years of data. June 30, 2025. https://blogs.worldbank.org/en/opendata/flexibility-at-work--insights-from-50-years-of-data

77. Salignac F, Marjolin A, Reeve R, Muir K. Conceptualizing and measuring financial resilience: A multidimensional framework. *Soc Indic Res*. 2019;145(1):17-38. doi:10.1007/s11205-019-02100-4
78. Scholte R, Lammers M. *Inkomenspositie ouderen*. SEO Economisch Onderzoek; 2017.
79. Schonewille G, Crijnen C. Financiële problemen. *Nibud*. Published online 2019. https://www.nibud.nl/onderzoeksrapporten/financiele-problemen-2018/
80. Schonewille G, Crijnen C. *Financiële Problemen 2018*. Nibud – Nationaal Instituut voor Budgetvoorlichting; 2018. https://www.nibud.nl/beroepsmatig/financieel-problemen-rapport-2018/
81. Seibel V. The impact of migrants' knowledge about their social rights on their subjective wellbeing. *Front Polit Sci*. 2023;5. doi:https://doi.org/10.3389/fpos
82. Sociaal Cultureel Planbureau. Armoede in kaart. Armen met en zonder migratieachtergrond. Published online 2019. https://digitaal.scp.nl/armoedeinkaart2019/armen-met-en-zonder-migratieachtergrond/
83. Sociale Verzekeringsbank. Knelpuntenbrief. Published online June 2021. https://open.overheid.nl/documenten/ronl-3cce3118-1eb1-450d-9bba-2a26091ffbc7/pdf
84. Soede A. Tevreden met pensioen: Veranderende inkomens en behoeften bij ouderen. Published online 2012. https://repository.scp.nl/bitstream/handle/publications/663/Tevreden%20met%20pensioen_webversie.pdf?sequence=1&isAllowed=y
85. Stichting van de Arbeid. *Voortgangsrapportage Aanvalsplan Witte Vlek*. Stichting van de Arbeid; 2024. https://www.stvda.nl/-/media/stvda/downloads/publicaties/2024/voortgangsrapportage-aanvalsplan-witte-vlekken-pensioen-06032024.pdf
86. Stichting van de Arbeid. *Voortgangsrapportage Aanvalsplan Witte Vlek Pensioen*. Tweede Kamer der Staten-Generaal; 2025. https://www.tweedekamer.nl/downloads/document?id=2025D46800
87. Stiglitz JE, Sen A, Fitoussi JP. *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Commission on the Measurement of Economic Performance and Social Progress; 2009. https://www.stiglitz-sen-fitoussi.fr
88. United Nations. Old-age dependency ratio 2023. Published online 2024. https://ourworldindata.org/grapher/age-dependency-ratio-old
89. Van Dalen HP, Henkens K, Hershey DA. Perceptions and expectations of pension savings adequacy: a comparative study of Dutch and American workers. *Ageing Soc*. 2010;30(5):731-754. doi:10.1017/S0144686X09990651
90. Van der Schors A, Crijnen C, Schonewille G. *Geldzaken in de Praktijk*. NIBUD; 2019.
91. Van der Schors A, Warnaar M. De Nederlanders en hun pensioen. *Nibud*. Published online 2015. https://www.nibud.nl/onderzoeksrapporten/de-nederlanders-en-hun-pensioen-2015/
92. Van Ewijk C, Bonenkamp J, Lever M, Mehlkopf R. Pensioen in discussie. Risicodeling moeilijker / keuze binnen grenzen. *Netspar Des Pap*. 2014;(Netspar Brief 1). https://www.netspar.nl/publicatie/pensioen-discussie-risicodeling-moeilijker-keuze-binnen-grenzen/
93. Van Ewijk C, Lekniute Z, van Rooij M. *Individual Risk Exposure in New Pension Contracts*. Netspar; 2017. https://www.netspar.nl
94. Van Manen L, Simler D. Verkleinen van financiële zorgen is niet alleen kwestie van geld. Published online 2018. https://esb.nu/verkleinen-van-financiele-zorgen-is-niet-alleen-kwestie-van-geld/
95. Van Ooijen R, De Bresser J, Knoef M. Health and household expenditures. *Netspar Des Pap*. 2018;(103). https://www.netspar.nl/publicatie/health-and-household-expenditures/
96. Van Rooij MCJ, Lusardi A, Alessie RJM. Financial literacy and retirement planning in the Netherlands. *J Econ Psychol*. 2011;32(4):593-608. doi:10.1016/j.joep.2011.02.004
97. Van Schie RJG, Donkers B, Dellaert BGC. Savings adequacy uncertainty: Driver or obstacle to increased pension contributions? *J Econ Psychol*. 2012;33(4):882-896. doi:10.1016/j.joep.2012.04.004
98. Visser J, Boerkamp M. Pensioenverevening bij echtscheiding Waarom kiezen deelnemers niet bewust? Resultaten kwalitatief onderzoek. *TNS*. Published online 2016. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/Kwalitatief_onderzoek_pensioenverevening.pdf

