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Relevant dimensions to give meaning to pension decisions

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Abstract

Pension participants face complex decisions. Information about the decision alternatives often contains the exact monetary amounts associated with the alternatives. Grounded in Fuzzy-Trace Theory (FTT), we argue that informed decision making requires participants to (accurately) understand meaningful differences between decision alternatives, rather than to rely on purely numerical differences in amounts. The objective of this study was to identify, for three decisions Dutch participants can make regarding their old-age pension, what dimensions participants take into account when giving meaning to the decision alternatives. We conducted 39 semi-structured in-depth interviews with Dutch pension participants in which we discussed the considerations of participants to choose for the decision alternatives. These interviews were analyzed using thematic analysis. Our analysis shows that a number of dimensions are taken into account, partially overlapping for the three decisions: life expectancy, (in)sufficient income, financial maximization, work–life balance, and job satisfaction. According to FTT, participants can be supported in extracting meaningful representations by providing cues about the dimensions that might be affected by the various decision alternatives. The dimensions identified in this paper can serve as a useful starting point for such support.

Keywords: pension communication, Fuzzy-Trace Theory, decision considerations, semi-structured interviews, decision support

Pension participants have freedom of choice, although the extent to which varies between countries (see for a review, Lever et al., 2018), and this freedom is being expanded by the introduction of more choice options in the various schemes in recent years. The idea is that this provides participants with more possibilities to suit their preferences, to attain the goals one values in life, and to improve individual well-being.

As Van Dalen and Henkens (2018, p. 1379) write, this increase of individual possibilities can be understood from the broader social trend in which "the individualization of everyday life has become more apparent, and trust in institutions has eroded." They also note that, while "the freedom to make decisions can be safely entrusted to individuals when products and services possess characteristics that can be easily evaluated," for complex services and products with long-term consequences, such as pensions, the possibilities for individual decision making can cause problems because people find it difficult to make these decisions (Van Dalen & Henkens, 2018, p. 1380). This also applies to the context we focus on in this paper: pension decisions in the Netherlands.

Dutch pension participants "postpone decisions, do not choose at all, or make decisions based on the wrong considerations" (Dutch Authority for the Financial Markets, 2020, p. 4). For various decisions, the majority of Dutch participants hardly deviates from the default option, possibly because they consider these decisions too complex (Dutch Authority for the Financial Markets, 2023). Indeed, making suitable pension decisions can be a difficult task. It involves complex intertemporal considerations with uncertain outcomes, and is complicated by the fact that pension decisions in the Netherlands cannot be reversed. Non-suitable decisions can have undesirable consequences, and can lead to low or even insufficient pension benefits.[1,2] Therefore, the Dutch Authority for the Financial Markets (2023, p. 41) states: "It is important that pension providers support participants in making these decisions and enable them to make a decision that suits their preferences and financial objectives or wishes." In this study, we are interested in understanding how participants make pension decisions. Based on Fuzzy-Trace Theory (Broniatowski & Reyna, 2018; Reyna, 2008, 2018; Reyna et al., 2022), we focus on the considerations of Dutch pension participants for various pension decisions, in order to distill the core dimensions meaningful pension decisions are based on. First, we outline the Dutch pension context.

The Dutch pension system

The Netherlands are ranked as one of the best places to retire, based on health, finances, quality of life, and material well-being.[3] The rates of elderly poverty are among the lowest in the OECD.[4] And according to the Mercer CFA Institute

[1]https://www.pensioenfederatie.nl/website/publicaties/servicedocumenten/inspiratiedocument-op-weg-naar-keuzebegeleiding
[2]https://www.afm.nl/nl-nl/professionals/doelgroepen/pensioenuitvoerders/keuzebegeleiding
[3]https://www.im.natixis.com/intl/research/2023-global-retirement-index
[4]https://www.oecd-ilibrary.org/sites/678055dd-en/index.html?itemId=/content/publication/678055dd-en

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Global Pension Index 2023, the Dutch pension system is the best in the world.[5] The country's system consists of three pillars.

The first pillar is the state pension and provides a basic monthly income (called AOW, short for Algemene Ouderdomswet, the National Old Age Pensions Act), starting at the statutory state pension age. For 2024, this is 67 years. The accrual of the state pension is based upon the number of years an individual has lived in the Netherlands, accruing 2% every year until the full state pension (100%) after 50 years. The benefit amount is adjusted annually, in line with the development of the minimum wage.

The second pillar is a mandatory occupational pension scheme, intended to supplement the state pension. People who participate in these pension schemes are the "pension participants." The pension scheme usually covers the old-age pension (benefit for the participant when retiring) and the partner's pension (benefit for the spouse in case the participant dies first). Approximately 95% of the companies offer a pension scheme, covering almost all employees in the Netherlands (Debets et al., 2022). These schemes are managed by 180 different pension providers. 90% of them are pension funds (among others, funds for all businesses in a particular industry, for one specific company, or for a group of people working in certain professions), the other 10% being managed by insurance companies and premium pension institutions (Dutch Authority for the Financial Markets, 2023).

Traditionally, Dutch pension participants have a defined benefit (DB) pension scheme. In 2021, DB schemes still constituted by far the largest part of the second pillar (95% of the total value), compared to defined contribution (DC) schemes (5%) (Dutch Authority for the Financial Markets, 2023).

Contributions to the occupational pension scheme are usually jointly paid by the employer and the employee; employers typically pay two thirds of the total contribution and employees the remaining one third. In 2022, the Dutch pension funds held more than €1.4 trillion of assets, the fifth largest amount of assets after the United States, United Kingdom, Australia, and Canada.[6] Relative to GDP (Gross Domestic Product), the Dutch pension funds were even the second wealthiest worldwide, after Iceland.

Like the state pension, the old-age pension benefit is paid as a lifelong monthly annuity, starting from the retirement date set for the individual. This date depends on the pension provider. At some providers, it is set on the same date as a participant's statutory state pension age. But that is not necessarily so. It could also be set at, for example, age 65 or 68.

