

Exploring the first steps of retirement engagement: a conceptual model and field evidence

Engagement
regarding
retirement
planning

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Wiebke Eberhardt

*University of Twente, Enschede, The Netherlands and
Netspar, Tilburg, The Netherlands*

Thomas Post

*Department of Finance, School of Business and Economics, Maastricht University,
Maastricht, The Netherlands;*

*Department of Accounting and Finance, Open Universiteit,
Heerlen, The Netherlands and
Netspar, Tilburg, The Netherlands*

Chantal Hoet

*Aegon NV, The Hague, The Netherlands and
APG, Amsterdam, The Netherlands, and*

Elisabeth Brüggem

*Department of Marketing and Supply Chain Management,
School of Business and Economics, Maastricht University,
Maastricht, The Netherlands;*

Netspar, Tilburg, The Netherlands and

BISS (Brightlands Institute for Smart Society), Heerlen, The Netherlands

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Abstract

Purpose – The authors develop and validate a conceptual model, the retirement engagement model (REM), to understand the relationships between behavioral engagement (retirement information search), cognitive factors and engagement (e.g. beliefs and financial knowledge), emotional engagement (e.g. anxiety), and socio-demographic factors. Approach: The authors derive the REM through a three-step procedure: (1) an extensive

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literature review, (2) interactive feedback sessions with experts to confirm the model's academic and managerial relevance, and (3) an empirical test of the REM with field data ($N = 583$). The authors use a partial least squares (PLS) structural equation model and examine heterogeneity through a finite mixture model.

Design/methodology/approach – Around the globe, people are insufficiently engaged with retirement planning. The customer engagement literature offers rich insights into antecedents, outcomes, and barriers to engagement. However, customer engagement literature lacks insights into cognitive, emotional and behavioral factors that drive engagement in retirement planning, a utilitarian service context, which is important for financial well-being.

Findings – Beliefs such as perceived susceptibility, severity, benefits, barriers, and self-efficacy, together with trust and retirement anxiety, explain people's search for pension information. These factors can be used to define three clear, actionable segments of consumers.

Originality/value – The findings advance the customer engagement and transformative service research literature by generating insights on engagement with retirement planning, a utilitarian rather than hedonic service context that is especially relevant for financial well-being. The findings inform managerial practice and emphasize the relevance of including cognitive and emotional engagement factors that trigger behavioral engagement. The REM can help to improve pension communication. For example, the results indicate that marketers should stress the benefits of, rather than the barriers to, acquiring information.

Keywords Information search, Engagement, Retirement, Pensions, Financial well-being

Paper type Research paper

One issue that needs to be urgently addressed is employees' engagement with retirement planning (Close Brothers, 2019)

Studies have shown that people spend less time planning for retirement than they devote to buying a television or a tablet (TIAA-CREF, 2014). People consider retirement planning important and intend to get started, yet managers struggle with customers' low level of engagement regarding retirement planning (e.g. Chan and Stevens, 2008; Gustman *et al.*, 2012; Lusardi and Mitchell, 2011, 2014). Generating knowledge about retirement engagement is crucial since a lack of engagement with retirement planning can have severe consequences on financial well-being (Brüggen *et al.*, 2017; Eberhardt *et al.*, 2021); people do not know whether they are financially prepared for retirement (Van Schie *et al.*, 2012).

A Federal Reserve report (2021) found that 19% of respondents were not sure about the status of their retirement savings, and 45% thought their retirement savings were not on track. The downside for not engaging with retirement planning is that people are not aware of where they stand with their retirement planning, and therefore risk not saving enough, encountering significant pension gaps, experiencing regret, and suffering detrimental outcomes during retirement (Börsch-Supan *et al.*, 2018). Munnell *et al.* (2021) even estimated that half of all working US households will not be able to maintain their living standard in retirement. And the Aspen Institute (2021) reports that only at the 50th savings percentile, households begin to have retirement accounts in addition to traditional assets like a checking and savings account, a car and a home, but the amount that in the retirement account is still very limited (\$4,086). Others who do have sufficient retirement savings (but are not aware of it) may unnecessarily worry about their retirement income, and might even save too much and thus unnecessarily forego current consumption opportunities.

The upside of engagement with retirement planning is that people increase their peace of mind and do not unnecessarily worry about their retirement income. Moreover, they can better balance current and future consumption and thereby increase their financial well-being in the short- and long run. Therefore, it is crucial to study how engagement with retirement planning can be increased.

Customer engagement is generally defined as a "consumer's positively valenced cognitive, emotional, and behavioral brand-related activity during, or related to, specific consumer/

brand interactions” (Hollebeek *et al.*, 2014, p. 154). Engagement with retirement planning is thus driven by cognitive factors (i.e. beliefs), emotions (i.e. anxiety), and behavioral activities (i.e. searching for relevant information). However, the customer engagement literature has predominantly focused on hedonic or experiential products and services (Lu *et al.*, 2016) rather than utilitarian services such as retirement planning. Since the utilitarian, long-retirement context is fundamentally different from hedonic or experiential service settings, and the baseline level of engagement is extremely low, more knowledge is needed about which cognitive, emotional, and behavioral activities exactly matter in this context and whether the relevance of these factors varies for different consumers.

To this end, our exploratory study investigates which factors influence emotional, cognitive, and behavioral engagement with retirement planning. The behavioral manifestation of engagement in our study is retirement information search. Information acquisition inherently sits at the opening of the decision-making funnel, and subsequent decisions (e.g. increasing savings for retirement, changing asset allocations, deciding when to retire) cannot be effective if decision-makers fail to incorporate relevant information. This study also generates valuable insights into the important yet understudied heterogeneity between people. Heterogeneity refers to the extent to which factors that influence engagement with retirement planning vary in their strength and relevance for different groups of people. For example, why are some people highly engaged with their retirement planning, whereas others have never searched for relevant information? A recent study revealed that tailored communication based on age and gender, that is, segmentation factors that the pension sector traditionally uses, are not effective in stimulating desired behaviors such as accessing relevant information (Dinkova *et al.*, 2022). Thus, potentially different factors that matter, but to date, it is unknown what distinguishes the different groups of participants and on which exact factors they differ. Hence, we address the following two research questions:

RQ1. Which factors explain engagement with retirement information search?

RQ2. How heterogeneous is engagement with retirement information search among pension plan participants?

To address these research questions, we develop and empirically estimate the Retirement Engagement Model (REM), which is rooted in the Theory of Reasoned Action (Fishbein and Ajzen, 1975) and the Health Belief Model (Glanz *et al.*, 2015; Janz and Becker, 1984). The REM encompasses cognitive beliefs (e.g. perceived benefits, barriers, susceptibility, severity, and self-efficacy), other cognitive factors (e.g. financial knowledge, propensity to plan, risk tolerance), emotional factors (retirement anxiety, trust), socio-demographic factors (e.g. age, education, gender and income), and behavioral (retirement information search) engagement factors. The REM is developed based on an extensive literature review of the service marketing, economics, finance, psychology, and health promotion literature, as well as input and feedback from the pension sector, public policymakers, and academic experts to confirm academic and managerial relevance.