99. Wijzer in geldzaken. Geldgesprekken in de buurt. Een echt gesprek over geld in hun eigen buurt met mensen die doorgaans niet zo snel in onderzoek worden betrokken. Published online a 2021. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/geldgesprekken-deelonderzoek-2-pensioen3daagse-oktober-2021-met-audio.pdf
100. Wijzer in geldzaken. Hoe staan werkzame 50-plussers tegenover pensioen? Published online 2015. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/Onderzoek_pensioen3daagse_2015.pdf
101. Wijzer in geldzaken. Meer grip op pensioen. Rapportage Pensioenmodule Publieksmonitor. Published online September 2012. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/Onderzoek_meer_grip_op_je_pensioen_september_2012.pdf
102. Wijzer in geldzaken. Onderzoek Nabestaandenpensioen. Een onderzoek naar de kennis en het gedrag van Nederlanders rondom het nabestaandenpensioen en berekeningen van de inkomsten van nabestaanden na overlijden partner [Research on Survivors' Pension. An investigation into the knowledge and behaviour of Dutch citizens regarding survivors' pension and calculations of survivors' income after the death of a partner]. Published online a 2019. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/onderzoek-pensioen3daagse-nabestaandenpensioen-2019.pdf
103. Wijzer in geldzaken. Oog voor later? Onderzoek rondom Pensioen3Daagse 2023. Published online 2023. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/rapport-onderzoek-pensioen3daagse-def.pdf
104. Wijzer in geldzaken. Pensioen en financiële levensloop. Hoe stimuleren we 55-minners om actie te ondernemen voor hun pensioen? Published online b 2018. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/pensioen-en-financiele-levensloop.pdf
105. Wijzer in geldzaken. Pensioenmonitor 2016. Een onderzoek naar kennis, houding en gedrag rondom de oudedagsvoorziening onder de Nederlandse beroepsbevolking. Published online a 2016. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/Pensioenmonitor_2016_wijzer_in_geldzaken.pdf
106. Wijzer in geldzaken. Pensioenmonitor 2018. Een onderzoek naar kennis, houding en gedrag rondom de oudedagsvoorziening onder de Nederlandse beroepsbevolking. Published online a 2018. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/pensioenmonitor-2018-Wijzer-in-geldzaken.pdf
107. Wijzer in geldzaken. Pensioenmonitor 2020. Een onderzoek naar kennis, houding en gedrag rondom de oudedagsvoorziening onder de Nederlandse beroepsbevolking. Published online a 2020. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/pensioenmonitor-2020-wijzer-in-geldzaken.pdf
108. Wijzer in geldzaken. Pensioenmonitor meting 2022. Een onderzoek naar kennis, houding en gedrag rondom de oudedagsvoorziening onder de Nederlandse beroepsbevolking (21-67 jaar) [Pension monitor measurement 2022. A study of knowledge, attitudes, and behaviors around old age provision among Dutch working population (21-67 years). Published online a 2022. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/22063605-ipsos-pensioenmonitor-2022-wig-rapportage-v2.0.pdf
109. Wijzer in geldzaken. Pensioenverevening bij echtscheiding Waarom kiezen deelnemers niet bewust? Resultaten kwalitatief onderzoek. Published online b 2016. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/Kwalitatief_onderzoek_pensioenverevening.pdf
110. Wijzer in geldzaken, Nibud. Financieel kwetsbaar. Accessed April 15, 2024. https://www.wijzeringeldzaken.nl/platform-wijzeringeldzaken/publicaties/7199-wig-nib-rapport-financieel-kwetsbaar-def.pdf
111. World Health Organization. *Global Health Estimates: Life Expectancy and Healthy Life Expectancy*. WHO; 2023. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-life-expectancy-and-healthy-life-expectancy

112. Zaidi A. *Poverty Risks for Older People in EU Countries – an Update*. European Centre for Social Welfare Policy and Research; 2010.
113. Zwinkels W, Knoef M, Been J, Caminada K, Goudswaard K. Zicht op zzp-pensioen. *Netspar Des Pap*. 2017;(91). https://www.netspar.nl/publicatie/zicht-op-zzp-pensioen/

Appendix: Risk and Buffer Factors for Pension Adequacy in The Netherlands from the Literature

This appendix provides an overview of the risk and buffer factors that influence financial resilience during retirement. These factors have been identified by using a literature review. The numbers refer to the reference list in the main article.