The third pillar of the Dutch pension system is optional. It comprises fiscally attractive, private pension provisions to be arranged individually [e.g., annuities, single premium policies, (bank) saving, but also investments and other personal assets like homeownership]. Such options are offered by banks, insurance companies, or others and these provisions could be used to supplement the AOW and the occupational pension schemes (e.g., to fill a pension gap, to retire earlier, or if people are self-employed).

[5]https://www.mercer.com/insights/investments/market-outlook-and-trends/mercer-cfa-global-pension-index/

[6]https://data.oecd.org/pension/pension-funds-assets.htm

From 2005, a number of changes have been implemented in the system's second pillar, partly because the pension participants population became more heterogeneous [e.g., differences in life expectancy, income (development), and life course], which created a need for flexibility in the benefit phase (Dellaert & Ponds, 2014). Three important decisions were introduced that most participants—in both DB and DC schemes—can make: how to distribute the pension between themselves and their partner (in case the participant dies first), how to allocate the pension over time [e.g., receiving a higher (or lower) pension in the first years of retirement, and a lower (or higher) one in the later ones], and at what age they want to retire (Ministry of Social Affairs and Employment, n.d.). We will explain these three decisions in more detail in the results section of this paper. In order to understand how participants make these important decisions, a first step is to look at what is known about (financial) decision making.

How people make (financial) decisions

Normative theories for rational decision making describe decision making as a matter of selecting the option with the highest expected value or expected utility (see for a review, Baron, 2023). Reyna (2018, pp. 4–5) gives as example the Allais paradox, consisting of two parts. The first part is a decision between A) €1 million for sure vs. B) .89 probability of €1 million, .10 probability of €5 million, and .01 probability of €0. Option A has an expected value of €1 million and option B of €1,390,000. Although the expected value of option B is 390,000 higher than option A, many people choose option A. This illustrates risk aversion.

The second part of the Allais paradox is a decision between C) .11 probability of €1 million and .89 probability of €0 vs. D) (.10 probability of 5 million and .90 probability of €0). Although option C is the risk-averse option (because there is a greater probability of a payoff, and hence, less uncertainty), now many of the same people who choose option A tend to choose D, meaning they have inconsistent preferences (which is contrary to expected utility): the same people are risk averse and risk seeking.

Research on financial decision making shows that normative theories for rational decision making often do not fully describe how people make decisions [i.e., they do not (consistently) choose the option with the highest expected value or expected utility], as people are prone to a number of behavioral biases, for example, risk aversion, loss aversion, and framing effects [for a general review, see Kahneman (2011), for a pension decision making specific one, Bodie and Prast (2012)].

In this paper, we use a theory that describes how people understand information presented to them and make decisions based on the resulting representations, which provides underlying explanations for behavioral biases: Fuzzy-Trace Theory (FTT: e.g., Broniatowski & Reyna, 2018; Reyna, 2008, 2018; Reyna et al., 2022). FTT differs from normative theories for rational decision making in the sense that "FTT suggests that choosing the best option is not a matter of selecting the option with the highest expected value or expected utility, but, rather, of understanding the essential meaning of options and applying closely held values to those options" (Reyna, 2018, p. 8).

Meaningful differences between decision alternatives

When people face a decision, they have to choose between at least two decision alternatives (option A, option B). Those

alternatives usually have consequences on multiple dimensions (e.g., degree of certainty, financial maximization, standard of living), but are usually presented one-dimensionally, often numerical (i.e., amount X with option A, amount Y with option B). FTT assumes that when people are provided with information on the different decision alternatives, it is encoded and represented in two different ways: a verbatim representation and a gist representation. "Verbatim representations capture the exact words, numbers, or images included in the stimulus, whereas gist representations capture the essential, bottom-line meaning of the stimulus to the person, including its emotional meaning" (Blalock & Reyna, 2016, p. 781).

According to FTT, people prefer to make decisions based on gist representations. People look at the consequences of the decision alternatives on the dimension(s) that they deem important. Consequences on dimensions that are of little or no importance to an individual are considered irrelevant and not taken into account in extracting the gist representation of the decision. On the dimension(s) that is (are) deemed important, people try to boil the alternatives down as much as possible.

Preferably, they represent the differences between the alternatives at the nominal level: option A has X, option B has not. Reyna (2018) explains the Allais paradox as follows: option A has some money for sure, option B has a chance on getting some money or no money. Many people choose option A, "because some money is valued more than no money" (Reyna, 2018, p. 6)—a nominal distinction. In the second part of the paradox, it is not possible to discriminate between the two options at the nominal level: both have uncertain outcomes. Now, people distinguish the options based on an ordinal difference: the uncertain outcome of option D offers more money than the uncertain outcome of option C, favoring option D.

With its explanation how representations are encoded and how decisions are made based on these representations, FTT is able to explain certain puzzling results and paradoxes, including biases and framing effects (see for a review, Reyna, 2018).

FTT in the medical domain

FTT has been mainly studied in the context of medical decision making and health (see for a review, Blalock & Reyna, 2016). An example would be a patient who is diagnosed with an illness and only has 2 years left to live, for the largest part in good condition. The patient can choose (a) no treatment and (b) a clinical trial which has a 50% chance to extend life by 2 years, but also a 50% chance to significantly lower the quality of life for the remaining 2 years. The verbatim representation of this information would include the percentage and the quantitative differences between the two options. The gist representation boils the options down to qualitative differences. For example, surely 2 years in good condition vs. possibly no years in good condition. Or, surely not extending life vs possibly extending life. The gist of this decision—and subsequently the favored option—depends on what the individual deems important, which dimension is valued most that is affected by the options. For example, one patient has one last wish: traveling around the world for 2 years. The gist of the decision could be based on whether one of the options guarantees a good health condition (and so does not affect the travel plans), and therefore pushes the patient to option A. Another patient values spending time with family the most and wants to do this for as long as possible, even if it is in worse physical condition. For this patient, the gist of the decision could be based on whether one of the options has a higher chance to extend life, and so option B is preferred.