We validate the REM using field survey data from 583 defined contribution pension plan participants in the Netherlands. We cross-validate information search intentions with plan participants’ actual behavior. The Dutch pension system is a particularly interesting and relevant setting since it is among the largest asset-based (funded) schemes worldwide, with total investments in pension funds representing 194.4% of its gross domestic product in 2019 (OECD, 2020). However, while most Dutch pension plan participants expect replacement rates above 70%, around 31% of households currently face a gross replacement rate below 70%, even considering all wealth accruals (Knoef *et al.*, 2016). Acquiring information about expected benefits is therefore economically relevant to plan participants since recent reforms have put more risk and responsibility on customers, and the low-interest environment has

prevented indexation for years and even led to cuts in pension rights (Bovenberg *et al.*, 2014). Yet, few participants engage or search for information. A study by the platform Money Wiser from the Dutch Ministry of Finance (2018) found that only 15% of the labor force regularly takes the time to delve into their pension situation, and only 34% looks at the information they receive from their pension provider.

We provide three main contributions. First, the context of retirement engagement is new to the service field. While retirement planning has been researched in other fields that have different research foci (e.g. investment behavior, financial literacy initiatives or pension enrollment (e.g. Lusardi and Mitchell, 2011; Sunden and Surette, 1998; Thaler and Benartzi, 2004), this study utilizes theoretical frameworks from service research such as customer engagement. This is a novel perspective to and extends prior studies on retirement planning. Second, we contribute to the customer engagement literature by generating insights into the cognitive, emotional, knowledge, and behavioral factors of engagement with retirement planning (Netemeyer *et al.*, 2017). These novel insights from a utilitarian service context characterized by low levels of engagement extend the boundaries of the customer engagement field that predominantly focuses on hedonic services. Third, we respond to recent calls to expand the emerging TSR literature with more empirical research (Alkire *et al.*, 2020). The insights from the novel conceptual model and empirical validation contributes to both TSR and practice by suggesting ways to improve retirement planning—which is highly relevant to enhance long-term financial well-being (Brüggen *et al.*, 2017). We offer clear implications for public policy and service providers, such as the US Consumer Financial Protection Bureau, which seeks to encourage consumers to acquire information about where they stand regarding their retirement planning (Consumer Financial Protection Bureau, 2015).

In the next section, we detail the theoretical background of the REM, explain our approach for identifying relevant factors, and describe the emotional, cognitive, and behavioral engagement factors. Subsequently, we describe our exploratory field study, discuss the estimation techniques, and present the results. Finally, we draw conclusions, detail our theoretical and managerial contributions, and note limitations of this study.

The retirement engagement model

We posit that a lack of engagement in acquiring relevant retirement information can significantly impact long-term financial well-being. Brüggen *et al.* (2017, p. 229) defined financial well-being as a “perception of being able to sustain current and anticipated desired living standards and financial freedom.” Policy-makers and marketers need to stimulate engagement with financial planning early in consumers’ lives to improve their financial well-being later. In line with the engagement literature, we argue that engagement with retirement planning involves consumers’ cognitive, emotional, and behavioral activities (Hollebeek *et al.*, 2014). Specifically, engagement with retirement planning includes customer’s emotional and cognitive reactions that results in resource investments such as searching for retirement-relevant information (e.g. Jaakkola and Alexander, 2014). Since the utilitarian retirement context, characterized by low levels of engagement, is different from hedonic and experiential services (see Table 1) and because the specific dimensions of engagement depend on the context (Brodie *et al.*, 2011; Groeger *et al.*, 2016), we lack a conceptual framework with multiple emotional, cognitive, and behavioral factors explaining why people devote efforts to acquiring pension information. We propose such a multi-faceted model of engagement with retirement information search: the Retirement Engagement Model (REM).

The REM is conceptually rooted in the theories of reasoned action and planned behavior (Ajzen, 1991; Conner and Armitage, 1998) and the Health Belief Model (Glanz *et al.*, 2015; Janz and Becker, 1984). The theory of reasoned action developed by Fishbein and Ajzen (1975) explained the relationship between attitudes and behaviors. It was later extended into the theory of planned behavior (Ajzen, 1991), which suggests that attitude, subjective norms, and

Study	Research focus	Research method	Research setting	Hedonic vs utilitarian service	High vs low engagement
Bowden (2009)	Propose a customer engagement framework for service brands	Conceptual	General with respect to service brands	Hedonic	n/a
Breidbach <i>et al.</i> (2014)	Study the role of engagement platforms for value co-creation, the performance of service and ecosystems, and managing service quality	Conceptual and exploratory (case study)	Online engagement platforms	Hedonic and utilitarian	High
Brodie <i>et al.</i> (2011)	Explore theoretical foundations of customer engagement and derive fundamental propositions to distinguish it from other concepts	Conceptual	n/a	n/a	High and low
Calder <i>et al.</i> (2009)	Study how engagement with online media increases advertising effectiveness	Conceptual and empirical (experiment, causal)	Online advertising	Hedonic (empirical application) and utilitarian	High
Groeger <i>et al.</i> (2016)	Propose the concept of non-paying consumer (e.g., receiving free trials) engagement behaviors and how they might be leveraged to create firm value	Conceptual and empirical (field study, correlational)	Consumer brands in the food industry	Hedonic	High
Harmeling <i>et al.</i> (2017)	Conceptualize customer engagement marketing and test the framework's predictions in a supermarket setting	Conceptual and empirical (survey, correlational)	Empirical application: supermarket	Hedonic	n/a
Hollebeek (2011)	Conceptualize customer brand engagement	Conceptual and empirical (in-depth interviews)	Various consumer goods	Hedonic	High
Hollebeek (2013)	Conceptualize how customer engagement contributes to customer value	Conceptual and empirical (in-depth interviews)	Various consumer goods	Hedonic and utilitarian	High

Engagement regarding retirement planning

Table 1.
Overview of research on engagement

(continued)

Study	Research focus	Research method	Research setting	Hedonic vs utilitarian service	High vs low engagement
Hollebeek <i>et al.</i> (2014)	Conceptualize, develop, and validate a scale for consumer brand engagement in social media	Conceptual and empirical (survey, correlational)	Social media	Hedonic	High
Hollebeek and Macky (2019)	Conceptualize the relationship of digital content marketing (DCM) with cognitive, emotional, and behavioral engagement	Conceptual	Digital content marketing	Hedonic and utilitarian	n/a
Jaakkola and Alexander (2014)	Conceptualize the role of customer engagement behavior in value co-creation	Conceptual and empirical (in-depth interviews)	Public transport service system	Hedonic	n/a
Kumar <i>et al.</i> (2010)	Propose that customer engagement value comprises purchase behavior, referral of new customers, behavior to influence other customers, and value added to the firm by feedback	Conceptual	General	n/a	n/a
Kumar and Pansari (2016)	Develop an engagement framework, with focal constructs of customer engagement and employee engagement, and validate framework	Conceptual and empirical (survey, correlational)	Manufacturing and service firms	n/a	High and low
Kumar <i>et al.</i> (2019)	Develop a framework to facilitate customer engagement in service	Conceptual and empirical (in-depth interviews)	Service firms	n/a	n/a
Lehmann <i>et al.</i> (2012)	Develop models of user engagement with online services and establish relations between engagement metrics	Empirical (correlational)	Online services (web pages)	n/a	High

Table 1.

(continued)

Study	Research focus	Research method	Research setting	Hedonic vs utilitarian service	High vs low engagement	Engagement regarding retirement planning
van Doorn et al. (2010)	Develop and discuss the concept of customer engagement behaviors	Conceptual	General	n/a	n/a	7
Verleye et al. (2014)	Propose and test theoretical model of managerial and psychological processes to encourage customer engagement behaviors that are embedded in a broader network of customers and stakeholders	Conceptual and empirical (survey, correlational)	Nursing home sector	Utilitarian	High	
Vivek et al. (2012)	Explore the nature and scope of customer engagement as a component of relationship marketing	Conceptual	General	n/a	n/a	
This study	Establish a conceptual model and calibrate it with empirical data for engagement in retirement planning	Conceptual and empirical (field survey)	Retirement planning	Utilitarian	Low	

Table 1.

perceived behavioral control shape an individual's behavioral intentions. The Health Belief Model is a well-established, model for explaining engagement behaviors in the health domain ([Glanz et al., 2015](#); [Janz and Becker, 1984](#)). It studies the influence of different cognitive beliefs on health-related behaviors such as cancer screenings or health check-ups ([Rosenstock, 1966](#)).