Micro level

Knowledge, skills, attitude, and behaviour

Financial planning	Preparing for retirement helps mitigate pension inadequacy. About three out of ten Dutch citizens under the age of 65 are currently saving for their retirement. This includes methods such as saving in a bank account, building wealth through homeownership, and investing in assets. Many people are also working on reducing future expenses, such as paying off mortgages and other loans. The Dutch who do not plan for their retirement (and often lack financial knowledge) are vulnerable.	79, 98,101
	Those predisposed to planning for the future are less likely to worry about their retirement income and are more inclined to save for retirement	41
	The most common measures taken to maintain the same standard of living after retirement are: saving through a savings account or deposit (58%), building up capital through one's own home or paying off the mortgage (44%), ensuring less spending in due course (31%), investing (30%), saving for retirement (21%), reducing one's expenditures (16%), accruing a DGA pension (16%), working longer (8%), and selling the company (10%). As for schemes, term life insurance is the most common (52%), followed by saving an amount (37%), a survivor's pension through an employer (34%), and an annuity or bank savings scheme (16%).	110
	A minority (40%) of the Dutch have a clear idea of what their finances will look like in terms of income and expenses in the event of unforeseen circumstances upon retirement. Approximately 25-30% plan to familiarize themselves with their pension finances but they have not yet done so.	92
	People often struggle to estimate how much money they will need in retirement. Half of those who appear to be heading for a shortage do not anticipate it. A deficit means that one cannot meet necessary expenditures during retirement; this is linked to the consumption floor, which can differ across households. People put little money aside and report that they rarely think about their pensions.	30
	Financial planning is complicated. There are many factors to consider when making choices about wealth accumulation in an uncertain future. Optimal planning of wealth accumulation over the life course is complex. Sometimes, there is no budget for accruals, and planning is constrained. Tax rules are complicated, and many of the savings options available on the financial market are not always easy to understand.	24
	Skills for navigating a financial environment are crucial, including up-to-date knowledge ('just-in-time knowledge') and self-confidence, as well as the ability to manage expenses, debts, and savings.	21
Behavioural barriers	Behavioural barriers - including inertia, procrastination, limited attention, and higher risk tolerance - further increase the risk of pension inadequacy by preventing timely or effective action.	13, 38
	Uncertainty about future savings adequacy can either stimulate or hinder saving and informationseeking behaviour, depending on whether individuals perceive their current preparation as adequate and depending on whether there are financial means available to adjust their behaviour.	99

Self-efficacy	People often feel that managing their finances after retirement is complicated and they don't know where to start. That makes it difficult, because every step of retirement planning is different, so you can't 'practise'.	4, 93
	People are aware that their current actions will affect their retirement income later, but many do not feel they can influence it.	110
Distrust	People who distrust financial advisors (because they are afraid of being scammed) are less likely to seek advice.	4
	Low trust in pension funds, banks, insurers, and the government increases the likelihood that individuals perceive their pension savings as inadequate.	91
Stress	Retirement is a phase of life that is accompanied by various life events, such as mourning, poor health, care obligations, and divorce. Additionally, people often experience stress due to financial struggles and daily concerns. This stress makes it (even) more difficult to focus on pension choices.	4
Pension knowledge and skills	Many people have (too) little financial knowledge, and the subject of pensions is totally outside their realm.	16,17
	Many households have insufficient knowledge about their own pension accrual. Employees can find information about how much pension they will receive via the Uniform Pension Statement (UPO). Still, many employees do not read their UPO or they misunderstand it. In addition, information about pension rights is sometimes omitted from the UPO, including details on taking early retirement and the corresponding pension income. Without a clear picture of their future retirement income, it is difficult for households to make well-informed decisions about how much to save, spend, and when to retire.	24 (p. 28)
	Dutch citizens under the age of 65 are aware of which pension funds they can accrue from their pension, but they are not aware of the percentage of their gross salary that is paid from their salary to fund their pension or how much their employer contributes. Half of them have never even thought about their income and expenses after retirement; this percentage decreases with age. Four out of ten people over 45 are concerned about whether they will have enough money to live comfortably after retirement. The most frequently cited reasons for not looking into or taking action regarding their pension situation are that the future seems far off and that there is uncertainty about the subject (having no influence or having the feeling that it is quite a complicated matter).	101
	Most people between the ages of 50 and 67 do not know precisely when they will retire and often think it will be sooner than it actually is. The majority (60%) feel that they are insufficiently prepared for retirement. Although the subject is considered necessary, it receives little attention. Sixty-percent indicate that they have sometimes thought about income and/or expenses after retirement.	102
	▪ Pension knowledge has increased in recent years. However, a significant proportion of the Dutch population still do not know approximately how much income they will receive after retirement. People are unaware of the possibilities for accruing additional pension since they do not know how pensions are arranged in the Netherlands and they are uncertain about the amount of income needed after retirement (22-35%). ▪ Sixty-percent of the Dutch did not check their employer's pension scheme at the start of their current job. The focus is usually on salary, flexible working hours, and vacation days. Those aged 55 and older often regret this. ▪ Less than half obtain information about their pensions when significant changes occur in their lives. Only a few opt for the value transfer; the consolidation of previously accrued pension rights from earlier employers into their current pension scheme.	110
General financial skills and knowledge	The central premise in the economic literature is that households seek to spread their consumption over their entire lives through saving and borrowing. However, in practice, most households are not able to achieve optimal financial planning. Financial planning requires foresight, discipline (acting according to plans), and financial literacy; skills that many households lack. That is why, in practice, households save too little, invest too conservatively, and do not diversify sufficiently on their own initiatives.	73

	Skills and competencies such as familiarity with financial products, financial literacy, digital skills, self-control, and the ability to manage one's own situation are essential.	112
	Fifteen percent of the general population is unaware of which organisations they can turn to for help with personal problems, such as dealing with debts. Some do not believe that they can find such organisations if needed.	81
	Rising individual responsibility in modern pension systems requires higher financial literacy, yet most people lack the knowledge and skills needed to make sound pension decisions. As a result, improving financial literacy alone is insufficient to ensure adequate retirement preparation, given the structural complexity and risks now placed on individuals.	75
Loan aversion	Loan aversion prevents people from cashing in on their homes.	16
Future orientation	Those with an extended future time perspective tend to save more.	41, 91