What the example shows, is that the same options can lead to very similar verbatim representations, but to different extracted gist representations—and subsequently different favored options—because gist representations are subjective interpretations of (numerical) information, based on the consequences of the options on various dimensions. A relevant dimension for one person can be irrelevant for the other and as a result, their gist representations of the decision alternatives differ.

Research in the medical domain has shown positive effects when information about the decision provided cues to extract meaning from the options—qualitative differences between options—and so supported people to extract gist representations, compared to people who received equivalent, yet more numerical and detailed information. These positive effects are, for example, that people more often make decisions that are in line with their values (Fraenkel et al., 2012), people report more often that they have sufficient knowledge to make the decision (Smith et al., 2015), and people make objectively better decisions (in this case: better risk assessment and subsequent decisions) (Wolfe et al., 2015).

Applying FTT to pension decision making

Strikwerda et al. (2021) argue that medical decisions are comparable to pension decisions. In both domains, people have to make irreversible decisions between options of which the consequences will (possibly) occur in the future. Also, information about both medical and pension decision alternatives is usually very specific. In the medical domain, the information provided to help patients make decisions is often numerical, focusing on the probabilities of positive and negative consequences of a certain treatment. In the pension domain, the focus is more on communicating exact monetary amounts associated with the decision alternatives (e.g., amount X when retiring on the retirement date, amount Y when retiring 12 months earlier).

We aim to explore if FTT is a suitable theory to shed light on pension decision making. For example, pension participants in the Netherlands can choose to start their old-age benefit at the set retirement date (e.g., age 67, option A), but also 3 years earlier (age 64, option B). A verbatim representation of the information on the two options includes the exact amounts a participant would receive (e.g., option A 1.000 euros per month, option B 825 euros per month). The gist representation of the information on the two options is based on the dimensions a participant deems important that can be affected by the decision alternatives. For this, participants have to be aware of the dimensions that might be affected. The question, then, is on which dimensions the qualitative differences between options can be determined.

Identifying relevant dimensions for pension decisions

Previous research, in various countries and contexts, mainly focused on factors that participants consider relevant when making the decision of advancing or deferring retirement. Choosing early retirement seems to be strongly related to

job satisfaction. Van den Berg et al. (2010) conducted a systematic review of studies on factors for early retirement and conducted focus groups with Dutch workers. They found that poor health and poor work conditions (e.g., physical and psychosocial work load, work pressure, and overtime work) are important drivers of decisions to retire early. Zacher and Rudolph (2017) examined the effect of job satisfaction change (i.e., changes in employees' cognitive and affective evaluations of their job experiences) on retirement intention (i.e., considering retiring in the near future) of Australian workers. They too found that workers who became less satisfied with their job were more inclined to retire early whereas those who experienced more job satisfaction were less inclined to do so.

The pattern that the decision to prolong working life (after retirement) is related to job satisfaction, is confirmed by several other studies. Furunes et al. (2015) conducted a longitudinal qualitative interview study to examine the main drivers and obstacles for prolonging working life or retiring among Norwegian employees. According to their interviewees, reasons to continue working were multi-faceted, with the work domain (e.g., coworkers, content of work) being a stronger driver for continuing to work than the personal (e.g., health and work ability), and/or private domains (e.g., income, spouse and family). The importance of social interactions and experiencing work as meaningful for the decision to keep on working, was also documented in studies in Germany (Fasbender et al., 2016), the United States (Beehr & Bennett, 2015), and the Netherlands (Van Solinge et al., 2021). Another survey study among Dutch employees shows that subjective life expectancy is a factor that is taken into account when planning for retirement—people with longer time horizons have a preference for later retirement (Van Solinge & Henkens, 2010). In addition, both Beehr and Bennet and Van Solinge et al. suggest that the decision to work after retirement can be affected by the (additional) income work provides. Finally, Beehr and Bennet also discuss factors that push participants to do non-work things after retirement, typically including the desire to spend time with family, traveling, and other leisure activities. The desire of participants to spend a lot of time with their partner can be seen in the tendency for partners to plan for joint retirement (e.g., Eismann et al., 2017; Michaud et al., 2020). Singles seem to have a preference to continue working and retire later, which can be partly explained by the social context provided by work which, in their case, cannot be compensated by spending more time with the partner (Eismann et al., 2019).

To summarize, several studies have identified factors that influence the decision for early retirement and the decisions to retire and how to spend time during retirement (working vs. non-working). What these studies show, is that several dimensions are taken into account: the need for (more) leisure time, job satisfaction, and having sufficient income.

In this study, we build onto this research. As noted by Amabile (2019), quantitative research can accurately identify which factors play a role in various pension themes (such as decision making), but we need qualitative research to identify the subjective experiences behind those factors: "To truly understand how people think about and experience retirement [decisions], researchers need to get inside their heads by talking to them or, in other ways, closely examining their stories" (Amabile, 2019, p. 208). In this qualitative study, we try to shed light on why pension participants choose the way they do and by this "move to a deeper understanding of retirement decisions" (Amabile, 2019, p. 207). We conduct in-depth interviews to identify the considerations of pension participants for three pension decisions: the exchange between old-age pension and partner's pension, the allocation of the pension over time (high/low construction), and the retirement date. For each of the three decisions, the following research question is addressed: What dimensions do participants take into account when giving meaning to the decision alternatives?

Methods

To answer our research question, we conducted 39 semi-structured interviews with Dutch pension participants. In these interviews, we elicited the considerations of the participants to choose for one of the decision alternatives. Subsequently, we related these considerations to dimensions, in order to identify what dimensions participants take into account to give meaning to the decision alternatives.

