



Why and when does financial information affect retirement planning intentions and which consumers are more likely to act on them?

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ABSTRACT

Information provision is fundamental to improving retirement planning intentions and behavior, but little is known about the role of message format or the process underlying message effectiveness. Equally sparse are insights about when financial information messages are more likely to improve retirement planning intentions and which consumers are more prone to act on their stated intentions. This paper answers these questions through a longitudinal study of a sample of 736 U.S. consumers. While message format has only a limited effect on message effectiveness, receipt of a message improves consumers' intention to plan for retirement. This effect is mediated by the willingness to learn more about retirement planning and retirement self-efficacy. Financial information messages are more likely to improve retirement planning intentions when consumers' perceived financial security is low and when such messages are congruent with consumers' construal level. Finally, consumers with more self-control display a stronger association between their intentions and actual behavior.

1. Introduction

With the ongoing shift from defined-benefit to defined-contribution pension schemes and the bleak funding projections of Social Security, U.S. consumers are increasingly expected to manage and prepare for a financially secure retirement themselves. This development is not exclusive to the United States, however, as pension reforms and labor market changes have made automatic mandatory pension saving less generous around the world. As a result, individuals must start making decisions on such complex matters as supplementary pension savings, how to invest pension wealth, and retirement timing (Debets, Prast, Rossi, & van Soest, 2018). In response, both national governments and the pension industry are attempting to assist individuals through pension communication (Debets et al., 2018), but retirement engagement is often relatively low (Deetlefs et al., 2019). Moreover, low financial literacy leaves many individuals either unprepared or incompetent to make the required financial decisions (Klapper, Lusardi, & van Oudheusden, 2015). Finally, many people have low financial self-efficacy and thus lack the perceived ability to successfully manage their financial affairs (Peeters, Rijk, Soetens, Storms, & Hermans, 2018).

An important question therefore arises: What can be done to improve consumer intentions and behavior to learn about and prepare for a financially secure retirement? Although previous research suggests that financial education could enhance financial behavior (e.g., Clark,

Lusardi, & Mitchell, 2017), to date no study has examined the role of message format or the process underlying message effectiveness. In particular, much remains to be learned about when financial information messages are more likely to affect retirement planning intentions and which consumers are more prone to act on stated intentions in terms of modifying actual behavior, especially after some time has passed. In this regard, recent research suggests that financial information messages should not only provide factual information, but also address consumers' willingness to search for more information, their propensity to plan and organize their finances, and their self-efficacy (Fernandes, Lynch, & Netemeyer, 2014).

Against this backdrop, in this paper we investigate the impact of varying the design of financial information messages on consumers' immediate willingness to learn more about retirement matters and start planning for retirement using a sample of 736 U.S. consumers. Notably, we also explore the ensuing financial behavior in terms of actual retirement preparation in the following three months. That is, to measure the link between stated intentions and actual behavior and account for potential fading of message effectiveness over time (Fernandes et al., 2014), we perform a follow-up study among the same participants as in the initial study.

We test whether the source (government vs. peer-generated), tone (prescriptive vs. descriptive), and presence of graphical illustrations (vs. text only) influence consumers' retirement planning intentions. To

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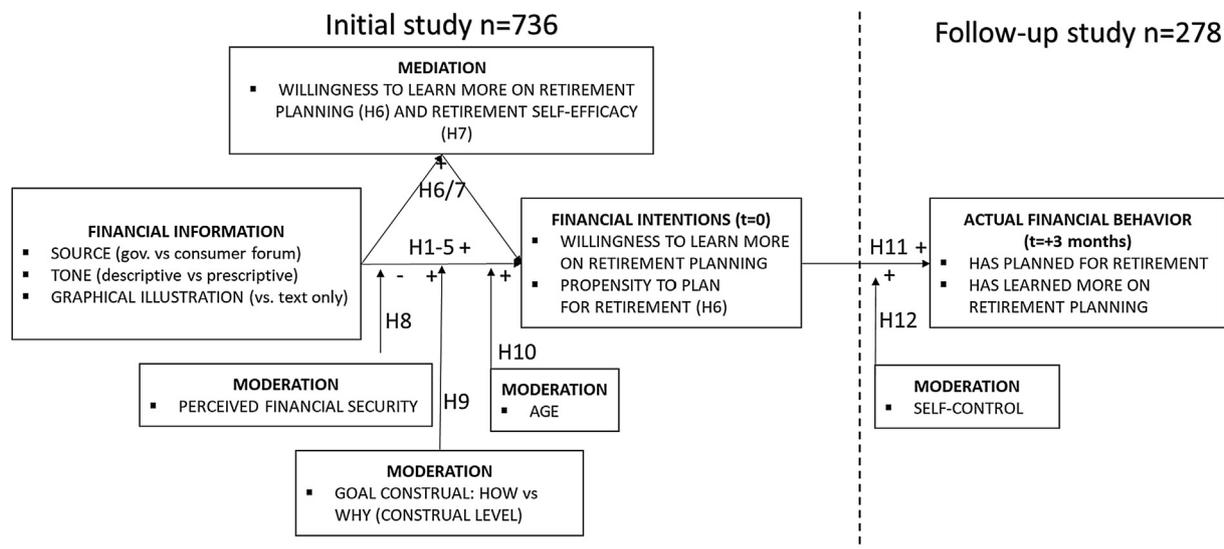


Fig. 1. Conceptual framework.

explicate the underlying process through which financial information messages affect retirement planning intentions, we also examine the mediating role of willingness to learn more about retirement and financial self-efficacy related to retirement. To better understand when financial information messages are more likely to affect retirement planning intentions, we examine the moderating role of perceived financial security, age, and construal level. Finally, to discern which consumers are more prone to act on their stated intentions, especially after some time has passed, we examine the moderating role of self-control.

Our results provide valuable insights for policy makers interested in the role of message format versus consumer characteristics in improving retirement planning intentions and behavior. Notably, we test various ways of adjusting the format of a financial information message, but do not find that these different formats influence its effectiveness. We merely find that information from a government source is more effective than peer-generated information in improving consumers' willingness to learn more about retirement planning. However, we do find that receiving a message per se improves retirement planning intentions. Importantly, retirement self-efficacy and the willingness to learn more about retirement matters mediate this effect. Furthermore, consumers with lower perceived financial security—who are thus more likely to experience greater urgency to act on an information message about retirement planning—show greater improvement in retirement planning intentions. Moreover, those with a higher construal level—which is congruent with the construal level focused on in the financial information message of our experiment—display greater improvement in retirement planning intentions upon receiving an information message. Examination of consumers' actual retirement planning behavior three months after initial exposure to the financial information message confirmed a direct positive relationship between stated intentions and actual behavior, with a stronger relationship for consumers with more self-control.