Household composition

Divorced individuals	Individuals who are divorced, especially those with a significant income disparity between partners, are more vulnerable. Divorce is often unfavourable for the higher-earning partner. The impact of divorce after retirement varies between men and women. Women are often the least-earning partners in a divorce, which means that the division of the pension in these cases has a more negative impact on the man's pension. In absolute terms, women often accrue less pension. After divorce, men's personal income increases slightly; however, this increase does not account for maintenance obligations. Women's incomes tend to be rising sharplyIV.	5, 6, 53
	In contrast with the previous finding, women are vulnerable in the event of a divorce; their assets decrease by 25%, whereas for men, this is 2%.	64
	Individuals who are divorced and have a limited number of years of service are at a higher risk.	12
	Individuals who have been divorced are significantly more likely to experience financial shortages after retirement.	29 (p.18)
	Divorced individuals have experienced changes in their savings behaviour following the loss of a partner.	50
	Divorce during retirement leads to stress, and this increases financial vulnerability.	4
Unpartnered individuals	Unpartnered individuals often have less ability to shoulder financial setbacks.	12,24
	Across the board, single people have a lower replacement rate than those who cohabit.	12, 22,115
	Single AOW pensioners in particular have little or no supplementary income on top of the AOW.	22
	Those who are single do not receive any additional pension income following divorce or the death of a spouse, as pension equalisation applies to survivors' pensions.	80
Single earners	Single earners often have less ability to shoulder financial setbacks.	24

IV At first glance, both men and women seem to benefit after a divorce. However, two comments must be made here. The increase in income after a divorce can largely be explained by the fact that people, especially women, start working (more) after the divorce. On the other hand, there is a higher cost of living for single households, which is relatively higher than for couples. Nevertheless, this nuance is often unaccounted for in the literature.

Widows/ widowers	Widows/widowers have seen their savings behaviour thwarted by the loss of a partner.	50
	The effect of the death of a partner differs between men and women: men experience a slight increase in personal income, while women see a sharp increase. Household income decreases after widowhood for both men and women, but the effect is again most significant for women. At the median, men lose about 18% of household income, while women lose about 25%. After accommodating for changes in household size by dividing couples' incomes by 1.4, an equivalence scale used by Statistics Netherlands to account for the economies of scale in two-person households has shown that income increases slightly.	53
Children	AOW pensioners without children have the lowest risk of poverty.	22
	For pensioners with a child studying at home, the AIO (Supplementary Income Provision for the Elderly)/ANW is reduced as soon as the child stops studying or turns 21, because the child is then considered a 'cost sharer'. This results in a loss of income, which can put these individuals at risk of enduring financial hardship. This problem also occurs in informal care situations.	85
	Households with children are more inclined to save for retirement	41
Unmarried cohabitants	In many cases, the death of a partner leads to a drop in income, especially when the survivor's pension has not been arranged. Half of the couples with a cohabitation contract are unaware that they must report it to the pension fund, hence they risk missing out on receiving survivor's pensions. A third of the respondents have not registered their partner with their pension fund or insurer, and a majority are not registered with their partner's fund or insurer either. Partners without an official partnership often have no pension arrangements in place.	107,111
Living apart sustainably	For pensioners who are permanently separated, the state pension rules are challenging to understand.	85

Demographic factors

Young people	Young people are presented with an optimistic view of their pension; In actual fact, their pension will be lower than what they see on the website *MijnPensioenOverzicht.nl*V.	6
	Employees under the age of 30 are overrepresented in the group that does not accrue sufficient pension.	12
	Young people generally plan less for retirement, thereby increasing their vulnerability.	98
	If interest rates remain low, young people risk a retirement deficit because their assets grow slowly. Saving is also less favourable when interest rates are low.	26
	Young people are dissatisfied with the current pension system; 40% expect to have no pension later in life.	40 (p.21)
	On average, young people tend to have less financial knowledge than older age groups.	98
	Young people are less likely to worry about their retirement income.	41
Middle-aged people	Among those who do not look into their pensions are a relatively large number of people under 55 who are struggling to make ends meet.	105
	People under 45 have less of a clear picture regarding their future financial situation than the average person.	93

V *MijnPensioenOverzicht.nl* is an online portal that aggregates an individual's Dutch pension information—from state, occupational, and private schemes—into a single, personalized overview. Users can log in with their digital ID (DigiD in the Netherlands) to view projected retirement income, accumulated capital, and key assumptions, thus facilitating clearer retirement planning.