The reason for this theoretical basis is that these models form a good starting point to study retirement engagement, as the long term decisions contexts in which they have been extensively studied (e.g. preventive health behaviors) share some similarities with retirement planning. Preventive behavioral engagement in health settings, such as cancer screenings, also have a long-term character ([Gubler and Pierce, 2014](#)), involve immediate costs but benefits that accrue only in the future, and great uncertainty. The perceived barriers to both types of behavior are also similar. Healthy behaviors can seem costly, difficult, or painful ([Carpenter, 2010](#)). Similarly, the time, effort, and money required, as well as a sense of not knowing where to start ([Lusardi et al., 2009](#)), may keep people from undertaking sufficient retirement planning. Emotions such as anxiety are important in both contexts: just as some people fear doctor visits ([Witte and Allen, 2000](#)), they may worry about the potential outcomes of their search for pension information (retirement anxiety). Thus, there are good reasons to expect that factors tested in the health domain will also help explain engagement for retirement planning. However, there are important differences—especially concerning familiarity with the decisions—between health decisions and pensions. For example, visiting a doctor is something that most people will have performed

multiple times during their lives. In addition, health—and healthy behaviors—is a topic that receives greater attention in day-to-day conversation and the media. Therefore, incorporating findings from the health domain may help explain information search behavior for retirement planning but require theoretical advancements and empirical validation.

Model development

We derived the REM through a four-step procedure.

- (1) We reviewed pertinent literature in services marketing, customer engagement, economics, finance, and psychology domains to identify the most common factors related to engagement.
- (2) We then presented this preliminary list of factors to 15 representatives from the pension sector (e.g. communication managers, customer contact agents and key account managers), public policy-makers, and academic experts to confirm both academic and managerial relevance. These experts provided in-depth, qualitative feedback on the expected relevance of the various constructs.
- (3) We grouped the relevant factors following the customer engagement literature (e.g. [Hollebeek and Macky, 2019](#)) into cognitive, emotional, and behavioral engagement and socio-demographic factors.
- (4) We used the insights we obtained from these experts to empirically test the relationships between the different constructs and conceptualize our final REM. Finally, following our exploratory and structural equation modeling approach, we obtained our final model in an iterative process. In the following section, we briefly describe each component that we identified through our four-step approach in our conceptual model. Table A1 in the online [appendix](#) summarizes how the different literature streams contributed to our model development.

Behavioral manifestation of engagement: retirement information search

There are several behavioral manifestations of engagement with retirement planning, from acquiring relevant information to signing up to a retirement plan, determining the contribution level and risk profile, periodically checking whether the retirement build-up is sufficient for the desired living standard during retirement, and possibly saving more. In this study, we look at information search intention and cross-validate intention with plan participants' actual behavior. Obtaining information on retirement is beneficial for retirement planning and financial outcomes (e.g. [Duflo and Saez, 2003](#)). However, extant studies largely overlooked studying information search, an important step in retirement planning. Instead, they suggest solutions associated with subsequent steps in retirement planning.

Preceded by a trigger or spark of curiosity, information acquisition inherently sits at the opening of the decision-making funnel and subsequent decisions (e.g. increasing savings for retirement, changing asset allocations and deciding when to retire) cannot be effective if decision-makers fail to incorporate relevant information. The approach to investigating the first step consumers must take to perform any follow-up behaviors meaningfully is consistent with service research into health insurance literacy ([O'Connor and Kabadayi, 2020](#)) and largely determines any other decisions that will affect financial well-being. The scarce literature that studies the search for retirement information includes only one ([Hansen, 2012](#)) or a few ([Brüggen et al., 2019](#); [Deetlefs et al., 2018](#); [Dinkova et al., 2022](#); [Hershey et al., 2002](#); [Joo and Grable, 2001](#); [Kim and Kim, 2010](#); [Ricci and Cartarelli, 2017](#)) factors to explain individual motivations to search for pension information, which prevents conclusions about their relative importance or relationships. Most of these studies also consider socio-demographic factors rather than people's emotions or cognitive beliefs, which may provide richer insights ([Hershey et al., 2002](#)).

Cognitive beliefs and additional cognitive factors

One set of relevant cognitive factors comes from the Health Belief Model, which proposes that they are more likely to engage in a certain behavior if they cognitively believe (1) they are at risk of experiencing an undesirable outcome (perceived susceptibility), (2) the consequences of (not) engaging in a behavior are severe (perceived severity), (3) the advised action is efficacious at reducing the risk or the seriousness of the impact (perceived benefits), (4) the tangible and psychological costs are limited (perceived barriers), and (5) they can change the situation (perceived self-efficacy) (Glanz *et al.*, 2015; Janz and Becker, 1984).

Perceived susceptibility. Similar to the Health Belief Model (Rosenstock, 1966), we define perceived susceptibility as the degree to which individuals believe that they are not saving enough for retirement. Depending on internal (e.g. personal preferences) and external factors (e.g. news articles about pension system reforms or aging societies), participants form beliefs about the likelihood that they are saving too little and thus the relevance of acquiring pension information. Although one meta-analysis indicates that susceptibility is the weakest predictor of behavior, many studies report its significant positive effect (Carpenter, 2010). For participants to feel compelled to search for information, they must consider themselves vulnerable to a potential pension gap.

Perceived severity. Rosenstock (1966) described severity as the personal perception of the seriousness of a condition. In our study context, this means that an individual perceives the consequences of not acquiring pension-related information as severe. Studies in health settings show that people are more likely to acquire information if they believe the consequences of information avoidance are severe (Harrison *et al.*, 1992). Similarly, those who believe that not acquiring pension information might have severe consequences would be more likely to search for information about pension savings.

Perceived benefits. Perceived benefits reflect people's beliefs about the efficacy of an advised action to reduce the risk or seriousness of a negative impact (Rosenstock, 1966). In our research context, it implies that people regard the acquisition of information about retirement savings as valuable because it can provide insights into reducing the risks or seriousness of a pension gap. A meta-analysis by Carpenter (2010) identifies benefits (alongside barriers) as consistently the strongest predictors of behavior. Hence, we anticipate that people who perceive such benefits are more likely to search for pension-related information.

Perceived barriers. Perceived barriers pertain to beliefs about the tangible and psychological costs of an advised behavior (Rosenstock, 1966). These obstacles may prevent participants from searching for information. In our study context, the perceived barriers to information search include the time needed to acquire the information, the cognitive effort demanded to understand complex pension information or monetary payments to access information, or a financial advisor who can help them interpret the information. Perceived barriers have consistently negative associations with behaviors (Carpenter, 2010). Accordingly, they should act as impediments to action.

Perceived self-efficacy. Self-efficacy is a sense of certainty about being able to accomplishing a behavior to produce the desired outcome (Bandura, 1977). According to the theory of reasoned action, intentions are predictors of behavior. However, even if people have good intentions, they may lack skills and thus refrain from taking action. The theory of planned behavior includes self-efficacy, implying that intentions only translate into behavior if people feel capable of performing the required task (Conner and Armitage, 1998). We define self-efficacy specifically as the degree to which participants believe they can search for information, know where to look, and understand the acquired information. The last element is crucial, considering studies that show that when they encounter retirement-related information, people often feel powerless and do not know how to act on it (Lusardi *et al.*, 2009). If participants are instead confident in their ability to look for and understand financial information, they exhibit more positive retirement-related behaviors, such as saving for an emergency fund and figuring

out how much money they need to retire (Fernandes *et al.*, 2014). Furthermore, self-efficacy has been shown to positively influence saving behaviors (Cheema and Bagchi, 2011).