For the medical domain, Reyna et al. (2015) recommend to identify what determines qualitative differences between decision alternatives in consultation with both experts and patients. By analogy, preceding the interviews with participants, we conducted interviews with 7 Dutch pension experts: pension consultants and advisers (all male, all working in this position for at least 8 years). The consultants and advisers have extensive contact with participants during pension meetings and thus have a broader view of the dimensions used by participants to give meaning to decision alternatives. In the interviews we asked questions about the considerations of participants in general to choose for one of the decision alternatives. This way, in the results section, we can paint a broader picture with input from the experts. In addition, the interviews with experts provided us with considerations that we could elaborate on in the interviews with participants.

Participants

Once ethical approval was obtained from the Faculty Ethics Assessment Committee Humanities of the Utrecht University (reference number: 3984869-02-02-2020), three pension providers contacted pension consultants and independent advisers who might be interested in participating in our study. In April and May 2020 we interviewed five consultants, as well as two independent advisers. The interviews were conducted during a period of coronavirus disease (COVID) measures and were therefore all conducted via Microsoft Teams. The interviews lasted between 41 and 59 min, with an average of 52 min.

After having conducted these interviews with consultants and advisers, two pension funds and two insurance companies contacted their participants to recruit interested participants for our study, based on purposive sampling. Inclusion criteria were: (a) age of 55 years or older, (b) being about to retire or have just retired. Participants aged 55 and older have to make the three pension decisions in a few years (or have already made them) and so for them, the situation is the most relevant. This is also illustrated by the fact that this age group seems the most concerned with their pension, given that the most intensive search for pension information only takes place in the last 5–10 years before retirement (Van Dalen &

[7]In four interviews, the partner was also (partially) present.

Henkens, 2022). Between July 2020 and January 2021 we interviewed 39 participants.[7] The participants received a gift voucher worth 20 euros for their participation.

The interviews also took place during a period of COVID measures and were therefore conducted by telephone, digitally (Microsoft Teams, Skype and Google Meet) or at the participant's home. The interviews lasted between 21 and 73 min, with an average of 47 min.

The interviewed participants were between 55 and 72 years old. The majority of the participants were male and were retired. The interviewed participants have made various pension decisions and supplementary pension provisions (see Table 1 for the demographic characteristics of the interviewees).

Procedure

All interviews were conducted by the first author in a semi-structured manner based on an interview guide. The guide included an introduction, a background information section, and opening and follow-up questions about considerations for pension decisions (see Appendix A for the full interview guide). The order of these topics and questions could vary, depending on the course of the interview, and there was also room for new questions in response to answers given by the interviewee.[8] Each interview was recorded with consent of the interviewee and subsequently transcribed.[9]

Analysis

The transcribed recordings formed the basis for the analysis. Irrelevant statements and (identifying) personal data were removed from the transcripts. The transcripts were analyzed using thematic analysis. This thematic analysis consisted of two stages: (a) a global deductive analysis and (b) a more detailed inductive analysis (Braun & Clarke, 2012). In the first stage, we drew up a global coding scheme based on the interview guide (deductive). This global coding scheme consisted of themes such as "considerations to retire earlier than the set retirement date." Based on this scheme, all transcripts were coded with the software program Nvivo 12. In the second stage, we went through all the coded texts and derived new (sub)themes from the data (inductive). We have expanded and adapted the coding scheme with these new (sub)themes. For example, we added the subtheme "considerations to retire earlier than the set retirement date—job satisfaction" to our scheme (see Appendix B for the final coding scheme). Subsequently, we recoded all texts that were coded in the first phase with the new coding scheme and thus divided the coded text from the first phase more detailed into subthemes. This way, we used an analysis strategy that captured participants' meanings while searching for general patterns.

[8]The interviews conducted can be roughly divided into two parts: (a) a part in which we focused on identifying the considerations of pension participants for three pension decisions, and (b) a part in which we focused on identifying what are themes regarding the trust of participants in various parties in the Dutch pension field. In this paper, we only cover the first part. The second part will be reported separately.

[9]In one interview with a participant, immediately after conducting it we found out that part of the recording was lost. For example, as suggested by Patton (1987), immediately afterwards we made extensive notes of everything that could be remembered, so that the data from the interview were still usable.

Table 1. Demographic characteristics of the interviewees (n = 39).

Characteristic	Participants n (%)
Gender	
Male	28 (72)
Female	11 (28)
Retirement status[a]	
Retired	22 (56)
Not retired	17 (44)
Exchange between old-age pension and partner's pension[b]	
No exchange	11 (28)
Exchanged the partner's pension for more old-age pension	7 (18)
Exchanged the old-age pension for more partner's pension	2 (5)
Allocation of the pension over time	
Evenly	14 (36)
High/low	11 (28)
Low/high	0 (0)
Retirement date[c]	
Earlier (through pension)	11 (28)
Earlier (through arrangement)	8 (20)
Retired at the retirement date	5 (13)
Later	2 (5)
Supplementary pension provisions[d]	
Personal equity (savings, home equity, real estate)	19 (49)
Annuity and single premium policy	12 (31)
Life-course savings scheme	4 (10)
Salary savings scheme	3 (8)
(Selling) own company	3 (8)
Generation pact	3 (8)
Severance	4 (10)
Leave	4 (10)

Note. [a]Under "retired" we classify participants for whom the largest part of the income comes from their pension. Participants are therefore "not retired" if a (small) scheme has started, but they are still (partly) working, if they are on leave or if there is a generation pact.
[b]During the interview period, the interview guide was expanded with questions about the exchange of old-age pension and partner's pension. Therefore, this is not discussed with each participant.
[c]We make a distinction between participants who retired earlier using their old-age pension and participants using, for example, severance, sickness benefit or leave.
[d]During the interviews, the interview guide was expanded with questions about the supplementary pension provisions. Therefore, these are not discussed with each participant. Moreover, we only included pension provisions that have been explicitly mentioned as pension provision by participants. For example, we do not consider owning a house as a pension provision, unless the participant has explicitly indicated (extra repayments on the mortgage of) the house as a pension provision.