	The percentage of people aged between 50 and 57 who are concerned about the availability of sufficient funds after retirement increased from 31% to 43% between 2015 and 2022	102, 110 (p.15)
	People over 50 are generally more concerned about their pensions. They have more knowledge about pensions and they are more engaged in studying their own pensions. They are more aware of the impact of life events on their financial situation after retirement, and they take more measures to safeguard their standard of living in the future.	104
	Employees over the age of 60 are overrepresented in the group that does not accrue enough pension.	12
	Older workers in dangerous or arduous occupations often experience long-term health problems, even after retirement, which can further undermine their financial stability. This is exacerbated by limited access to quality jobs, a lack of training, and to some extent, age discrimination in the labour market.	67
Pensioners	Poverty among the elderly is often caused by an incomplete state pension or by high healthcare costs, as these relatively high costs are deducted from income.	84
	The elderly often have no supplementary pension or only a limited one. Their purchasing power has decreased because supplementary pensions have been cut or have not been indexed.	80
	Younger elderly are more likely to have an incomplete state pension, mainly because this group consists of a relatively high number of non-Western migrants.	80
	Elderly people often do not want to sell their house for emotional reasons, even though they often need less space. They are reluctant to achieve an increase in value and to use part of their housing assets for their retirement.	26
	On average, the elderly are more concerned about their pensions than younger age groups.	110
	Elderly people are dissatisfied with the current pension system because their pensions have not been indexed for years and, in some cases, they have been reduced.	40
Migrants	About half of all the adults who lack funds possess a migration background in 2017 (just over 666,000 people according to the not-much-but-sufficient criterion).	84
	Knowledge of the Dutch state pension system is crucial to migrants' well-being.	83
	Among those aged 65 and over with a nonWestern migration background, poverty is both widespread and persistent. Roughly four in ten households in this group live structurally below the subsistence level, compared with only about 2.5 percent of elderly adults without a migration background. Many older migrants have to make ends meet with around €250 less per month than what is needed for a basic standard of living. This leaves very little margin for unforeseen expenses. As a result, some have sold their car or reduced mobility in other ways, and trips to family—whether in the Netherlands or abroad—often only remain possible when children cover the costs. Unexpected expenses related to health problems, household appliances or rising energy prices sometimes lead to new debts, while others report having reached a point where no further economies can be made and they increasingly rely on family support or food banks. A combination of structural factors contributes to this precarious situation. Many older migrants receive only a partial AOW pension due to periods spent abroad and have little or no supplementary pension because of shorter or more fragmented careers, higher rates of incapacity for work, and a greater likelihood of singleearner households. Accumulated savings and thirdpillar assets are also far more limited, partly because homeownership is much less common in this group. Even though a substantial share of older migrants appear to qualify for the AIO supplementary benefit, only between half and twothirds actually apply. There are several reasons for this pattern of nontakeup. Pension knowledge is often limited, in part due to language barriers, lower educational levels, reliance on migrant networks for information, and assumptions based on pension systems	

	in countries of origin. Trust in formal institutions also tends to be lower. Many older migrants struggle to navigate the complexity of the Dutch socialsecurity system and depend on others to submit applications. Procedures can be intricate, with retrospective corrections, and the conditions attached to benefits do not always match the lived reality of those who rely on them. This can create fear of making mistakes, which may lead to repayments or fines; longstanding concerns about checks on time spent abroad; restrictions on owning a home in the country of origin; and reductions in AIO when households share a home because of the costsharing standard. Together, these obstacles reinforce a structurally vulnerable position for many older migrants in retirement.	12, 39, 58, 66, 80
	The first generation of migrants is particularly vulnerable: this group has the most incomplete AOW accrual.	12, 50
	Migrants of Indonesian descent appear to be less vulnerable. They have often lived in the Netherlands for an extended period, have relatively high household incomes, live below the social minimum only to a limited extent, and are comparable in terms of health (healthcare costs) to the elderly native Dutch.	32
	Migrants of Turkish and Moroccan origin often have lower socio-economic status and poorer health. Their pensions are often below or around the poverty line. They are entitled to a relatively large part of the AOW benefit, but their supplementary pension is often low.	32, 57
	Migrants from China and Hong Kong: Among this group, the share of those who are single is relatively low, and the labour market participation rate is relatively high. However, their financial position is often less favourable, and they live further away from their children. Their pensions are often below or hover at the poverty line. They are entitled to an older adult’s share of the AOW benefit, but their supplementary pension is often low.	32, 57
	Migrants from neighbouring countries and other EU member states (such as Italy and Spain), and former colonies: These groups score relatively low in terms of household situation, socio-economic position, and health.	32, 57
	Refugees are often extra vulnerable. They are more likely to be dependent on social assistance, to have relatively low household incomes, and to live below the social minimum; about 25 percent in this case.	32
	First-generation non-Western migrants are vulnerable in both replacement rates and absolute income. When all income and assets are taken into account, 42 per cent of non-Western first-generation immigrants have a gross replacement rate below 70 per cent (compared with 29 percent for all households).	11, 49
	Pension poverty is much more common among non-Western migrants than among pensioners without a migration background. Among pensioners with a non-Western migration background, 40% live below the poverty line, compared with 6% among those with a Western migration background and 2.5% among those without a migration background.	58
	Pension poverty is highest among migrants from former Yugoslavia, Iran, the former Soviet Union, Iraq, and Afghanistan. These countries primarily attracted refugees who received little in state pensions and little in supplementary pensions or pensions from abroad.	57
	The risk of pension poverty is higher for migrant women.	51
	Migrants often have a relatively low income, but with a full state pension, they receive a higher replacement rate.	94
	In the Netherlands, knowledge of unemployment benefits and state pensions is crucial to migrants’ well-being. Policymakers must consider how they communicate policy rules to migrant groups.	83
	Many older non-Western migrant households live in a weak income position, often dependent solely on the state pension or even below the poverty line. This is due to the lack of a full AOW entitlement.	80