Our study contributes to the literature in several ways. First, we add to the debate about how to increase consumer interest in retirement planning (e.g., Brüggem, Post, & Schmitz, 2019; Deetlefs et al., 2019; Hoffmann & Otteby, 2018). Doing so is important, as prior work finds a positive association between consumers' interest in saving for retirement and their retirement engagement, which again predicts positive financial behaviors such as opting out of unsuitable defaults (Deetlefs et al., 2019). Financial education is often seen as key (Clark et al., 2017), but the role of message format in stimulating retirement planning intentions and behavior is not yet clear (Lusardi et al., 2017).

Interestingly, our findings suggest that the particular format in which financial information was presented in this study is not critical to message effectiveness, while simply receiving a message positively affects both consumers' intentions to seek more information about preparing for a financially secure retirement and their propensity to plan for retirement. Notably, by examining the link between consumers' stated intentions and their (self-reported) actual behavior with a follow-up study after three months, we add to the ongoing discussion about whether intentions translate into actual behavior and whether the effect of financial information fades over time (cf. Fernandes et al., 2014; Peeters et al., 2018).

Second, by not only considering the mediating role of willingness to learn more and financial self-efficacy regarding retirement matters, but also examining the moderating roles of perceived financial security, age, construal level, and self-control, we provide a more nuanced understanding of the underlying process through which a financial information message affects consumers' retirement planning intentions and behavior. Importantly, prior work suggests that besides actual (objective) financial literacy, perceived (subjective) financial capability is important in explaining financial behavior (Allgood & Walstad, 2016; Kwon & Lee, 2009) and understanding the impact of financial education (Fernandes et al., 2014). Subjective financial capability refers to the perceived ability to successfully manage one's financial affairs and is referred to as financial self-efficacy (Lown, 2011). Previous studies imply a positive association between self-efficacy and behavioral intentions (Ellen, Wiener, & Fitzgerald, 2012), but research is lacking on how self-efficacy might influence the effectiveness of a financial information message.

2. Theoretical background and hypotheses development

We present our literature review and develop our hypotheses according to the conceptual framework presented in Fig. 1. We base our conceptualization on the two most influential models of persuasion in the prior literature: the elaboration likelihood model (ELM) (Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM) (Chaiken, 1980). According to these models, information is processed in two ways: (1) through high elaboration or systematic analysis, which involves careful consideration of the information, and (2) through low elaboration or heuristic processing, which relies on (non-content) cues to assess whether the information is important. In the case of the systematic approach, a retirement information message will be processed according to its content. That is, any type of informational message that

presents statistics about retirement planning, information about its importance, and illustrations of good and poor retirement planning will be perceived and assessed in the same way. We therefore include in our message: (1) information on statistics, as they help to convey the realism of the situation, (2) personal stories, as they represent the evidence and create pressure through a perceived social norm, and (3) information on further actions to improve the applicability of the information (De Wit, Das, & Vet, 2008). Therefore, regardless of the format of the message, if consumers make considerable effort to elaborate they will retain the main conclusion of the informational stimulus—“It is important to know about personal financial management to plan for retirement at any stage of life.”

However, prior research suggests that many consumers are not highly engaged in retirement planning (Brüggen et al., 2019; Deetlefs et al., 2019) and it thus seems a reasonable assumption that they will rely on the heuristic approach to decide what information to respond to. Some of the most influential heuristics in this regard are source credibility, peer consensus, and information salience (Tversky & Kahneman, 1973). These heuristics imply that consumers will tend to rely on information from an authoritative source (i.e., the government for retirement matters), that is confirmed by their peers (i.e., peer-generated), that does not require drawing their own conclusions (i.e., prescriptive information outlining required actions instead of mere descriptive information), and that is salient (i.e., noticeable through the use of colors, text enhancement, or graphical illustrations) (Chaiken & Maheswaran, 1994).

On the basis of the ELM and HSM, we thus investigate whether: the (1) source (government vs. peer-generated), (2) tone (descriptive vs. prescriptive), and (3) presence of graphical illustrations (vs. text only) affect the extent to which a financial information message improves consumers' retirement planning intentions, as captured by their willingness to learn more about retirement planning matters as well as their propensity to plan for retirement.

Information processing also depends on consumers' self-efficacy, motivation, and perceived information sufficiency (Trumbo, 1999). That is, individuals are more likely to process information in a systematic way when they: (1) believe in their ability to make use of the information, (2) are motivated to process it because of the personal relevance of the topic, and (3) have a high threshold of information that they consider sufficient to make a decision. Hence, we also examine whether the effect of a financial information message is mediated by consumers' retirement self-efficacy (tapping into their believed ability to make use of the information provided to them) and willingness to learn more about retirement planning (addressing the perceived need for additional information), and moderated by their perceived urgency to act in terms of financial security and age (tapping into the motivation to process information). Furthermore, we consider consumers' goal construal mindset in terms of whether they are more concerned with the “why” or the “how,” which is expected to have an impact on the perception of information sufficiency. Finally, we study whether self-control moderates the relationship between retirement planning intentions and actual behavior. In the following, we discuss the literature relevant to each of these variables and relationships.

2.1. The impact of providing financial information on the willingness to learn more

The willingness to search for information and learn more is an important element of effective retirement planning. Indeed, the absence of retirement planning and failure to seek information about retirement are related to unsuccessful psychological adaptation to retirement and, as a consequence, may lead to lower well-being (Kim & Moen, 2001). Willingness to learn and seek information is essential, because learning is associated with more positive financial behavior and increased financial satisfaction (Loibl & Hira, 2005). Arguably, financial information can be beneficial and induce behavioral change only for those who

are willing to learn (Dolan, Elliott, Metcalfe, & Vlaev, 2012). Financial information messages can stimulate consumers' willingness to learn more about retirement planning, either explicitly by urging them to look for further information or implicitly by making them aware of their lack of information. Owing to the importance of learning about retirement planning for subsequent retirement planning behavior, we include an explicit call to learn more about financial planning in our financial information message. Thus, we expect that:

H1. Compared to not providing a retirement information message, the provision of a retirement information message is positively related to consumers' willingness to learn more about retirement planning.