Results

Below, we discuss for each of the three decisions to which dimensions the considerations of the participants are related. Our interpretation of these dimensions is clarified by quotes from the interviews—which were translated from Dutch to English.[10] We also provide data of the interviewee relevant to

[10]The original quotes in Dutch can be obtained from the lead author of this paper.

the quote (e.g., "retired earlier"). Each section is preceded by a description of what the decision entails.

The exchange between old-age pension and partner's pension

Dutch pension participants accrue both a pension benefit for their own (old-age pension) and a benefit for their spouse in case they die first (partner's pension). The amount of partner's pension depends on the amount of old-age pension. Usually, this is 70%.[11] So, as default, a participant, for example, receives 1.000 euros old-age pension per month and in case he or she dies first, the spouse will receive 700 euros per month. Participants have the option to adjust the percentage at the moment they retire (Dutch Authority for the Financial Markets, 2023, p. 32): "This means that they can convert the partner's pension into a higher old-age pension and vice versa." The participant can choose to increase the partner's pension, which lowers the old-age pension (e.g., 900 euros old-age pension and 1000 euros partner's pension). In that case, if the spouse is the one that outlives the participant, he or she will receive a higher benefit than would be the case for the default option. However, this also implies that if the participant is the one that outlives the spouse, he or she will receive a lower benefit throughout retirement. This works the other way around if the participant decreases the partner's pension (e.g., 1.200 euros old-age pension and 0 euros partner's pension): the higher benefit for the participant will not be paid as from the moment the spouse outlives the participant, and the spouse will receive a lower or no benefit from the moment onwards.

Of all participants in the Netherlands who retired in 2021 and who had the option to exchange between old-age pension and partner's pension, 71.1% chose the standard percentage, 25.5%[12] exchanged partner's pension for more old-age pension, and 3.5% exchanged old-age pension for more partner's pension (Dutch Authority for the Financial Markets, 2023).

Participants take the following dimensions into account to give meaning to the decision alternatives.

Life expectancy

If participants think that they themselves or their partner will likely die first, they are inclined to diverge from the default. For example, one of the interviewed participants was diagnosed with a terminal illness, which made it likely that he would die first. By increasing the partner's pension, the partner would receive a higher benefit (compared to the default) from the moment she outlives the participant, while it is likely the participant will not live to receive his lower old-age pension (compared to the default) for long:

> What I did do, was supplementing the partner's pension. Also because suddenly that [terminal] illness appeared, of course. [Participant 26, retired, exchanged old-age pension for more partner's pension]

This also works the other way around. A participant considered it likely that his partner would die first. In that case, decreasing the partner's pension is attractive because the participant will receive a higher benefit compared to the default:

> My wife is older and has Alzheimer's. So I do not see her outlive me. And that is the reason [to decrease the partner's pension]. [Participant 14, not retired, wants to exchange partner's pension for more old-age pension]

If there is no expectancy that one partner outlives the other, participants do not consider this dimension relevant to deviate from the default option:

> [It] is gambling with your own end of life. (…). That is why I did not make any decision about this and just left it to the default. And my partner is a little older than me. Not so much, but exactly that difference in which men and women differ. So that is neither a reason to consider it. [Participant 23, retired, no exchange]

(In)sufficient income

A second dimension that plays a role is to what extent the partner has a sufficient income of his or her own. If the partner's income is too low for the desired standard of living, participants tend to increase the partner's pension:

> If you have two full incomes, two full pension accruals, you can say that you do not need a partner provision. But the accrual of my wife's pension was only moderate. So she also needs a provision from me, to be able to continue if I am no longer there. So I just fully included the partner's provision. [Participant 39, retired, exchanged old-age pension for more partner's pension]

Yet, if the partner's income is sufficient, participants can stick to the default:

> We did not make a decision [i.e., sticked to the default option], because we thought "if one of us dies, we will both have sufficient financial resources to make it on our own". [Participant 18, retired, no exchange]

Financial maximization

A third dimension mainly becomes relevant when the other dimensions are not. Maximizing the old-age pension benefit can then be taken into account, making increasing the old-age pension the preferred option:

> My husband and I both excluded partner's pension. My husband can take care of himself and so can I. This way, we maximize the benefits in the period we are both alive. [Participant 8, retired, exchanged partner's pension for more old-age pension]

Or this dimension even should become relevant when the other dimensions are not, as this participant who sticked with the default option illustrates:

> I have thought about it. But she does not need it at all. So actually, I kind of regret [not exchanging partner's pension

[11]For example at ABP, the largest Dutch pension fund. This was lower than 70% before 2018 (ABP, n.d.).

[12]In the data of the Dutch Authority for the Financial Markets (2023), no distinction is made between single participants (for whom providing partner's pension should not be relevant and exchanging partner's pension for more old-age pension should be the only relevant option) and participants with a partner (for whom all decision alternatives might be relevant).

for more old-age pension]. I could have left out the partner's pension altogether. [Participant 37, retired, no exchange]

The allocation of the pension over time[13]

Usually the pension benefit is allocated evenly over the entire pension period (e.g., 1.000 euros per month). However, depending on the pension provider, at retiring participants can choose to vary this allocation over time (Dutch Authority for the Financial Markets, 2023, p. 31): "They can do this by opting for a high/low or low/high construction. With a high/low construction, a participant receives a higher benefit in the first years after retirement [e.g., 1.176 euros per month]. After that, the participant will receive a lower benefit for life [e.g., 882 euros per month]. The low/high construction works the other way around." Of all participants in the Netherlands who retired in 2021 and had the option to vary in the allocation of the pension benefit, 79.8% opted for an evenly allocated pension, 19.3% for a high/low construction and 0.8% for a low/high construction (Dutch Authority for the Financial Markets, 2023).

Participants take the following dimensions into account to give meaning to the decision alternatives.