	Poverty among the migrant elderly has consequences for their social lives as well. They reduce their contact with family, acquaintances, and neighbours because maintaining social connections is too costly (e.g., buying presents, giving others something/helping them prevent financial problems). They often have the cheapest phone subscription or a prepaid card, use outdated smartphones, and they do not possess a PC, tablet, or laptop, all of which prevent them from participating digitally. Furthermore, they do not go out much because they lack the money for public transport or for special elderly transport, memberships in organisations, or joint activities such as coffee/tea and meals. Shame plays a role in the migrant elderly who experience poverty because they cannot support their (grand)children and family members in the country of origin. This long-term lack of financial resources causes stress, feelings of failure, and leads to poor physical and mental health. During the coronavirus pandemic, these problems became even more visible. In practice, living in poverty for the migrant elderly means, among other things, not being able to eat healthy meals each day, avoiding medical care, reducing social contacts due to the costs, and not being able to participate digitally due to a lack of modern technology.	66
Women	Women are relatively less likely to accrue a supplementary pension (58%, compared to 92% of men). On average, women accrue 40% less pension than men in their lifetime. Single women entitled to an AOW pension primarily rely on the AOW benefit as their primary source of income. In contrast, single men have a more balanced distribution between AOW and supplementary pension. In particular, the share of women with a partner was relatively small, but it has more than doubled over the past 17 years. Women with supplementary pensions receive considerably less than men on average. In 2017, they received an average of 5,400 euros in gross supplementary pension, which represents 43% of the median amount received by men. The gap between men and women in the field of supplementary pensions has narrowed in recent years. On average, women work fewer hours than men do, which means they accrue less pension. This is not only due to lower income but also to less work experience and fewer career opportunities, which, in turn, leads to lower pension accrual. On average, women work 10 hours less per week than men. Women are more likely to work in sectors with less favourable pension schemes. Women are financially vulnerable in the event of a divorce: their assets decrease by an average of 25% upon divorce, while for men this is 2%. In addition, they are also vulnerable in the event of the death or illness of their partner.	22, 47, 64
	Female employees are relatively more likely to have no pension accrual (the so-called 'white spot').	12
	Single women are vulnerable, both due to a low replacement rate and a low income. This vulnerability is exacerbated by small or non-existent second-pillar supplementary pensions, often due to part-time work and the combination of work and care responsibilities, such as after childbirth.	49, 54
	In most EU countries, older women have higher poverty risks than men, but the Netherlands is a notable exception, where old-age poverty rates for women and men are similar.	114
	It is striking that there is little difference between men and women in the percentage who expect a low pension: 15.7% for men and 13.9% for women.	65
	Older single women without a history of divorce or widowhood often only have AOW as a source of income and sometimes live below the poverty line.	80
	Women have lower incomes but higher replacement rates due to the state pension.	94
	On average, women have less financial knowledge than men.	98
	Women generally plan less for retirement, making them more vulnerable to financial insecurity in later life.	98
	Across the board, men are more interested in their pensions than women are. They are more knowledgeable and aware of their own pension plans, are more aware of the impact of life events on their financial situation after retirement, and are more likely to take measures to maintain their standard of living after retirement.	107

	The impact of divorce after retirement varies between men and women. For men, personal income increases slightly; however, this does not account for alimony. Women's income rises sharply because they often work more hours or return to work after a divorce.	6, 53
	Single women are vulnerable, both due to a low replacement rate and a low income.	49, 54
	Women are financially vulnerable in the event of a divorce: their assets decrease by an average of 25% in the event of a divorce, while for men, this is 2%. They are also vulnerable in the event of the death or illness of their partner.	64

Health

Own health	People with poor health or care obligations often have extra difficulty focusing on pension choices. Because of having many other things on their minds, they often postpone making pension decisions. The stress of having to make choices, low self-efficacy, uncertainty about what is required for a comfortable retirement, and a lack of clarity about where to seek help all contribute to this procrastination. As a result, they sometimes make suboptimal choices. This is done primarily in an attempt to alleviate the stress of decision-making.	4
	After experiencing a physical health crisis, people typically require, on average, more income to remain satisfied with their financial situation. They still want to do fun things, but due to physical limitations, these activities are more expensive for them. People with cognitive health issues, on the other hand, have a reduced need for fun activities, which in turn reduces their spending needs.	54
	Following a health crisis, non-medical expenditures decrease slightly, while medical expenditures increase. However, the decrease in non-medical expenditure is not directly caused by the increase in medical costs. Ageing does not necessarily lead to lower non-medical expenditure. 6,11,15,16,24,65 Individuals in poor health tend to allocate more resources to household chores and less to leisure activities. In particular, couples spend less on family holidays. Households in poor health spend less on transport than healthy households.	97
	People suffering from poor health tend to report greater worries about their retirement income.	41
Informal care	In informal care situations where someone who requires care is taken into the carer's home or lives with them, the carer is considered a 'cost sharer'. This results in a loss of income, which can lead to financial difficulties.	85