2.2. The impact of providing financial information on retirement planning intentions

Individuals who plan more for retirement accrue more wealth than those who plan less or not at all (Ameriks, Caplin, & Leahy, 2007). Planning is a key requirement for achieving positive financial outcomes and avoiding negative consequences (Adams & Rau, 2011). Retirement planning orientation comprises setting spending goals, thinking about short- and long-term goals and how to achieve them, and preferring planned spending to spontaneous decisions (Lynch, Netemeyer, Spiller, & Zammit, 2010).

Most communication and learning theories imply that attitudes and behaviors change after information acquisition (e.g., Bandura, 1986). The most frequently employed model relating knowledge, attitudes, and behavior—the learning theory (Valente, Paredes, & Poppe, 1998)—is a cognitive model stipulating that individuals first learn about a certain behavior, then develop a positive attitude toward this behavior as well as an intention to put it in practice, and finally engage in the behavior.

As with other consumer behavior, retirement planning can be enhanced by providing relevant information (Clark et al., 2017). Indeed, financial knowledge is strongly associated with increased retirement planning (Agnew, Bateman, & Thorp, 2013; van Rooij, Lusardi, & Alessie, 2011). Therefore, in our financial information message, we explicitly highlight the importance of and the main steps involved in retirement planning. Thus, we expect that:

H2. Compared to not providing a retirement information message, the provision of a retirement information message is positively related to consumers' propensity to plan for retirement.

2.3. The impact of information source on message effectiveness

According to the ELM, information source and related credibility has an important impact on the persuasiveness of information (Petty & Cacioppo, 1986). Indeed, prior studies suggest that the effectiveness of financial information depends on its source (Fernandes et al., 2014). For example, the source of financial information predicts the financial literacy and behavior of college students (Mimura, Koonce, Plunkett, & Pleskus, 2015). Financial information can come from an official source, such as the government, or an unofficial source, such as a consumer forum.

Big entities, official, or governmental institutions naturally benefit from consumers relying on authority heuristics (Chaiken & Maheswaran, 1994; Metzger, Flanagin, & Medders, 2010). In terms of official sources, governments are currently the main drivers of policy intended to stimulate responsible retirement behavior (Fernandes et al., 2014; Lusardi & Mitchell, 2007b), and governments increasingly use online platforms to inform and motivate individuals to adopt financially responsible behavior (e.g., <https://www.savingmatters.dol.gov/>). Generally, consumers see governments as a credible source (Rieh, 2002), and consumers looking for financial information prefer government

websites to commercial websites (Brennan & Kelly, 2018).

At the same time, according to the HSM and well-known heuristics, people tend to rely more on information that is confirmed by peers or that leads to a peer consensus (Chaiken & Maheswaran, 1994). Indeed, in terms of unofficial sources, family and peers are an important driver of consumers' financial behavior (Duflo & Saez, 2003; Lieber & Skimmyhorn, 2018; Schuchardt et al., 2009). The impact of one's social environment can also be explained by the theory of planned behavior, which posits that individuals behave in line with "norms" perceived around themselves (Ajzen, 1991). The impact of the social environment is magnified by the rise of peer-to-peer online communication, which increases the visibility of others' opinions and actions (Bolton et al., 2013).

Although shared online environments may influence consumers' financial decisions, research to date has not yet explored the effectiveness of governmental financial websites as an official source compared to online peer-generated information as an unofficial source in improving consumers' retirement planning intentions and behavior (Cao & Liu, 2017). Prior findings indicate that, although we live in an era of social media and peer-generated information is both ubiquitous and influential (Aggarwal, Gopal, Gupta, & Singh, 2012; Bi, Liu, & Usman, 2017), consumers often still consider official non-commercial information to be most credible (Brennan & Kelly, 2018; Rieh, 2002). Particularly for important decision-making contexts, such as one's health or finances, consumers prefer governmental sources (Alattar & Al-Khater, 2007; Bansil, Keenan, Zlot, & Gilliland, 2006; Croy, Gerrans, & Speelman, 2012; Oberlechner & Hocking, 2004; Royne & Levy, 2015). Finally, prior work on savings shows that peer-generated forums can have an opposite effect, as individuals may be discouraged by examples that represent something seemingly hard to achieve (Beshaers, Choi, Laibson, Madrian, & Milkman, 2015). Thus, we expect that:

H3. Government-provided information has a stronger effect than peer-generated information on consumers' (a) willingness to learn more about retirement planning and (b) propensity to plan for retirement.

2.4. The impact of information tone on message effectiveness

Financial decisions are influenced by information about and opinions of relevant social others (Hoffmann & Broekhuizen, 2009). This information can be a description of peer behavior (e.g., "75% of U.S. citizens start to save for retirement when they start their first job"), which becomes the basis for drawing conclusions on what the socially expected behavior is. Alternatively, this information can be a prescription of the desired behavior (e.g., "One should start saving for retirement as early as possible, in order to be able to save enough"). This appeal is underpinned by the theory of social norms. A social norm is a belief shared by most members of a social system or society about what constitutes good or bad behavior (Schwartz, 1977) and can be induced in either a prescriptive or a descriptive way, as illustrated by above examples.

Prescriptive social norms refer to the action that an individual's social environment (e.g., peers/government) explicitly wants the person to take (e.g., "You should consult a professional in financial planning"). That is, individuals abide by the expectations and rules of society to avoid sanctions and/or gain rewards (Cialdini, Kallgren, & Reno, 1991). As many people tend to rely on simple heuristics in their decision-making, they might prefer prescriptive messages—they are easy to perceive and process, as they outline what to do and what not to do, and do not require further reflection (Chaiken & Maheswaran, 1994; Hutchinson & Gigerenzer, 2005). Indeed, prior research shows that prescriptive social norms can affect behavioral intentions and behavior regarding retirement planning (Sheppard, Hartwick, & Warshaw, 1988). For instance, 14% of U.S. federal employees participated in the Thrift Savings Plan as a result of peer pressure (Lieber & Skimmyhorn,

2018).