Alongside cognitive beliefs from the Health Belief Model, we include additional cognitive factors potentially relevant:

Propensity to plan. Propensity to plan refers to differences in the frequency with which participants form planning goals and their personal preference to plan (Lynch *et al.*, 2009). If they prefer to plan, people experience comfort following an information search process (Lynch *et al.*, 2009). They understand the benefits of acquiring information, and anticipating these benefits makes them more likely to search for information.

Risk tolerance. Risk tolerance addresses people's willingness to take risks (Dohmen *et al.*, 2011) and has been found to be related to many economic behaviors like savings and investment decisions. Therefore, we also expect a potential relation to people's willingness to search for pension information.

Financial knowledge. Following the findings of Van Rooij *et al.* (2011), we expect that if participants have high financial knowledge, they will understand that it is wise to acquire information about retirement and be more willing to do so than less knowledgeable participants.

Emotional factors

Retirement anxiety. Retirement anxiety stems from "preretirement expectations of the consequences of retirement" (Van Solinge and Henkens, 2008, p. 423). If participants associate retirement with health and disability limitations or social network losses instead of good times (Hayslip *et al.*, 1997), they are likely to develop greater retirement anxiety, which might induce them to search for information to avoid such consequences. Yet, retirement anxiety can also have opposite effects, such that anxious people might avoid any action at all (Ellen *et al.*, 2012). To limit their anxiety, they may choose to avoid searching for information that might confirm their worries (Golman *et al.*, 2017). Therefore, whether retirement anxiety positively or negatively affects information search intentions is difficult to predict.

Trust. There is some discussion/disagreement in the extant literature as to whether trust is affective or cognitive. In line with the engagement literature, we list it as a factor that fosters emotional engagement as trusting a pension provider implies being willing to accept vulnerability to the actions of the pension fund based on positive expectations about their actions (Mayer *et al.*, 1995). Thus, trust toward a pension provider implies that participants expect the service provider to deliver on its promises (Hansen, 2012) and accepting some vulnerability to the provider's actions (Mayer *et al.*, 1995). If such trust is high, people are probably more likely to engage in retirement information search (Morgan and Hunt, 1994; Hansen, 2012; Kabadayi, 2016; Ricci and Cartarelli, 2017; Deetlefs *et al.*, 2018). Furthermore, participants with higher levels of trust may perceive more benefits because they regard information from the provider as more credible than participants with less trust.

Socio-demographic factors

We include socio-demographic characteristics (gender, age, education and income), as they might influence cognitive, emotional, and behavioral factors, as well as knowledge. Studies have shown that, compared with men, women tend to be more risk-averse (e.g. Bajtelsmit *et al.*, 1999), less financially literate, and less secure about their ability to make financial decisions (Bucher-Koenen and Lusardi, 2011). People with higher education have been found to be more financially literate (Van Rooij *et al.*, 2011). Older people spend more time thinking about and planning for retirement (Feldman and Beehr, 2011). A high income enables individuals to save for retirement, and households with higher income appear more willing to save and be better prepared for the later phases of their lives (Van Rooij *et al.*, 2011). The REM is given in Figure 1.

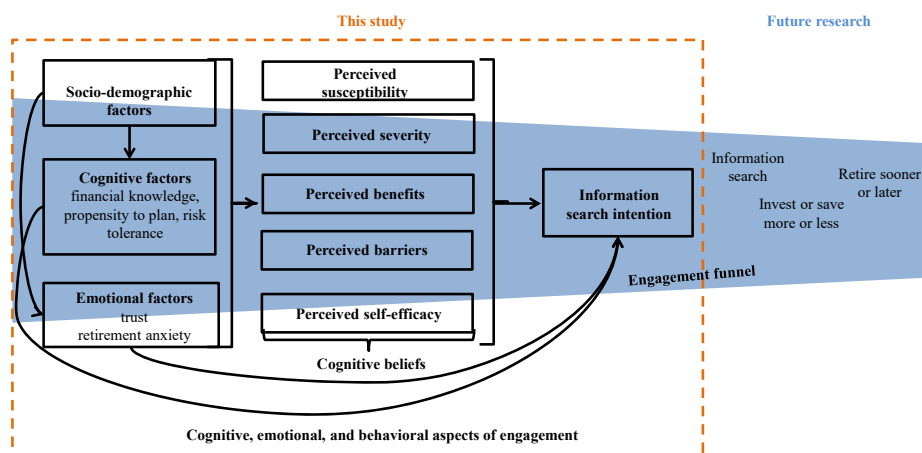


Figure 1.
Retirement engagement model

Alongside identifying the factors that explain engagement with retirement, an important question is how heterogeneous engagement with retirement is among pension plan participants.

Method

Survey development

To estimate the REM with actual pension customers empirically, we collaborated with the Dutch branch of a large international insurance and occupational pension provider. The questionnaire started by eliciting participants' engagement behavior, which we operationalized as the behavioral intention to search for information about their expected pension benefits (adapted from [Ajzen, 2002](#); [Block and Keller, 1995](#)), followed by a question about whether they already had this information (based on [Wijzer in Geldzaken, 2013](#)). Subsequently, we assessed perceived susceptibility, severity, benefits, barriers, and self-efficacy (adapted from [Grispén et al., 2011](#)). We used established scales to measure retirement anxiety ([Hayslip et al., 1997](#)), a propensity to plan ([Lynch et al., 2009](#)), risk tolerance ([Dohmen et al., 2011](#)), and trust in the financial service industry and the pension provider ([Hansen, 2012](#)). Using [van Rooij et al.'s \(2011\)](#) scale, we operationalize financial knowledge as objective financial knowledge. The literature points out that subjective financial knowledge is also an important factor in explaining behaviors (e.g. [Lind et al., 2020](#)), which we incorporate in our model through perceived self-efficacy. Besides risk tolerance (on a 10-point scale) and financial knowledge (four true/false questions), all measures used 7-point Likert agreement scales. At the end of the questionnaire, respondents indicated their gender, age, marital status, number of children, monthly net household income, percentage of household income they contribute, education, the industry they work in, and housing tenure. Gender, high income, and married are all coded as 0 or 1 (1 = gender is female; monthly net household income is equal to or higher than 2,800–3,800€ [about \$3,370–4,575 based on median split]; and participant is married). The questionnaire as well as the means and standard deviations of key REM variables are available in Table A2 in the online [appendix](#).