Socioeconomic status

Wealth		
Housing	An owner-occupied home represents wealth. Cash-in constructions, such as reverse mortgages or equity releases, can provide low-income households with limited assets with additional income after retirement without requiring them to leave their homes. This strengthens households' financial resilience. They can use this financial leeway, for example, to make their home more sustainable and life-proof, or in the event of life events such as divorce or the loss of a partner, to prevent a forced sale of the home. This could also be attractive to self-employed people with varying incomes. One study shows that while awareness of reverse mortgages among Dutch homeowners is limited, there is substantial latent interest in using housing wealth to supplement retirement income, particularly among households with relatively high housing wealth and when there are concerns regarding the adequacy or stability of future pension income.	6,11,15, 16, 24, 33, 65

	Assets in an owner-occupied home entail lower risk diversification and are non-liquid.	6,12,15, 24
	An owner-occupied home typically results in lower housing costs. An (almost) repaid home provides a significant structural saving in monthly costs that would otherwise be spent on rent.	15, 73
	Cashing in on home values before or after retirement is still insufficient.	16
	Tenants have fewer liquid assets than homeowners; A large share live from pay cheque to pay cheque ('hand-to-mouth' households).	25 (p. 21)
	Homeowners with residual debt on their homes are more vulnerable. (Disclaimer*: This report was published in 2015.) Housing prices fell by almost a third between 2008 and 2013 but they have since risen sharply. However, this could again become a risk factor if market conditions should change.	73
	A simulation in the study shows that tenants have significantly less savings than necessary to shoulder the weight of income shocks. In contrast, homeowners typically have more assets than necessary, but these assets are often non-liquid and difficult to convert to cash.	26
Cash and cash equivalents	There is a distinction between liquid assets (such as savings and investments) and non-liquid assets (such as a house and a pension). Liquid assets are needed to absorb financial shocks. Savings enable people to recover from financial setbacks. Low (liquid) assets make people vulnerable because it is difficult for them to recover from financial setbacks.	24, 25
	Approximately 4% of adults aged 65 and older have negative assets (i.e., debts).	22
	About 8% of households whose oldest member is over 65 have almost no liquid assets (less than half a month's income).	26
	'Hand-to-mouth' (HTM) households spend their entire monthly income without building buffers. Often, these are middle-income households. In 2010, 19% of Dutch households had an HTM status.	26
	Households with less than 10,000 euros in assets can expect a low pension.	65
	Groups with less wealth include young people, tenants, individuals with lower levels of education, and those with lower salaries. A person's parents' financial situation significantly affects the individual's wealth accumulation later in life.	76
Income		
Income increase	The replacement rate is often lower for people with strong wage developments.	6
Low income	Generally, the replacement rate is higher among individuals with low incomes. In the Netherlands, the replacement rate for low-income workers is relatively high, averaging approximately 100%, compared with rates in other countries.	11,12,31, 94,115
	In the event of incomplete AOW accrual due to a temporary stay abroad between the ages of 15 and 65, people with lower incomes are particularly affected.	6
	A low income brings stress, which makes saving even more difficult. In addition, people with low incomes often utilise social services, which can complicate their financial situation.	24 (p.28), 41
	Low-income households tend to plan less for retirement, thereby increasing their vulnerability.	41,98
	People under 55 who struggle to make ends meet generally have more difficulty understanding pensions.	105
	People who struggle to make ends meet have less insight into their financial situation in retirement.	93
	People with a low income usually also have fewer (liquid) assets.	76
	Low-income individuals tend to worry more about their retirement income.	41

Middle income	Middle-income earners have fewer liquid assets than high-income earners and therefore less flexibility.	16
	Middle-income earners are overrepresented in the ‘hand-to-mouth households’.	25
	Those who have above-average incomes are generally more interested in their pensions. They have more knowledge about pensions, are more aware of their own pensions, are more aware of the impact of life events on their financial situation after retirement, and they take more steps to maintain the same standard of living later on.	104
HTM households	‘Hand-to-mouth’ households spend their entire income each month and therefore they are not able to build any financial buffers. They are vulnerable to macroeconomic shocks, such as higher interest rates, because they often have high levels of debt.	25
High income	High-income individuals often have a relatively large gap between their expected retirement income and their desired and minimum expenses.	29
	Among high-income households, almost 70% do not anticipate a deficit (i.e., the inability to meet spending, related to the consumption floor).	30
Education		
Practical education	Those with practical education often have less wealth.	12, 24
	If the breadwinner’s level of education is more practical, the household is more likely to be in a ‘hand-to-mouth’ situation.	26
	Those with practical education have a lower average income, but a higher replacement rate due to the state pension.	94
	Those with a practical education generally have less financial knowledge.	98
Theoretical education	Those with theoretical education often have insufficient liquid assets to absorb shocks (the analysis was not conducted for lower levels of education).	26
	Those with more years of education tend to save more for retirement and have fewer worries about their retirement income.	41