Life expectancy

A first dimension that becomes relevant is when the participant has a low life expectancy. A high/low construction differs from the default option because it provides a higher benefit for the first period of retirement. If a participant expects to die relatively early, he or she will only live in that period and so a high/low construction provides a higher benefit than the default option (because the participant will not reach the lower period). This could push participants to deviate from the even allocation to a high/low construction:

> Hearing about colleagues dying just after their retirement date, makes you think about [the high/low construction]. That you may have to shift a bit of your pension benefit, so you would have more to spend in the early years of retirement, and less after that. [Participant 25, not retired]

If there is no such expectancy, this dimension is not considered to be relevant to deviate from the default:

> [High/low] is of course all fun if you know that you will die at the age of seventy. Then you are going to bring everything forward. But when you know you are turning ninety, you think "I am crazy". (…). And that also has to do with the fact that I do have a certain life expectancy. Which I cannot substantiate. But given my health and stuff, I do not think it is rational to bring it forward. [Participant 9, not retired, wants even allocation]

(In)sufficient income

A second dimension becomes relevant if participants expect that an evenly allocated pension does not provide sufficient income for the first years of retirement. In that case, they could be pushed to deviate from the default and opt for a high/low construction. For example, because of higher costs in the first few years, as one of the participants indicated:

> I have six grandchildren. Every month, I am saving some money for them up until they are 18. So I thought, if I increase that pension for five years, I will have some more income. My oldest grandson turns 15 next month. Then in three years, I will no longer have to set aside money for him. And the grandchildren are all in a row. So one less to save for every year. [Participant 6, retired at the retirement date, high/low]

Other participants indicate they still feel healthy and vital, their partner is also retired or will soon be retired, and the first years of retirement are therefore the years that they still want to travel and be active (i.e., temporarily needing more income for the desired standard of living). For example:

> Because now I am still healthy and vital. And my wife wants to stop working too in a few years. And during that period, we want to enjoy. And if you want to enjoy, you need money in this world. And at the end, you will get older and you will travel and undertake less. So you need less money then. Therefore, we decided for a high/low construction. [Participant 13, not retired, opting for high/low]

If there is no expectancy an evenly allocated pension does not provide sufficient income, this dimension is not considered relevant to deviate from the default option:

> We are managing well with the income we have now. So we will just leave it this way. [Participant 11, partially retired, evenly allocated]

The Retirement date

The final decision studied is the retirement date. Participants retire by default at the set retirement date, which depends on the pension provider (and does not have to be the same date as one's statutory state pension date) (e.g., age 67, pension benefit of 1.000 euros per month). However, within several pension schemes, participants can choose to retire earlier or later than the set retirement date (Dutch Authority for the Financial Markets, 2023, p. 30): "For example, the participant can choose to start the pension benefit earlier and align it with the moment the state pension benefit starts. Or the participant can defer the benefit until a maximum of 5 years after the start of the state pension age." The monthly benefit decreases if one goes earlier (e.g., age 64, 825 euros per month), because the pension fund or insurance company has to pay the benefit for a longer period and one accrues pension for a shorter period of time. When retiring at a later date, the pension benefit increases (e.g., age 70, 1.240 euros per

[13]In this section, we did not include the considerations to opt for a low/high construction, because none of the interviewed participants had chosen for this option. As the data of the Dutch Authority for the Financial Markets (2023) shows, this option is also rarely chosen in practice (by 0.8% of all participants in the Netherlands who retired in 2021 and had the option).

[14]Unfortunately, the Dutch Authority for the Financial Markets (2023) says it has no data on the number of participants with a defined benefit scheme who chose the option to retire later. In addition, for participants with a defined contribution scheme, the Dutch Authority for the Financial Markets (2023, p. 49) does not provide numbers but indicates that "virtually no participants who retired in 2021 have made use of the option to defer their retirement."

month). Of all participants in the Netherlands who retired in 2021 and had the option to advance or defer their retirement, 34.8% chose to retire earlier, 62.3% chose not to retire earlier and of 2.9% their decision is unknown (Dutch Authority for the Financial Markets, 2023).[14]

Participants take the following dimensions into account to give meaning to the decision alternatives.

Work–life balance

A first dimension that can be taken into account, is the balance between time for work and time for personal life. Earlier retirement provides participants with more leisure time and less work time the soonest, later retirement the latest. The default option is in between. If a participant has a need for more leisure time (e.g., they see their priorities change throughout life, with activities outside of work becoming more enjoyable), this dimension becomes relevant. Earlier retirement provides the participant with this the soonest and therefore, the participant deviates from the default. For example:

> Life is finite. So you are going to think about it a little. Work is fun and the colleagues are very nice, but is that all there is? [Participant 12, retired earlier]

It may not necessarily be the need for *more* leisure time, but could also be the need for *less* work time that pushes participants to early retirement. For example, because work is becoming more and more demanding physically and/or mentally:

> What also played a role was that I found [the work] very hard. I almost had a burnout once. (…). I think it would have destroyed me [to continue working any longer]. [Participant 18, retired earlier]

Job satisfaction

A second dimension is about the job satisfaction experienced by the participant. For participants who are not satisfied with their job, early retirement can be attractive. This is the case for the next participant, who is no longer satisfied with the employer, due to changes in the organization:

> Recent developments (…) have not done the job any good, in my opinion. As a result, I had the feeling that this is not the organization I chose for 43 years ago. And then it is time to go. [Participant 13, will retire earlier]

On the other hand, participants can enjoy their work (e.g., because it provides social interactions or work is experienced as meaningful). In that case, participants might want to continue working and retire later:

> My father retired at 72 and told me "That is the stupidest thing I have ever done. I should not have retired. It is just deadly dull". And I totally agree with him. [Participant 17, not retired]

> I have always said that in the end, I am going to die with my job, because I just like it way too much. And as long as there are clients who like to use my commitment, knowledge, and experience (…) I will not stop till I drop. [Participant 19, not retired]