Data collection

The survey was translated into Dutch and pretested on university administrative staff and faculty ($N = 21$) to ensure its wording and structure were straightforward. Any issues with

inconsistencies or lack of clarity were resolved. By collaborating with one of the largest Dutch insurance companies and pension providers, we got the unique chance to send the survey directly to the entire group of participants actively building up pensions at this provider. The pension provider included the invitation to participate in the survey in their regular newsletter. The survey was sent in September 2014 via email to 7,122 participants. All participants in this defined contribution (DC) scheme are building up occupational pensions (the second pillar of the Dutch system). Their employer chose this DC pension plan, so participation was mandatory for employees. Both the employee and employer contribute to the pension plan, and the monthly contribution rate was set by the employer. In case the employer did not choose the maximum possible contribution, employees could voluntarily contribute more to the pension fund. Most participants (>90%) have stayed in the default low-risk exposure investment portfolio, even though they could have also chosen for two higher risk investment portfolios or even compiled their own investment portfolio. In return for their participation in the survey, respondents were entered into a lottery to win one of five 50€ (around \$60) gift vouchers. Participants had 20 days to respond, with a reminder sent after one week. Of the 885 participants who opened the survey link, 638 completed the questionnaire. We matched their survey responses with administrative data from the pension provider available to us three months after the survey was sent. Therefore, we could not match participants who stopped participating in that period (as they switched employers). The final sample included all participants for whom the matching was successful ($N = 583$). These participants represented a final response rate of 8%, consistent with comparable large-scale surveys (e.g. [Dorn and Sengmueller, 2009](#)). Descriptive statistics of this sample can be found in Table A4 in the online [appendix](#).

Regarding gender, the sample was fairly representative of the total participant base: 66% of the total DC base was male, compared with 68% in our sample. Regarding age, income, and marital status, we found statistically significant but small differences between the survey respondents and all participants ([Table 2](#)). The mean age was 42 years for the total base; our sample's mean age of 45 years is slightly older. This is in line with retirement research where older people are generally more likely to respond (see, e.g. [Van Hekken et al., 2022](#)). Additionally, most respondents are married (60%), while only half of all DC participants are married. Finally, the yearly pensionable salary is somewhat higher for respondents than the total base. The correlations are in Table A5 in the online [appendix](#).

Model estimation

We estimated the REM by building a structural equation model that allowed us to test a network of relationships between different latent variables (measured by several indicators) simultaneously. We applied the partial least squares (PLS) approach to the structural equation model, which includes an iterative algorithm first to evaluate the measurement model and then estimate the path coefficients in the structural model. In contrast to ordinary least squares regression procedures, the estimation procedure in PLS is partial because it alternates a series of single and multiple regressions step-by-step ([Vinzi et al., 2010](#)). We used PLS instead of covariance-based structural equation modeling because the purpose of our research is exploratory, our data are partly non-normally distributed, and some constructs comprise fewer than three items ([Hair et al., 2011](#)). All the analyses relied on SmartPLS 3 ([Ringle et al., 2015](#)).

Validity and reliability of the measurement model. The reflective measurement model included indicators that were consequences, rather than antecedents, of the constructs. Thus, we expected indicators for the different constructs to correlate, and we anticipated measurement error at the indicator level ([Jarvis et al., 2003](#)). We, therefore, started with traditional PLS testing of the reliability of our multi-item measures as a prerequisite for validity.

	Path coefficient	SD	<i>t</i> -Statistics
<i>Cognitive beliefs on information search intention (ISI)</i>			
Susceptibility → ISI	0.02	0.04	0.46
Severity → ISI	0.13	0.04	3.05**
Benefits → ISI	0.24	0.05	4.93**
Barriers → ISI	-0.14	0.06	2.40**
Self-efficacy → ISI	-0.10	0.05	1.95*
<i>Cognitive factors on information search intention (ISI)</i>			
Propensity to plan → ISI	0.06	0.04	1.46
<i>Emotional factors on information search intention (ISI)</i>			
Retirement anxiety → ISI	0.16	0.04	3.69**
Trust own provider → ISI	0.11	0.04	2.56**
<i>Cognitive factors on cognitive beliefs</i>			
Financial knowledge → Barriers	-0.17	0.05	3.53**
Financial knowledge → Self-efficacy	0.03	0.05	0.71
Financial risk tolerance → Self-efficacy	0.19	0.05	4.01**
Propensity to plan → Benefits	0.22	0.04	5.70**
<i>Emotional factors on cognitive beliefs</i>			
Trust own provider → Benefits	0.30	0.04	6.79**
Retirement anxiety → Severity	0.34	0.04	9.15**
Retirement anxiety → Susceptibility	0.35	0.04	9.68**
<i>Demographics</i>			
Education → Financial knowledge	0.36	0.03	10.53**
Education → Financial risk tolerance	0.23	0.04	6.13**
Education → Retirement anxiety	-0.14	0.04	3.47**
Gender → Financial knowledge	-0.23	0.04	6.12**
Gender → Financial risk tolerance	-0.21	0.04	5.93**
Gender → Trust own provider	0.09	0.04	2.23*
Gender → Propensity to plan	0.08	0.04	1.91
Age → Barriers	-0.09	0.06	1.50
Age → Self-efficacy	0.14	0.05	3.07**
Education → Barriers	-0.12	0.05	2.50**
Education → Benefits	0.12	0.04	2.89**
Education → Self-efficacy	0.04	0.05	0.83
Gender → Barriers	0.10	0.04	2.43*
Gender → Self-efficacy	-0.08	0.04	1.91
Income → Barriers	-0.05	0.04	1.10
Income → Severity	-0.06	0.04	1.38
Income → Susceptibility	-0.07	0.04	2.05*
Adjusted R^2 for ISI	0.19		
Confidence intervals (lower, upper)	(0.14, 0.27)		

Note(s): This table presents the results of a partial least squares estimation ($N = 583$). ISI = information Search intention; SD = standard deviation. * $p < 0.05$, ** $p < 0.001$

Table 2.
PLS results

Regarding construct reliability, all Cronbach's α values were close to or above 0.8 (see Table A3 in the online [appendix](#)). However, Cronbach's α underestimates reliability because it assumes a tau-equivalent measurement model (i.e. all indicators are equally important), whereas we deviated deliberately from this assumption with PLS (Vinzi *et al.*, 2010). We also considered composite reliability and found satisfactory values between 0.8 and 0.9.

We uncovered acceptable average variance extracted values (>0.5) in support of convergent validity. To check for discriminant validity, we investigated the cross-loadings;

all indicators loaded higher on their assigned latent variable than on the others. The Fornell–Larcker criterion value (calculated with consistent PLS) was also highest for the corresponding latent variables (Fornell and Larcker, 1981). However, we estimated our model using traditional PLS, so we noted the heterotrait-monotrait (HTMT) ratio of correlations (Henseler *et al.*, 2015). The values were lower than the threshold values $HTMT_{0.85}$; thus, we assumed discriminant validity. However, among the outer loadings, indicators 4–7 for the perceived barriers construct exhibited loadings lower than 0.4. Considering the impacts of indicator deletion on the Fornell–Larcker criterion and composite reliability (Hair *et al.*, 2016), we found that after deleting these indicators, the Fornell–Larcker criterion value improved, but composite reliability did not, so we retained all indicators.

Structural model. To estimate the REM using a traditional PLS algorithm, we first identified the influence of only socio-demographic variables on behavioral intentions; that is, we used participants' observable characteristics to predict their information search intentions. We start with this baseline model since socio-demographic factors are commonly analyzed within this context and thereby constitute a typical approach in practice to segment participants. In later model variants, we added all other factors that belonged to the REM.

Results

RQ1. Which factors explain the engagement with retirement information search?

Starting with the baseline model (including only the influence of socio-demographic factors on information search intention), we found significant effects of age ($\beta = 0.14, p = 0.003$) and income ($\beta = 0.08, p = 0.056$): older and wealthier participants exhibited greater intentions to search for information. Gender and marital status were not significant. However, this model did not very well explain information search intention (adjusted R^2 of 0.019), which shows that we cannot rely only on socio-demographic factors (a common practice in current pension studies), but need a richer model to explain information search intention. Therefore, the next step of our analysis was to estimate the full REM.