Descriptive norms refer to the belief that one should imitate others because their behavior provides information about the value of a particular action (Hoffmann & Broekhuizen, 2009) (e.g., "It is wise to consult a professional in financial planning"). Descriptive norms are effective both after a direct contact with imitated individuals and when the behavior of others is simply made known (Cialdini et al., 1991). They are widely used in marketing communication materials as a persuasion tool (Wiener & Doescher, 2008), and their power lies in the fact that imitating others is so simple and natural that consumers may do so unconsciously. Indeed, prior research shows that social learning from descriptive norms influences consumers' investment choices (Bursztyn, Ederer, Ferman, & Yuchtman, 2014).

Descriptive and prescriptive financial information messages may differ in their effects on consumers' retirement planning intentions and behavior. Descriptive messages require deliberation and analysis on behalf of the consumer, as implications are implicit instead of explicit. To derive conclusions from descriptive information, individuals should thus adopt the systematic approach to processing information. Prescriptive information, however, is more explicit and can affect even individuals who adopt the heuristic approach of processing information, which is likely to be the case for many consumers who are relatively unengaged with retirement planning (Deetlefs et al., 2019). Owing to its simplicity, prescriptive information is expected to result in a clearer understanding of the steps to take and a higher motivation to follow these steps. We thus expect:

H4. Prescriptive retirement information has a stronger effect than descriptive information on consumers' (a) willingness to learn more about retirement planning and (b) propensity to plan for retirement.

2.5. The impact of graphical illustrations on message effectiveness

Presentation format plays an important role in the reception and effect of information messages. Prior studies recommend increasing salience to attract consumer attention and facilitate message understanding (Financial Conduct Authority, 2017; Hershfield et al., 2011). Using rich and detailed imagery can achieve positive behavioral effects (Wiener & Doescher, 2008), especially since many consumers may have trouble processing textual information and making calculations that require high levels of numeracy (Klapper et al., 2015). Furthermore, consumers' generally low retirement engagement (Deetlefs et al., 2019) increases the likelihood that they will adopt a heuristic information processing style. Graphical illustrations may overcome these difficulties, because they concretize complex financial concepts and shift information processing to the perceptual system. This transfer can help consumers understand the presented concept and learn faster (Lurie & Mason, 2007). Indeed, low-involvement individuals often use salient and noticeable elements, such as illustrations, to decide whether to rely on the provided information (Tversky & Kahneman, 1973). By doing so, they might rely on the visual preference heuristic, preferring visual rather than verbal information (Townsend & Kahn, 2013). We thus expect:

H5. Graphically illustrated retirement information has a stronger effect on consumers' (a) willingness to learn more about retirement planning and (b) propensity to plan for retirement than text-only retirement information.

2.6. The mediating role of the willingness to learn in message effectiveness

We expect that if an information message is effective, individuals will be both persuaded on the importance of learning more about retirement matters and more likely to plan for retirement. In terms of the underlying process, however, we expect that the effect of an information message on consumers' propensity to plan for retirement is

mediated by an increased willingness to learn more about retirement. Specifically, the willingness to learn more indicates a motivation to process information on retirement planning and an awareness of information insufficiency (Trumbo, 1999), which in turn should stimulate consumers' intention to plan for retirement. In fact, the willingness to learn more can be seen as an indicator of message effectiveness—if information presented to consumers is of interest to them, one would expect them to first wish to learn more about the topic and subsequently plan using the received information. Hence, we expect that:

H6. Willingness to learn more about retirement planning positively mediates the effect of retirement information on consumers' propensity to plan for retirement.

2.7. The mediating role of retirement self-efficacy in message effectiveness

A growing literature indicates the importance of subjective financial capability, or financial self-efficacy, in addition to objective financial literacy (Danes & Haberman, 2007). Some studies even suggest that subjective financial capability is more strongly correlated with financial decisions than objective financial literacy (Allgood & Walstad, 2016). Financial self-efficacy explains financial attitudes (Farrell, Fry, & Risse, 2016), outcomes (Hoffmann & McNair, 2019), and satisfaction (Asebedo & Payne, 2019). The more consumers believe in their capability, the more responsible their financial behavior (Hadar, Sood, & Fox, 2013), as higher self-efficacy disciplines and orients the consumer toward long-term goals (Chen, Gully, & Eden, 2001). Retirement self-efficacy reflects a consumer's perception of having the ability to successfully plan for retirement (cf. Lown, 2011).

We expect retirement self-efficacy to mediate the effect of a financial information message on consumers' willingness to learn more about retirement and on their propensity to plan for it. That is, based on the ELM and HSM theories, we expect that individuals who are not confident about their retirement planning capability are less likely to process the information message, as the doubt regarding their own capability to acquire and make use of the provided information will demotivate them to take it in (Trumbo, 1999). Given that self-efficacy is related to motivation (Bandura, 1986), consumers with higher retirement self-efficacy are expected to devote more time and effort to the activity (Lown, Kim, Gutter, & Hunt, 2015) and thus will be more prone to learn more about retirement planning and will have a higher intention to plan.

Indeed, consumers with higher self-efficacy tend to acquire more information on financial planning and seek the help of professionals (Lim, Heckman, Montalto, & Letkiewicz, 2014), as they believe that they can make good use of the associated information and advice. Retirement self-efficacy could help consumers face the challenge of retirement planning, rather than avoiding it because it might seem too complicated or impossible to manage (Farrell et al., 2016). Prior work emphasizes the direct relationship between financial self-efficacy and retirement savings behavior (Dulebohn & Murray, 2007; Lown et al., 2015). This observation can be explained by the direct association between: (1) the perceived ease of saving for retirement and (2) retirement goal attainability and retirement-plan participation (Farkas, Johnson, & Kernan-Schloss, 1994).

Aforementioned constructs are closely related to retirement self-efficacy. That is, the more self-efficacious consumers feel, the easier/more attainable they will perceive the retirement planning process to be and, thus, the more active they will be in it. Indeed, consumers with higher retirement self-efficacy plan more for retirement (e.g., in terms of retirement timing (Taylor & Shore, 1995)). We thus expect:

H7. Retirement self-efficacy positively mediates the effect of retirement information on consumers' willingness to learn more about retirement planning and (b) propensity to plan for retirement.