(In)sufficient income

A third dimension sets a condition for the three decision alternatives: they have to provide a sufficient pension benefit for the desired standard of living. If all three options do, this dimension is considered as irrelevant. But if earlier retirement (and in some cases even the default) does not, this dimension is taken into account and can push a participant to a decision alternative (even one that is not preferred, based on one of the other dimensions). For example:

> I am tired of work. But it is just the way it is. I cannot stop working earlier, because it costs too much money. [Participant 14, not retired]

Financial maximization

A fourth dimension resulting from our interviews becomes relevant when participants deem it important to maximize their pension benefit. Later retirement is the option that will supply the highest pension benefit, followed by retirement at the set date (default), and earlier retirement. This dimension, together with the dimensions about work–life balance or job satisfaction, can be competing to determine the gist of the decision—and subsequently the favored option. Earlier retirement provides more time for leisure and less time for work the soonest, later retirement the highest pension benefit, and the default option is in between. A consultant illustrates this:

> What some find unfortunate, and I will put it mildly, is that if they stop working earlier, they will not have what they could have. So they do not go for "the jackpot". (…). Then, I ask which weighs more heavily: the fact that you do not get the jackpot, so to speak, or the fact that you get something in return, namely rest or leisure time? (…). I always say "do not go for the maximum, go for the optimal". So, find the right balance between phasing out, stopping work and having sufficient left. [Consultant 2]

For some participants, the consequences of the decision alternatives on the financial dimension weigh more heavily (although not so heavily that later retirement is chosen):

> When I was getting close to retirement, I thought "should I go a year earlier?". (…). But I decided to stop at the set retirement date, because so much [benefit] is deducted at the end. (…). I had a great job and then it is not such a problem, to make that decision, to continue working until the set retirement date. (…). While I could have stopped earlier. [Participant 15, retired at the set retirement date]

Others consider the possibility of maximization, but to them, the consequences for the work–life balance weigh more heavily:

> Rather a little less money compared to when you would continue working, so we can also enjoy. [Participant 5, retired earlier]

Conclusion

People are experiencing increasing freedom of choice. This freedom provides possibilities to shape life more individually,

but in some domains, it also brings complexity (Van Dalen & Henkens, 2018). This certainly applies to the (Dutch) pension domain, where pension participants have to make complex decisions.

Information about the pension decision alternatives often contains the exact monetary amounts associated with the alternatives. And as one of the interviewed consultants illustrates, these amounts have to be made more meaningful to participants: "They [participants] do not know what to do with [a decision]. Behind the login, they get to see what the difference [between alternatives] is numerically. But context is missing, 'how exactly should I understand it and is it good or useful for me?'." Grounded in FTT (Broniatowski & Reyna, 2018; Reyna, 2008, 2018; Reyna et al., 2022), we argue that informed decision making requires participants to (accurately) understand meaningful differences between decision alternatives, rather than differentiate based on purely numerical verbatim amounts. In this study, for three decisions Dutch participants can make regarding their old-age pension, we identified what dimensions are taken into account when giving meaning to the decision alternatives.

In our interviews, a number of dimensions emerged that are taken into account to give meaning to the decision alternatives, partially overlapping for the three decisions: life expectancy, (in)sufficient income, financial maximization, work–life balance, and job satisfaction (see Table 2). It depends on the participant which dimension(s) become(s) relevant. In line with FTT, we indeed see that participants try to make gist representations as simple as possible. If the qualitative differences between the decision alternatives on a dimension are not important (enough) to a participant, that dimension is not considered relevant to determine the gist of the decision. If none of the dimensions become relevant, our results indicate that participants see no reason to deviate from the default option. For example, if there is no expectancy that the participant will die relatively soon and there is no expectancy there will be a period in which the participant needs more income, participants see no need to deviate from the default allocation option of the pension over time (i.e., evenly allocated).

If one of the dimensions becomes relevant, the resulting gist representation will push a participant to deviate from the default option. For example, the partner is dependent on the participant's income, which will push the participant to increase the default amount of partner's pension (which the partner receives in case the participant dies first), which lowers his or her own old-age pension.

If multiple dimensions are relevant, the gist representation can become complex, even if the dimensions themselves are relatively straightforward. For example, a participant who experiences little job satisfaction and wants to stop working before the set retirement date, but realizes that early retirement leads to an insufficient income for the desired standard of living. In that case, the extracted gist representation and the preferred decision alternative depend on how the participant weighs the current dissatisfaction with work against a less satisfying life after retirement.

In conclusion, pension participants indeed seem to understand information and make decisions in line with FTT. Numerical differences in monetary amounts between decision alternatives can become relevant in pension decision making. However, their relevance is not the result of a purely numerical difference, but arises from a qualitative difference between decision alternatives on a dimension that a participant deems important (e.g., (in)sufficient income or financial maximization). If the numerical difference does not lead to a dimension becoming relevant, the consequences of decision alternatives on other dimensions (e.g., life expectancy, work–life balance, job satisfaction) might be relevant to determine the difference(s) between decision alternatives.

Limitations

This study has several limitations. First, we only interviewed participants who had been in touch relatively recently with their pension fund or insurance company. These are, for example, participants who had contacted the front office or looked at the website or their pension dashboard. In addition, they were often participants with a certain level of interest in pensions. Yet our goal was to identify the most important considerations participants take into account when making pension decisions, and these participants had thought about these decisions. Furthermore, the interviews with experts allowed us to paint a broader picture of relevant considerations. In addition, our results related to the decision when to retire are comparable with the findings of several international studies (Beehr & Bennett, 2015; Fasbender et al., 2016; Furunes et al., 2015; Van den Berg et al., 2010; Van Solinge et al., 2021; Zacher & Rudolph, 2017). These studies

Table 2. Dimensions participants take into account to give meaning to the decision alternatives.