Next, we included all factors in the model. Table 2 contains the results. Consistent with our exploratory approach and use of PLS, we started by including all additional variables in Model 1 (cognitive, emotional, and knowledge factors along with socio-demographics [age, gender, education, and income]). However, this approach made the model too complex and rendered estimation impossible because it featured too many relationships in relation to the sample size (Hair *et al.*, 2010). So, instead, we tested different models in an iterative We started by specifying relationships that we would expect based on the literature, and then iteratively ran several models to see what best describes our setting, in line with the exploratory approach of our research. The final model achieved an adjusted R^2 of 0.19, indicating that including factors used in other domains, especially beliefs, helped substantially improve explaining engagement with pension planning.

We continued by analyzing how the factors included in the REM explain engagement with pension planning. Perceived severity had a positive, significant influence on engagement with retirement information search ($\beta = 0.14^{**}$), but its relationship with perceived susceptibility was not significant ($\beta = 0.02$). We also found a positive, significant path between perceived benefits and behavioral intentions ($\beta = 0.24^{**}$), while perceived barriers significantly and negatively influenced behavioral intentions ($\beta = -0.14^*$). Finally, we found that the path from self-efficacy to behavioral intentions was significant ($\beta = -0.10^*$), but with an unexpected negative sign, contrary to the prediction of Fernandes *et al.*'s (2014) findings that participants who are confident in their ability are likely to inform themselves. Self-efficacy was also significantly positively correlated with the construct of already being informed ($\beta = 0.33^{**}$; Table A5, online appendix); that is, people with high self-efficacy likely are already informed, so they have no intention of seeking out (more) information soon.

Trust was positively and significantly related to information search intentions ($\beta = 0.11^{**}$) and, it also had a significant, positive relationship with perceived benefits ($\beta = 0.30^{**}$). Retirement anxiety had a positive relationship with information search intentions ($\beta = 0.16^{**}$), perceived severity ($\beta = 0.34^{**}$), and perceived susceptibility ($\beta = 0.35^{**}$). People who were more financially knowledgeable perceived lower barriers to their information search ($\beta = -0.17^{**}$). We also found that risk tolerance had a positive relationship with self-efficacy ($\beta = 0.19^{**}$), and propensity to plan was positively and significantly related to perceived benefits ($\beta = 0.22^{**}$).

Regarding the influences of socio-demographic characteristics on the additional factors, we found that more education is related to greater financial knowledge ($\beta = 0.36^{**}$) and financial risk tolerance ($\beta = 0.23^{**}$), but lower retirement anxiety ($\beta = -0.14^{**}$). Older people indicated more self-efficacy ($\beta = 0.14^{**}$), likely because they were more experienced with the pension information process. Women were significantly less financially knowledgeable ($\beta = -0.23^{**}$) and risk-tolerant ($\beta = -0.21^{**}$), but they expressed more trust in their pension provider ($\beta = 0.09^*$). In addition to positive beliefs, retirement anxiety ($\beta = 0.16^{**}$) and trust in the pension provider ($\beta = 0.11^{**}$) have positive impacts on participants' information search intentions.

RQ2. How heterogeneous is engagement with retirement information search among pension plan participants?

To identify whether and how unobserved heterogeneity affects our structural model relationships and which factors can, therefore, help improve pension communication, we used a finite mixture partial least squares (FIMIX-PLS) segmentation model, one of the most prominent latent class approaches (Hahn *et al.*, 2002). We used it to understand how the cognitive, emotional, knowledge and behavioral factors of engagement differ across segments of participants.

Using FIMIX-PLS, we estimated the parameters and simultaneously investigated heterogeneity in our sample. We followed the FIMIX-PLS steps detailed by Ringle *et al.* (2010a). The previously estimated scores of the PLS model served as input for the finite mixture model, which we estimated using increasing numbers of latent classes, starting with two. Using the evaluation criteria suggested by Hahn *et al.* (2002), we aimed for as few classes as possible according to the log-likelihood, Akaike information criterion, Bayesian information criterion, and consistent Akaike information criterion. Furthermore, a high entropy statistic indicated a clear separation of classes (Ringle *et al.*, 2010b). These criteria suggested that three classes were optimal for our data set (Table A6, online appendix).

For the three segments, we estimated Model 2 and then conducted a multigroup analysis to check whether the path coefficients differed significantly across these segments. We computed the *t*-statistics for the differences manually using a formula provided by Chin (2000). Table 3 shows the results for the path coefficients of the core beliefs and the three variables on which the segments differed most and comparisons of the mean scores on the REM constructs for the three segments.

These results show that the adjusted R^2 values for each segment were higher (0.24, 0.20, and 0.33) than those of the whole sample (0.19). That is, we found evidence of unobserved heterogeneity, and accounting for it improved model fit. The first segment ($N = 60$, 55% male) was the oldest group with the lowest education level, income, financial knowledge, and highest divorce rate. Self-efficacy and propensity to plan were the most influential variables explaining their information search intentions. Participants had relatively high self-efficacy but low financial knowledge; they seemed to think they could search for information but actually might not be able to do so. Self-efficacy negatively influenced information search intentions, though most of them were not informed about their pensions.

Table 3.
FIMIX-PLS
disaggregate results,
three segments

	Global model	Segment 1	Segment 2	Segment 3	t [mgp S1 and S2]	t [mgp S1 and S3]	t [mgp S2 and S3]
Relative segment size (%)	100	10.3	45.3	44.4			
N	583	60	264	259			
Adj. R ² for ISI	0.19	0.24	0.20	0.33			
<i>Panel A. Path coefficients</i>							
Susceptibility → ISI	Mean (SD)	0.22 (1.56)	-0.05 (0.85)	0.02 (0.27)	1.86	1.21	0.77
Severity → ISI	0.13 (2.92)*	-0.06 (0.43)	0.09 (1.44)	0.20 (2.89)**	1.04	1.66	1.22
Self-efficacy → ISI	-0.09 (1.84)	-0.54 (3.24)**	0.07 (1.11)	-0.15 (1.96)*	3.90**	2.26*	2.20*
Benefits → ISI	0.24 (5.10)**	0.25 (1.79)	0.30 (4.83)**	0.18 (2.38)*	0.32	0.48	1.26
Barriers → ISI	-0.13 (2.35)*	-0.31 (1.64)	-0.15 (0.99)	-0.13 (1.24)	0.46	0.77	0.14
Retirement anxiety → ISI	0.16 (3.45)**	-0.19 (1.11)	0.25 (3.60)**	0.15 (2.27)*	2.65*	2.21*	1.02
Propensity to plan → ISI	0.06 (1.55)	0.26 (2.07)*	0.04 (0.57)	0.01 (0.21)	1.56	1.86	0.281
Trust → ISI	0.11 (2.54)*	0.08 (0.61)	-0.02 (0.30)	0.23 (3.93)**	0.67	1.07	2.82*
<i>Panel B. Descriptive statistics per segment</i>							
Mean age	45.00	47.55	43.60	46.19			
Percentage male	68.00	55.00	61.00	100.00			
Percentage married	60.00	60.00	54.00	67.00			
Percentage all 3 fm. Knowledge questions answered correctly	58.00	21.00	24.00	100.00			
Percentage monthly income ≥ median of 2,800–3,800 Euro	68.00	38.00	46.00	64.00			
Percentage college education	53.00	55.00	62.00	77.00			
<i>Panel C. REM constructs per segment</i>							
		Mean (SD)					ANOVA F df (2, 580)
ISI (1–7)	3.83 (1.58)	3.45 (1.97)	3.85 (1.36)	3.88 (1.67)			1.94
Already informed	4.51 (1.66)	4.23 (2.15)	4.27 (1.52)	4.82 (1.62)			8.40**
Perceived self-efficacy	3.50 (1.42)	3.78 (2.12)	3.13 (1.06)	3.81 (1.42)			17.67**
Perceived barriers	3.31 (1.23)	3.36 (1.80)	3.65 (0.95)	2.96 (1.17)			23.50**
Perceived benefits	5.24 (1.00)	4.80 (1.69)	5.26 (0.76)	5.33 (1.00)			7.24**
Perceived susceptibility	3.64 (1.47)	3.44 (2.00)	3.74 (1.11)	3.58 (1.44)			1.65
Perceived severity	4.58 (1.42)	4.40 (2.25)	4.69 (1.21)	4.52 (1.44)			1.45
Retirement anxiety	3.42 (1.32)	3.49 (1.88)	3.58 (1.21)	3.22 (1.25)			5.13*
Propensity to plan	4.76 (1.48)	4.53 (1.94)	4.91 (1.31)	4.65 (1.51)			2.83
Trust own pension provider	4.51 (1.42)	4.13 (1.89)	4.77 (1.10)	4.33 (1.53)			8.92**
Fin. Risk tolerance (1–10)	4.03 (2.26)	3.27 (2.63)	3.59 (1.98)	4.65 (2.28)			19.35**