2.8. The moderating role of financial security, age, and construal level in message effectiveness

Building on the stimulus-organism-response model (Mehrabian & Russell, 1974) and research in human communication (Buller, Borland, & Michael, 1998), the extent to which an environmental stimulus (i.e., a financial information message) induces a response (i.e., improving retirement planning intentions) depends on the extent to which the organism (i.e., the consumer) feels a perceived urgency to act. In the context of our study, such urgency is captured by perceived financial security (Strömbäck, Lind, Skagerlund, Västfjäll, & Tinghög, 2017) as well as consumers' proximity to retirement as proxied for by their age (Evans, Ekerdt, & Bosse, 1985). That is, in line with our study's ELM and HSM foundations, we expect that lower financial security and higher retirement proximity will increase individuals' motivation to process the financial information message.

First, if consumers already feel secure about their financial future, we expect that they will be less inclined to worry about retirement, lessening the likelihood that the retirement information message will activate a need to learn more about retirement planning or plan for retirement. However, if their perceived financial security is low, consumers are more likely to be open to information messages about the importance of retirement preparation, and the message will thus have a stronger impact on their willingness to learn more and propensity to plan. We thus expect:

H8. Perceived financial security negatively moderates the effect of retirement information on consumers' (a) willingness to learn more about retirement planning and (b) propensity to plan for retirement.

Second, pre-retirement involvement typically increases with retirement proximity (Evans et al., 1985). As consumers get older and retirement thus draws nearer, their involvement with the topic likely increases and they are expected to perceive a greater sense of urgency to act. As a result, we expect older consumers to be more receptive to information messages about the importance of preparing for retirement and to display a greater willingness to learn more about retirement planning and a higher propensity to plan for retirement. Therefore, we expect:

H9. Age positively moderates the effect of retirement information on consumers' (a) willingness to learn more about retirement planning and (b) propensity to plan for retirement.

Finally, the effectiveness of the retirement information message will depend on the extent to which the stimulus matches the organism's mindset (i.e., self-message congruity) (Kong & Shen, 2011). In this regard, when considering retirement, consumers can focus on *how* to plan for retirement (i.e., low-level construal) or *why* to plan for retirement (i.e., high-level construal). Construal level theory (Trope & Liberman, 2003) states that when consumers have a low construal level, actions will be stimulated when they understand *how* to achieve them. In contrast, when consumers have a high construal level, actions will be stimulated when they understand *why* they are important.

The financial information message in our study focuses on communicating to consumers the importance of planning and saving for retirement, thus addressing the "why." Therefore, consumers with a higher construal level are more likely to respond to the information message due to construal level congruence (Dogan & Erdogan, 2020; Zhu, He, Chen, & Hu, 2017). Accordingly, we expect that the financial information message is more likely to result in an increased willingness to learn more about and plan for retirement if consumers have a high construal level:

H10. Construal level positively moderates the effect of retirement information on consumers' (a) willingness to learn more about

retirement planning and (b) propensity to plan for retirement.

2.9. Impact of intentions on actual behavior and the moderating role of self-control

An important question when measuring the effectiveness of financial information is whether it has a lasting effect on behavior (Fernandes et al., 2014; Peeters et al., 2018). Most prior studies have employed behavioral intentions as proxies for actual behavior, such as using consumers' intentions to contribute additional funds to their retirement plans or their intentions to change investment allocations as indicators of retirement planning behavior (Croy, Gerrans, & Speelman, 2010).

According to the theory of planned behavior, intentions capture motivational factors that influence behavior and indicate how much effort individuals are willing to put into performing the behavior (Ajzen, 1991). Importantly, previous research shows that merely thinking about retirement (Lusardi & Mitchell, 2007a) and having a plan in mind (Gollwitzer, 1999) contribute to actual behavioral change (Ameriks, Caplin, & Leahy, 2003). Therefore, the retirement planning intentions we study are expected to be significant predictors of actual retirement behavior. We expect that:

H11. Retirement planning intentions have a direct impact on actual financial behavior regarding retirement.

Although from a policy perspective, behavioral change is often the ultimate goal of a financial information message, retirement planning intentions do not always translate into actual behavior (Choi, Laibson, Madrian, & Metrick, 2005; Madrian & Shea, 2001). Hence, financial messages must reflect an understanding of which consumers have intentions that are more likely to affect actual behavior. Importantly, self-control is required for financial intentions to affect actual financial behavior (Thaler & Shefrin, 1981). Self-control relates to consumers' ability to resist impulses and temptations and persist in plans (Baumeister, 2002). It is considered to be a decisive factor in consumers' financial planning skills (Shefrin & Nicols, 2014) and plays a key role in the successful implementation of intentions to save (Rabinovich & Webley, 2007). We thus expect that:

H12. Self-control positively moderates the effect of retirement planning intentions on actual behavior.

3. Data and method

To test the hypotheses, we conducted a longitudinal online study among a sample of U.S. individuals. We employed a 2 (source: government vs. peer-generated) \times 2 (tone: descriptive vs. prescriptive) \times 2 (graphs: graphical illustration vs. text only) full-factorial between-subjects experimental design. To distinguish the effect of varying these message dimensions and establish the effect of providing the information message per se, we also incorporated a hanging control group not receiving any message (Peeters et al., 2018). After three months, we re-contacted the initial sample to check whether previously stated intentions had translated into actual behavior.

3.1. Data collection

We recruited 736 participants through Qualtrics, which maintains an online panel of Americans and ensures a consistent panel quality. We excluded 36 participants who provided incomplete or invalid responses in any part of the study. Each participant was randomly assigned to one of the experimental conditions receiving a different type of information message or to the hanging control group. Cell sizes of the experimental conditions ranged from 57 to 67 participants. The hanging control group contained 196 participants. Importantly, we exceeded the

minimum required sample size of 50 participants per cell of the experimental design (Simmons, Nelson, and Simonsohn (2013).