	The exchange between old-age pension and partner's pension	The allocation of the pension over time	The retirement date
Life expectancy	It is likely that the participant or the partner will die first	The participant has a low life expectancy	
Financial maximization	One of the options maximizes the income		One of the options maximizes the income
(In)sufficient income	The extent to which the partner has a sufficient income on his or her own for the desired standard of living	The participant expects to have a period in which more income is needed for the desired standard of living	The options provide the participant with a sufficient income for the desired standard of living
Work–life balance			There is need for a different balance between time for work and time for personal life
Job satisfaction			The participant experiences little or a lot of job satisfaction

confirm that the decision when to retire and how to spend time during retirement (working vs. non-working) is driven by the need for leisure time, job satisfaction, and having (sufficient) income, indicating that we have accurately identified the considerations.

Second, except for four interviews where the partner was also present, the interviews were held with individuals and not with couples. However, the results show that participants mention spouse-related considerations, also when the partner is not present, for all three decisions.

Implications for pension decision support

According to FTT, people make better decisions when they accurately understand meaningful differences between decision alternatives (see for a review, Blalock & Reyna, 2016). They can be supported in extracting such meaningful representations by providing cues about the dimensions that might be affected by the various decision alternatives. For example, Reyna et al. (2015) mention that interventions should remind people of an array of values that are important to them and that have relevance to the decision at hand (and what people deem important, determines the dimensions that are relevant to them), because even strongly held values are not necessarily retrieved when receiving information about a decision. And Reyna et al. (2022, p. 745) write that gist can differ from person to person, but "most informed people most of the time extract a relatively small number of integrated pieces of information that can be usefully communicated to others in practice."

To support participants in accurately understanding meaningful differences between decision alternatives, the dimensions identified in this paper can serve as a useful starting point. Pension planners and other tools (focused on helping to determine expenses during retirement) can provide more insight into whether decision alternatives provide a sufficient income for the desired standard of living. This can also be discussed in a pension meeting with a consultant or adviser. Participants who are about to retire—and also for whom this is still somewhat further away—can request a meeting with a consultant (of their pension fund, often arranged through the employer) or an independent adviser in preparation of pension decision making. In this meeting, the pension scheme and the decisions within that scheme are explained, the participant's personal pension situation is discussed, as well as the participant's wishes and goals. The (in)sufficient income dimension can be discussed, as well as, for example, the work–life balance and job satisfaction. Consultants and advisers should help participants identify which dimensions are relevant to them to take into account to give meaning to the decision alternatives.

The dimensions identified in this paper can also be communicated on the website of the pension providers. This can be done in more "traditional" form (i.e., in plain text on a webpage), but also by using certain interventions. In the medical domain, for example, values clarification methods (VCMs) are used. VCMs are tools that help people determine what matters to them and how this aligns with the pros and cons of the alternatives (Fagerlin et al., 2013). Brust-Renck et al. (2016) also indicate that VCMs fit in with the principles of FTT as they can prevent people from forgetting to take relevant dimensions into account when making decisions. Another intervention used in the medical is the testimonial. Testimonials are narrative examples of how other people gave meaning to the various decision alternatives (Bekker et al., 2013). That is, participants can learn not only what others chose, but also why they did it and what values underlie it (Butow et al., 2005). Participants can use these narratives to see whether similar considerations apply to their own situation.

VCMs and testimonials can be placed on the website of pension providers, in addition to the plain webpage texts, as a preliminary stage before participants enter the pension planner of a pension provider. By making participants aware of the dimensions that might be relevant to them for making a decision, we help them to extract gist representations and make more meaningful decisions—which is, we believe, a next step in supporting participants in making pension decisions.

Author contributions

Jelle Strikwerda (Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Validation, Writing – original draft, Writing – review & editing), Bregje Holleman (Conceptualization, Methodology, Supervision, Validation, Writing – review & editing), and Hans Hoeken (Conceptualization, Funding acquisition, Methodology, Project administration, Supervision, Validation, Writing – review & editing)

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Conflicts of interest

None declared.

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Data availability

The data underlying this article will be shared on reasonable request to the corresponding author.

Appendix A. Interview guide

Introduction

- Warming-up
- Subject/goal
- Interview structure/type of questions
- Report

Background

- Personal situation with regard to:
  - (Former) employment
  - Pension accrual (both 2nd and 3rd pillar)
  - Pension decisions made

Considerations for pension decisions

Opening questions
- What were or would be your considerations for:
  - The exchange between old-age pension and partner's pension
  - The allocation of the pension over time (high/low construction)
  - The age to retire (advancing or deferring)[a]

Follow-up questions
For example:
- You mentioned X as a consideration. Can you tell more about this?
- Besides X, did any other considerations play a role in this?
- If I understand correctly, you did wanted to continue working? Why was that?
- I hear that some participants consider X[b]. How does this apply to you?
- For this decision, X[b] could also be relevant. To what extent have you thought about that?

Closing
- Opportunity for the interviewee to discuss relevant topics that have not been discussed during the interview, to comment or to ask questions

Note. [a]In addition to the three decisions discussed in this paper, we also discussed two other, relatively new decisions in the pension domain with the consultants, advisers and participants: the decision between a fixed or a variable pension benefit and the decision for a lump sum. Few of the interviewed participants had direct experience with this, so we have too few observations in this study to be able to say anything meaningful about this. Therefore, we removed the questions about these decisions from the interview guide.
[b]The interpretation of X resulted from the interviews with experts (e.g., financial consequences, the role of health).

Appendix B. Final coding scheme

Themes	Subthemes
Considerations to: - Allocate the standard percentage of the old-age pension to the partner's pension - Allocate a higher percentage of the old-age pension to the partner's pension - Allocate a lower (or zero) percentage of the old-age pension to the partner's pension	- Life expectancy - (In)sufficient income - Financial maximization
Considerations to: - Allocate the pension benefit evenly over the retirement period - Allocate the pension benefit in a high/low manner	- Life expectancy - (In)sufficient income
Considerations to: - Retire at the set retirement date - Retire earlier than the set retirement date - Retire later than the set retirement date	- Work–life balance - Job satisfaction - (In)sufficient income - Financial maximization

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