Note(s): This table presents the results of a finite mixture model. Path coefficients (standard errors in parentheses) refer to three different segments in Panel A; descriptive statistics for the segments are in Panel B. Panel C gives an overview on how the REM constructs differ by segment (ANOVA column = results of the analysis of variance, as a mean comparison across segments). ISI = information search intentions; [mgp] = t-value for multi-group comparison test. * $p < 0.05$, ** $p < 0.001$ (two-tailed test)

The second segment ($N = 264$, 61% male) was the youngest, with the highest rate of childlessness (37%). Although it is similar to Segment 1 regarding financial knowledge, it tends to be more educated and earns a higher household income. For this group, the level of retirement anxiety was high, and security was important to them. Jointly, these emotions prompt them to act. Thus, retirement anxiety and perceived benefits (which are mainly emotional, such as a sense of certainty) significantly and positively influence intentions to search for information.

Finally, the third segment was exclusively comprised of men who were financially literate and had the highest incomes, education, and rate of homeownership (90%). Trust in their pension provider was important in triggering this group to search for information. They understand finances well and want a partner for their retirement planning that takes them seriously. Furthermore, self-efficacy had a negative influence, though it was significantly weaker than the negative effect among the overconfident segment. This segment of participants was the most informed; thus, they not only think they can do it, but they already have. Although this third segment experienced lower barriers than the other two groups, we found few significant differences between the segments regarding how much susceptibility to a pension gap they sensed.

The path coefficients differed substantially among segments, both in their significance and size. For example, severity strongly influences information search intentions for Segment 3 (0.20) but was insignificant in the other two segments. Self-efficacy had a strong, significantly negative influence on information search intentions for segment 1 (-0.54), whereas the effect was smaller for Segment 3 (-0.15) and insignificant for Segment 2 (0.07).

Cross-validation: engagement intentions predict engagement behavior

To assess the external validity of our behavioral intention measure as a proxy for real behavior, we conducted a follow-up test. Three months after the survey, the same DC participants received two differently framed versions of a newsletter informing them about changes to their pension scheme. Details of this field experiment and the changes to their pension scheme can be found in (Eberhardt *et al.*, 2021). Within these newsletters, participants could click on two different links: one to a movie explaining the changes to them and the other to a personal website where they were required to log in to look up information about their situation before the changes. We matched the survey data set with this experimental data set and achieved matches for 573 (out of 583) participants. We found that intention to search for information elicited in the REM survey was significantly and positively related to behavior in the field experiment. In an independent sample t -test for the group that clicked on the website link ($N = 37$, $M_{\text{clicked}} = 4.57$, $SD = 1.67$) versus the group that did not ($N = 536$, $M_{\text{notclicked}} = 3.97$, $SD = 1.64$), intention to search for information emerged as significantly higher ($t = -2.15$, $p = 0.03$). The direction of the results is the same for the movie link, such that intentions are higher ($t = -1.93$, $p = 0.05$) among the group that clicked ($N = 57$, $M_{\text{clicked}} = 4.40$, $SD = 1.47$) than the group that did not ($N = 516$, $M_{\text{notclicked}} = 3.78$, $SD = 1.58$).

Discussion

Our results emphasize the importance of cognitive, emotional, and knowledge factors for information search engagement. Those factors can much better explain engagement with pension planning than demographic factors traditionally used in pension studies. Specifically, perceived benefits strongly and positively relate to searches for pension information. People who intend to search for information recognize the advantages of gathering information about their retirement situation. Perceived severity also has a significant positive relationship with information search intentions, in that people who

regard the potential consequences of failing to acquire pension-related information as severe are more likely to acquire that information. Perceived barriers have a negative relationship with information search intentions because time, effort, or money demands can act as impediments to acting. However, rather surprisingly, self-efficacy has a significant negative (rather than positive) relationship with information search intentions. Our follow-up analysis implies that people with higher self-efficacy have likely already informed themselves about where they stand. Retirement planning is a long-term process and does not require daily action, so they simply might not be inclined to inform themselves again any time soon. Another possible explanation emerges from our segmentation analysis, in which self-efficacy has a strong, significantly negative influence on information search intentions within Segment 1 (-0.54^{***}), whereas the effect is much smaller in Segment 3 (-0.15^{**}) and insignificant in Segment 2 (0.07). Thus, perhaps participants in Segment 1 developed unrealistic self-efficacy beliefs despite their low financial knowledge: they think they can search for and understand information but may not be able to do so. Perceived susceptibility is insignificant, consistent with a previous meta-analysis (Carpenter, 2010) that indicates the relationship between perceived susceptibility and behavior is usually nearly null.

Trust is positively and significantly related to information search intentions, consistent with previous literature that established the role of trust in engagement (Deetlefs *et al.*, 2018; Ricci and Cartarelli, 2017). Retirement anxiety has a positive relationship with perceived severity and perceived susceptibility. However, we find a positive correlation between anxiety and searching for retirement-relevant information. This demonstrates that in the pension domain, anxiety does not lead to information avoidance (Golman *et al.*, 2017).

People who are more financially knowledgeable perceive lower barriers to their information search. For those people, it is less cognitively demanding to understand complex pension information, and they may have to invest less time in gathering the information. Propensity to plan is positively and significantly related to perceived benefits, as, for people with a high propensity to plan, the process of planning itself creates comfort (Lynch *et al.*, 2009).

Overall, our results show that assessing cognitive, emotional, behavioral, and knowledge factors is pertinent and provides a basis for understanding the origin of and heterogeneity in consumers' engagement with retirement information and the mechanisms through which cognitive, emotional, and knowledge factors influence behavior. Thus, a better understanding of these factors should inform designs of various interventions and communications that seek to address or change participants' cognitions, emotions, or knowledge and increase their behavioral intentions.