3.2. Sample description

Of the final sample of 700 participants, 50.4% were male and the average age was 54.4 years. Most participants were Caucasian (82%), followed by Asian (4%) and Hispanic (2.9%). Most participants held a university degree (30.3% have a Bachelor's, 16.8% a Master's, 1.3% a PhD, and 3.8% a professional degree). Most were married (53.8%), 27.3% were single, and 5% were divorced. In terms of employment, 41.6% of participants were employed, 30.7% retired, 7.6% self-employed, 6.7% unemployed, 7.1% homemakers, and 5% unable to work. Almost all participants had English as their first language (93.7%). Overall, we find no significant differences among the cells in terms of gender, age, ethnicity, state of residence, or education (all F-tests, $p > .50$), indicating an effective randomization. Moreover, although using the Qualtrics panel could introduce a selection bias in terms of including only people who are willing to participate in the panel's surveys, the sample and experimental cells are similar to the overall U.S. population in their socio-demographic characteristics (see Appendix A1). Finally, we find that none of the moderator variables is significantly different among the experimental cells (all F-tests, $p > .50$).

3.3. Experimental design

We follow the procedure suggested by Spencer, Zanna, and Fong (2005) and implement an experimental design that allows us to first measure independent variables (i.e., exogenous variables, such as the manipulation, controls, and moderators), and after the manipulation to measure any variables that account for the process that can explain the impact of the manipulation on the dependent variable (i.e., mediators). We also use appropriate moderating and mediating analyses to test the effects. Indeed, measuring the mediators after the manipulation is vital, since it is important to consider the causal effect of the experimental condition on the mediator (Hayes, 2013; Maxwell & Cole, 2007). Ideally, the mediator is measured longitudinally sometime after the manipulation, but if practical reasons preclude that approach, measuring the mediator after the manipulation is recommended, while the dependent variable should be measured longitudinally. Our design, which includes a follow-up study, follows all of these methodological guidelines.

First, we measured socio-demographic factors and attitudes about finances. Second, participants were provided with a brochure offering retirement planning information. Third, following this experimental manipulation, participants stated their retirement planning intentions. Participants in the control group did not see a brochure with retirement planning information, and we measured their self-efficacy and retirement planning intentions at the end of the survey.

After three months, we re-contacted all participants of the initial study to measure (self-reported) actual retirement planning behavior during this period. Of the 736 participants in the initial study, 278 also took part in this follow-up study. Comparison of socio-demographic factors between the 278 participants who returned and the 458 that did not indicated only a minor difference in age (returning $M = 53.40$, $SD = 13.69$; non-returning $M = 48.74$, $SD = 16.64$; $p < .10$). For all other factors, returning and non-returning participants did not differ significantly.¹

¹ We also ran a Heckman selection model using Stata as a robustness test for H11. Results show that the self-selection into the follow-up study does not introduce a bias based on the main socio-demographic factors (i.e., age, gender, ethnicity, education, and English language skills). In particular, the direct effect of propensity to plan on planning activity is $B = 0.589$; $p < .001$ with the

Using quotas, Qualtrics ensured that the returning participants approached as closely as possible the initial sample and the overall U.S. population in terms of aforementioned socio-demographics. We checked whether the willingness to learn more about retirement planning and propensity to plan for retirement are related to participation in the follow-up study, but we found no significant effect. On the basis of these checks, we conclude that a biasing effect of involvement in the topic of retirement planning on participants' response behavior is unlikely. We explain the reduced sample size of the follow-up study by the time elapsed since the initial study and the length of the survey, which could reduce participants' motivation to complete it (Deutskens, De Ruyter, Wetzels, & Oosterveld, 2004).

3.4. Experimental manipulation

Building on previous studies (Fernandes et al., 2014), we tested the effect of short, precise information on consumers' retirement planning intentions in terms of their willingness to learn more about retirement planning and their propensity to plan for retirement. Examples of exact manipulations appear in Appendix A2 (Figs. A2 and A3). To ensure factual correctness and embed our study in the relevant context, the experimental manipulation text is based on official educational brochures of the U.S. government (<https://www.savingmatters.dol.gov/>).

Each experimental condition contains the same factual information and differs only with regard to the intended manipulation of source, tone, and graphical illustration of the message. The source is manipulated directly in the experimental instructions—"Imagine you came across the following information on a government website (vs. consumer forum)." Furthermore, the peer-generated information was presented in small balloons similar to social media messages, whereas the government information was presented using a conventional web page format. Finally, the peer-generated forum included a "screen name" to create a feeling of peer interaction and every sentence was presented as personal advice or experience (for the prescriptive vs. descriptive tone).

The tone of the information (prescriptive vs. descriptive) was introduced by varying the description sentence—"Please imagine you came across the following advice (vs. information)." Further on, all sentences were presented either as a simple statement of facts for the descriptive tone ("Starting saving early is important: starting putting aside early allows U.S. citizens to ensure good life quality after retirement") or as explicit advice for the prescriptive tone (e.g., "Start saving now: the earlier you start to put aside, the better quality of life you will have once retired").

Finally, the presence of graphical illustrations was manipulated by either including two illustrations (one on the sources of retirement income and one illustrating the effect of compound interest) or including no illustrations. One of the illustrations depicted the tree pillars of retirement financial sources (i.e., government pensions, employer programs, and personal investments), while the second illustration showed the effect of compound interest on a savings account of \$1000, growing over periods of 10, 20, and 30 years with an interest rate of 5% (see Appendix A2).

In each message, an introduction explained the various sources of retirement income, key elements of retirement planning, retirement age, and average life expectancy in the U.S. Additional text presented national statistics on saving and retirement preparedness and discussed effective retirement planning behavior. According to normative behavior theory, consumers will intend to adopt responsible behavior if they are aware of its positive consequences and take responsibility for their

(footnote continued)

inverse Mills ratio or lambda (λ) being insignificant (0.952; CI 95% [-0.422; 2.326]). Similarly, the intention to learn more on retirement increases learning about retirement matters, with $B = 0.467$; $p < .001$ ($\lambda = -0.660$; CI 95% [-0.263; 3.023]).

own actions (Schwartz, 1977). Therefore, we included not only statistics on retirees' preparation, but also statements highlighting that Social Security alone cannot fund one's retirement.²

3.5. Manipulation check

To avoid any demand effects, we performed a manipulation check with a different sample in a separate pre-test (Cornelissen, Pandelaere, Warlop, & Dewitte, 2008). We recruited 151 participants from Amazon Mechanical Turk (MTurk). Recent studies show that MTurk samples provide data that are at least as reliable as those from traditional sample pools (Goodman, Cryder, & Cheema, 2013; Paolacci, Chandler, & Ipeirotis, 2010), and we chose this platform to ensure isolation from the main study's Qualtrics sample.