Employment history

Self employed	Self-employed people accrue less pension than employees. For example, 94% do not accrue any (second-pillar) pension, and 82% of the self-employed have a replacement rate of less than 60%. A large proportion of these people have not accrued enough pension rights in either of the second and third pillars. Although some self-employed individuals have accrued pension rights in the second pillar, these pension rights are often significantly lower than those of people in paid employment. Self-employed households are slightly more likely to save in the third pillar than employees, and they save slightly more. Nevertheless, the role of the third pillar remains limited within the total pension system. Firstly, the pension of self-employed persons is more often accrued through free capital, which entails the risk that this capital will be spent on other expenses before retirement. Secondly, the limited accrual in the second pillar, which is only partially offset by the higher accrual in the third pillar, means that self-employed persons are less well insured for longevity risk (unless they purchase an annuity from their free capital at retirement). Thirty percent of households are at risk of not having adequate financial resources in retirement. These include many self-employed individuals who are responsible for their own pension accrual.	5,12,17, 29, 40, 56, 62, 94,108

	Self-employed people are a vulnerable group in terms of their replacement rate, but the variation within this group is significant. Half of the self-employed individuals do not meet the 70% target, even when other sources of wealth are taken into account. There is an unequal distribution among the self-employed: only a small number have a significant amount in the company account, whereas the majority have business assets of less than 10,000 euros.	29, 49, 62, 73,115
	Households with only self-employed individuals have a lower replacement rate than households with only employees. Combination households (with both an employee and a self-employed person) have, on average, the same replacement rate as households composed of only employees.	115
	When the assets from the home and the business are included, the pension income for the average employee and the average self-employed person is approximately the same.	11
	Self-employed people have higher expenses than expected. After retirement, they may face higher mortgage costs due to larger residual debt and the elimination of mortgage interest relief. However, self-employed individuals often own more expensive homes than employees, with a slightly lower percentage of the outstanding balance still needing to be repaid. As a result, self-employed people have to spend relatively less on housing costs in retirement than employees do.	29, 62,108
	Self-employed people in the service sector and some agricultural sectors, in particular, often do not reach the 70% replacement rate.	12
	Entrepreneurs are more likely to be well-informed about pension schemes, opportunities for additional pension accrual, and their future income needs following reorganisations. They are also more likely to consider their finances in retirement and they tend to estimate that their future retirement income will be slightly lower than other workers would estimate. In addition, they are more likely to implement measures such as investing, reducing costs, and working longer hours. Entrepreneurs take more pension measures than the rest of the working population.	101,105, 110
	Self-employed individuals often do not have significantly more private assets than employees with comparable incomes. They often do not achieve their goals to save due to procrastination, the need to finance their business, or other entrepreneurial choices.	62
	Low-paid flex workers and self-employed people between the ages of 30 and 55 accrue little in pensions and have low and/or uncertain income. Most indicate that they do not save for their pension and do not want to check how much pension they have accrued (information aversion).	100
	Compared to employees, households with a self-employed person are significantly more likely to be short of funds. Various factors can contribute to this: procrastination, social norms ("Self-employed people around me also don't accrue a pension, so I don't have to worry either"), and low financial literacy. It is striking that self-employed individuals have relatively large amounts of liquid capital.	110
	On average, self-employed people build up more capital.	94
	Among hybrid workers – people who receive income both as a self-employed person and as an employee – 29% do not accrue a pension.	12
	Forced self-employed individuals are less likely to save for retirement than their voluntary self-employed counterparts, and they are less optimistic about their pension scenario.	42
Interruption in paid work	During the years when no paid work was performed, no pension accrues exist, thus this leads to a lower replacement rate.	94
(Long-term) unemployed	See above under 'interruption in paid work'.	12, 49
	Households in which no one has a job or where the primary breadwinner has a temporary employment contract are at increased risk of a 'hand-to-mouth' status.	25

	The unemployed are vulnerable due to both a low replacement rate and low income.	49
Temporary contract	Households in which no one has a job or in which the primary breadwinner has a temporary employment contract are at increased risk of a 'hand-to-mouth' status.	25
Disabled people	Disabled people are vulnerable to pension inadequacy due to both a low replacement rate and a low income.	49
Part-timers	Three-quarters of respondents who work part-time do not think about the consequences that this will have on their pensions when deciding to work fewer hours. Seven out of ten have not investigated what reduced working hours mean for their pension accrual, and even those who do take action often do so only after being prompted.	111
Heavy professions	(Older) Workers in dangerous or arduous occupations may experience long-term health problems even after retirement, which can further undermine their financial stability.	67
Flex workers	The pension accrual of (former) flex workers is generally low.	94
Working hours	Those with longer working hours per week tend to have greater concerns about retirement income.	41
Employed	The overall decline in subjective economic well-being is driven primarily by individuals retiring from employment, who experience a clear reduction in perceived income adequacy. In contrast, those retiring from unemployment report improvements, while individuals transitioning from other statuses - such as sickness, disability, care responsibilities, or inactivity - show smaller and more mixed effects.	

Netspar

Network for Studies on
Pensions, Aging and Retirement

This is a publication of Netspar
August 2026

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

netspar.nl