Moreover, our results reveal significant heterogeneity and that accounting for it improves model fit. The FIMIX-PLS segmentation model identifies three clear and actionable segments. Segment 1 is the oldest group with the lowest education level, income, financial knowledge, and highest divorce rate, for whom self-efficacy and propensity to plan have the strongest relationship on information search intentions. For Segment 2, which is the youngest and often childless, retirement anxiety and perceived benefits positively influence intentions to search for information. For Segment 3, which, interestingly, only includes men who are all highly financially literate with high incomes, education, and homeownership, trust in their pension provider is important in triggering the search for information. These findings improve the understanding of heterogeneity in people's engagement with retirement. Where Dinkova *et al.* (2022), in line with common practice in the pension sector, still rely on age and gender for tailored pension communication, with no effect on information acquisition, we empirically demonstrate that a broader set of factors matter. Specifically, we show that both the size and significance of the relationship between emotional, cognitive, and behavioral engagement factors differed substantially among segments. Thus, we generate insights on which dimensions heterogeneity is manifested in this context, the extent of heterogeneity, and the

degree to which it contributes to explanatory power of the model (R^2 increases from 1.9 to 19% compared to using only socio-demographic factors). The three clear, actionable segments advance our understanding of the relevance of specific factors for specific groups, and the insights can be used to develop targeted approaches for each segment and thereby improve the effectiveness of pension communication.

Theoretical contributions

Our findings make the following contributions to the literature. First, while retirement planning has been researched in other fields, this context is new to the service field. This study utilizes theoretical frameworks from service research such as customer engagement. This is a novel perspective to and extends prior studies on retirement planning, which have focused on downstream behaviors such as retirement savings intentions (Beshears *et al.*, 2013; Hershfield *et al.*, 2011), investment behavior (Sunden and Surette, 1998), retirement age planning (Gustman *et al.*, 2012), structural approaches such as auto-enrollment (e.g. Thaler and Benartzi, 2004), specific communication interventions (e.g. framing, Eberhardt *et al.*, 2021), or financial literacy initiatives (e.g. Lusardi and Mitchell, 2011).

Second, this study also contributes to the customer engagement literature, which predominantly focuses on hedonic or experiential products and services. Insights from the engagement literature cannot simply be transferred to the retirement context, since the long-term, utilitarian nature of retirement planning, along with low base levels of engagement constitute a fundamentally different setting. This study extends the engagement literature by identifying novel emotional, cognitive, and behavioral factors that drive engagement, in a utilitarian service context extremely relevant for financial well-being (Netemeyer *et al.*, 2017). Thus, these insights extend the boundaries of the customer engagement field that predominantly focuses on hedonic services.

Third, we contribute to the emerging stream of literature in TSR. TSR is a broad and still largely conceptual area of service research (Anderson *et al.*, 2013). Our study represents a response to recent calls to expand TSR (Alkire *et al.*, 2020; Anderson *et al.*, 2013; Ostrom *et al.*, 2015) with more empirical research. Engagement with retirement information—an initial, crucial step toward financial well-being—can vastly inform TSR, though it receives relatively little attention from service scholars. This study provides the first empirical evidence of how cognitive, emotional, and knowledge dimensions promote the search for information about retirement planning—which is highly relevant to enhance long-term financial well-being (Brüggen *et al.*, 2017). The insights from the novel conceptual model and empirical validation contributes to both TSR and practice by suggesting ways to improve retirement planning and increase consumer and societal welfare. It aligns with recent public policy initiatives, such as the US Consumer Financial Protection Bureau, which seeks to encourage consumers to acquire information about where they stand regarding their retirement planning and the effects of retirement age on lifetime income (Consumer Financial Protection Bureau, 2015). In this sense, we offer clear implications for public policy and service providers, which we discuss subsequently.

Implications for managerial practice and policy

To clarify how these findings can inform practice and governmental policy, we submitted them to a panel of experts from the pension sector and public policy-makers, the same ones who aided in our efforts to select relevant variables for the REM. The feedback elicited from this cohort offers unique insights into which of our study outcomes are most relevant for practice. Thus, we identify four key implications.

First, the pension providers regarded the importance of emotional, cognitive, and knowledge factors as antecedents of information search as a key insight. Their practice thus

far has been to rely predominantly on demographic factors (e.g. age, income) to anticipate who will seek information. With the insights from the REM, these pension providers predicted that they would redesign their pension communication interventions to make them more effective.

Second, the multiple dimensions of the REM help pension providers and policy-makers zoom in on heterogeneous participants. With this study, we demonstrate how the REM can be used to segment pension participants. Using a finite mixture model, we identify three distinct segments that differ significantly along the REM dimensions and exhibit distinct, observable demographic patterns. The rich insights into what motivates or prevents different groups of participants from acquiring information about their pensions, in turn, specify the need for segment-specific targeting tactics or even mass customization. For example, Segment 1 needs a sense of urgency because members are the most vulnerable to a pension gap but do not act, even though they believe they could do so. For Segment 2, communications should focus instead on feelings, emphasizing that participants can achieve peace of mind by gathering more information. In communicating with Segment 3, trust and severity should be central. Marketers of pension funds can now generate the right and more personalized triggers and appeals that foster information search and other follow-up behaviors, based on the insights on what characterizes the different segments.

Third, the pension providers and policy-makers we interviewed used the theoretical insights to evaluate their existing pension communications critically. For example, these experts noted that most communication includes statements acknowledging, “we know that pension is a difficult topic” or “we understand that it is not easy to make time for retirement planning when you are busy with planning the here and now.” However, such statements emphasize perceived barriers, so they may unintentionally discourage people from acquiring information. Our results show that perceived benefits are a more relevant predictor of the search for financial information; therefore, the providers we interviewed predicted that their future pension communications would focus more on the benefits of information search rather than its barriers.

Fourth, our results stress the importance of collecting data about pension plan participants, linking those data to administrative sources, analyzing them, and then developing customized applications. While we believe the REM to hold in different settings and countries, the strengths of relationships and characteristics of segments are likely to be specific to a pension provider. Thus, our appeal to pension providers is to make sources available to study their customer base and thereby increase their understanding of the strength of emotional, cognitive, behavioral, and knowledge factors—the first step to improving pension communication and services. As our additional analyses show, the information search intentions we measured translate into real behavior by participants. In this sense, our study exemplifies the value of survey research, validated with additional data.

Limitations and future research

Some limitations of our study provide opportunities for further research. First, we cannot establish causal relations with cross-sectional survey data. However, when linking the survey data with experimental and administrative data in cross-validation efforts, we establish that participants with greater information search intentions also click more on informational movie links. Second, the REM should be tested in more countries, different settings, and alternative services, to assess its generalizability. Since several studies confirm a lack of engagement with retirement planning across the globe (e.g. [Eberhardt et al., 2021](#); [Deetlefs et al., 2018](#); [Ricci and Caratelli, 2017](#)), we believe that the conceptual model generally holds across settings, in that it can explain retirement information search. However, regulatory differences in pension systems across countries could affect the heterogeneity, direction, and strength of the relationships in our conceptual model. Also the exact composition of the

sample may affect the results. We found minor differences in gender, age, income, marital status and salary between respondents and the population of interest, which is common in retirement research (e.g. Van Hekken *et al.*, 2022). We do not expect that these differences affect the *relationships* of our model, also because the differences are rather small. But larger mean differences or very different sample characteristics could possibly also affect the strengths of the relationships in our model. Thus, to use the REM in different settings to adapt communications the model should be estimated with new data. Third, to move beyond our focus on individual respondents, it would be interesting to study beliefs and their influence on information searches across collective consumer entities that exhibit homophily, such as households, social networks, or friend groups (Anderson *et al.*, 2013). Interactions among spouses or colleagues and discussions of planning for retirement represent interesting topics for further study. Finally, if engagement with retirement increases, future studies should incorporate recent insights on loyalty loops and involvement spirals (e.g. Siebert *et al.*, 2020).

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Appendix

The online Appendix is available at: <https://www.thomas-post.com/RetirementEngagementModelWebAppendix.pdf>.

Corresponding author

Elisabeth Brüggem can be contacted at: e.bruggem@maastrichtuniversity.nl