Participants were confronted with a randomly selected version of one of the eight financial information messages and were asked to evaluate its nature using semantic differential scales. Participants had to indicate whether the message they had just received was more likely to come from a government or a peer-generated source, whether they perceived it to be more descriptive or more prescriptive, and whether they considered it to be text only or graphically illustrated as per the 2 (source) \times 2 (tone) \times 2 (graphical illustrations) experimental design.

Of the 151 participants, 53.6% were male and the average age was 39.2 years. Most participants were Caucasian (78.8%), followed by Black (9.3%), Asian (5.3%), and Hispanic (4.6%). Most held a university degree (42.4% have a Bachelor's degree, 20.5% a Master's degree, and 1.3% a professional degree). Most were married (60.3%), 27.2% were single, and 6% were divorced. In terms of employment, 78.8% of participants were employed, 13.2% self-employed, 2% unemployed, and 2.6% retired. Almost all participants had English as their first language (98.7%). Apart from being younger and more likely to be employed, these participants have socio-demographic characteristics similar to those of the participants of the main study.

The results from the pre-test show that all manipulations worked as intended. That is, the message manipulated to be from a government source scored higher on the government versus peer-generated semantic differential scale ($M = 5.01$, $SD = 1.73$) ($p < .001$, $F[1, 150] = 40.79$) compared to the message manipulated to be from a consumer forum ($M = 2.98$, $SD = 2.09$). The message manipulated to have a prescriptive tone scored higher ($M = 5.34$, $SD = 1.23$) ($p < .001$, $F[1, 150] = 26.58$) on the descriptive versus prescriptive semantic differential scale compared to the message manipulated to have a descriptive tone ($M = 4.01$, $SD = 1.99$). Finally, the message manipulated to have graphical illustrations scored higher ($M = 3.73$, $SD = 1.89$) ($p < .001$, $F[1, 150] = 12.08$) on the text-only versus graphically illustrated semantic differential scale compared to the message manipulated to have text only ($M = 2.56$, $SD = 2.09$).

3.6. Measurement scales

We used established scales with demonstrated validity and reliability (Table 1). The scales were modified only in terms of wording to fit the study context or changed to a seven-point Likert scale for consistency and uniform appearance. To measure retirement self-efficacy,

² Thus, the introduction of the financial information message focuses on the 'why' and provides consumers with reasons to learn more on retirement and plan for retirement, and will thus be particularly appealing to consumers with a high construal level. The remainder of the message presents eight 'how to' suggestions on retirement planning—starting to save and sticking to one's goals; assessing one's retirement needs; contributing to employers' retirement savings plans; learning about one's employer retirement plan; considering basic investment principles; putting money into individual retirement account; finding out about social security benefits; asking questions. As the 'why' information was presented first, consumers could be expected to 'anchor' on this part of the message.

Table 1
Scale items, factor loadings, and construct validity of initial study.

Construct	Item wording	Mean	Min/Max	SD	Item loading	Cronbach's alpha	AVE	CR
Retirement self-efficacy (Loke et al., 2015)	1. I am very knowledgeable about financial planning for retirement.	4.28	1/7	1.74	0.92	0.93	0.83	0.95
	2. I know more than most people about retirement planning.							
	3. I am very confident in my ability to do retirement planning.	4.07		1.79	0.93			
	4. When I have a need for financial services, I know exactly where to obtain information on what to do.							
		4.32		1.79	0.94			
		4.63		1.74	0.85			
<i>Measured on a Likert scale ranging from 1 = “Completely disagree” to 7 = “Completely agree”</i>								
Construal level (Trope & Liberman, 2003)	When thinking about your financial goals, are you mostly concerned with HOW you want to attain those goals or are you mostly concerned with WHY you want to attain those goals?	3.69	1/7	1.54				
<i>Measured on a semantic differential scale ranging from 1 = “How I want to attain those goals” to 7 = “Why I want to attain those goals”</i>								
Financial security (Strömbäck et al., 2017)	1. I feel secure in my current financial situation.	4.47	1/7	2.08	0.94	0.94	0.90	0.96
	2. I feel confident about my financial future.							
	3. I feel confident about having enough money to support myself in retirement, no matter how long I live.	4.58		1.99	0.96			
		4.18		2.07	0.94			
<i>Measured on a Likert scale ranging from 1 = “Completely disagree” to 7 = “Completely agree”</i>								
Propensity to plan for retirement (Lynch et al., 2010)	1. I will set financial goals for what I want to achieve with my money.	5.01	1/7	1.63	0.84	0.93	0.75	0.95
	2. I will decide beforehand how my money will be used.							
	3. I will actively consider the steps I need to take to stick to a budget.							
	4. I will consult my budget to see how much money I have left.	5.02		1.50	0.84			
	5. I will look to my budget in order to get a better view as to my spending in the future.	5.09		1.51	0.92			
	6. I will feel better to have my finances planned out.							
		5.18		1.52	0.91			
		5.17		1.52	0.91			
		5.16		1.62	0.78			
<i>Measured on a Likert scale ranging from 1 = “Completely disagree” to 7 = “Completely agree”</i>								
Willingness to learn more about retirement planning (Stawski et al., 2007)	I will look up information to learn more about retirement planning.	4.53	1/7	0.82	n/a	n/a	n/a	n/a
<i>Measured on a Likert scale ranging from 1 = “Completely disagree” to 7 = “Completely agree”</i>								

Notes: SD = standard deviation; AVE = average variance extracted; CR = composite reliability.

we used six items from Loke, Choi, and Libby (2015). Perceived financial security was measured with three items from Strömbäck et al. (2017). Self-control was measured with five items from Tangney, Baumeister, and Boone (2004). Construal level was measured as a single-item semantic differential scale based on Trope and Liberman (2003). Retirement saving intentions and behavior were measured by an adapted version of the propensity to plan for money scale from Lynch et al. (2010). The intention to learn more about retirement planning was measured with a single item inspired by the information-seeking dimension of Stawski, Hershey, and Jacobs-Lawson (2007) financial planning scale. Participants were also asked standard socio-demographic questions on age, gender, income, education, and English language skills.

All scales exceed the 0.70 threshold for Cronbach's alpha (Nunnally, 1978) and composite reliability (Chin, 1998) (Table 1). All items load

significantly on their underlying constructs, and average variance extracted (AVE) is above 0.80, establishing convergent validity (Fornell & Larcker, 1981). To establish discriminant validity, we note that inter-correlations between latent factors do not include unity (Anderson & Gerbing, 1988), and each construct's AVE is greater than the squared correlations between any set of constructs (Fornell & Larcker, 1981).

3.7. Common method variance

As we use a survey approach, common-method variance (CMV) could possibly bias the relationships between the studied variables (Doty & Glick, 1998). To overcome and minimize the potential of CMV, we apply a mixture of methodological and statistical solutions (Craighead, Ketchen, Dunn, & Hult, 2011). First, we include reverse-coded items in the survey to minimize acquiescence effects (Lindell &

Whitney, 2001). Second, we perform Harman's single-factor test using exploratory factor analysis (EFA) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To do so, we load all variables into an EFA (e.g., Andersson & Bateman, 1997; Aulakh & Gencturk, 2000) and examine the unrotated factor loadings to determine the number of factors necessary to account for the variance in variables. We find that the variables do not load on a single factor, thus alleviating potential CMV concerns. Third, we conduct a Lindell and Whitney (2001) marker variable test. This technique consists of integrating a theoretically unrelated variable in the study's measurement and testing whether it correlates with the main constructs of interest. We included a survey question on participants' ability to identify fraud attempts and find that it is not correlated to any of the principal constructs, providing evidence against CMV (maximum correlation is $r = 0.06$, all correlations insignificant).³ Fourth, the highest correlation among the principal constructs is 0.56, below the 0.80 limit (Bagozzi, Yi, and Phillips (1991)). Finally, we employ temporal separation (Podsakoff et al., 2003) by having three months between the initial study measuring retirement planning intentions (independent variable) and the follow-up study measuring behavior (dependent variable). All tests suggest CMV is not a threat to our study, while the temporal separation between the initial and follow-up study rules it out.

4. Results

4.1. Main effect of information message on retirement planning intentions and role of message format

To test H1 and H2, we first perform a MANOVA to compare the condition in which participants do not receive a financial information message (i.e., the hanging control) to the entire group of experimental conditions in which participants do receive such a message (Table 2). We include socio-demographic factors (i.e., gender, ethnicity, education, and state of residence) as control variables. Furthermore, we control for participants' objective financial knowledge regarding investment principles, compound interest, inflation, and numeracy (Klapper et al., 2015). We find no interaction effects of financial literacy on the effectiveness of the financial information message. In support of H1 and H2, the presence of a financial information message improves participants' willingness to learn more about retirement planning ($M_{\text{info}} = 4.49$, $SD = 1.53$; $M_{\text{no_info}} = 4.07$, $SD = 1.91$; $F[1, 699] = 57.53$, $p < .001$) and their propensity to plan for retirement ($M_{\text{info}} = 5.18$, $SD = 1.30$; $M_{\text{no_info}} = 4.90$, $SD = 1.53$; $F[1, 699] = 6.10$, $p < .001$).

To test H3, H4, and H5, we first performed a MANOVA to test the impact of message format (i.e., source, tone, and graphical illustrations) on participants' retirement planning intentions. Next, we perform a Tukey post-hoc analysis to understand between-group differences. We find no significant impact of message format on participants' retirement planning intentions, apart from the finding that a message from a government source is more effective than a peer-generated message in improving participants' willingness to learn more about retirement planning ($M_{\text{government}} = 4.88$, $SD = 1.68$; $M_{\text{peers}} = 4.53$, $SD = 1.81$; $F[1, 131] = 0.58$, $p < .10$) (Table 2). We thus find support for H4b, but not for H3a, H4, and H5. As these results indicate no substantial differences among the experimental conditions in terms of their effect on retirement planning intentions, in our further analyses we collapse them and compare them jointly to the hanging control group.

³ The question was: "If you receive a call from someone who claims that you are eligible for free money from the government as part of the economic stimulus package, but first you need to pay an upfront fee, how likely is it a fraud?"

Table 2

Effect of receiving a financial information message on retirement planning intentions.

Independent variables	Mean (SD)	Mean (SD)
Financial information message	Propensity to plan for retirement	Willingness to learn more about retirement planning
Information	5.18 (1.30)¹	4.49 (1.53)²
No information	4.90 (1.91)	4.07 (1.91)
Condition:	a: 5.23 (1.32)	a: 4.88 (1.68)^{b, 3}
Source		
Condition:	Peer-generated	b: 5.13 (1.28)
Tone	Descriptive	c: 5.23 (1.32)
Condition:	Prescriptive	d: 5.13 (1.28)
Graphs	Text only	e: 5.17 (1.33)
	Graphical illustrations	f: 5.18 (1.27)
		b: 4.53 (1.81)^a
		c: 4.82 (1.75)
		d: 4.60 (1.74)
		e: 4.72 (1.77)
		f: 4.70 (1.73)

Notes: Letters indicate significant differences with a respective experimental condition ($p < .001$). Significant differences appear in bold. The "no information" condition refers to the hanging control group not receiving any financial information message. SD = standard deviation. Observed power of statistically significant effects at 0.95 level of significance: ¹.69; ² 0.98; ³ 0.62. Observed power of statistically significant effect at 0.95 level of significance with Bonferroni correction: ³.57. Information on the socio-demographic characteristics of each experimental cell are provided in Table A1 in Appendix A1.

4.2. Mediation by willingness to learn more about retirement planning

To test H6, we performed a formal mediation analysis regarding the role of willingness to learn more about retirement planning in increasing the propensity to plan for retirement. We used model 4 of the SPSS Process macro (Hayes & Preacher, 2014), employing the bootstrapping method, with each analysis using 5000 bootstrapped samples. We find that willingness to learn more about retirement planning fully mediates the effect of the information message on the propensity to plan for retirement (indirect impact = 0.22; 95% CI [0.11; 0.34]), confirming H6 (see Fig. 2).

4.3. Mediation by retirement self-efficacy

To test H7, we again performed a formal mediation analysis, following the procedure described above. We find that the presence of a financial information message increases participants' perceived retirement self-efficacy (impact on self-efficacy = 0.62; 95% CI: [0.55; 0.67]). Furthermore, a financial information message has a significant positive indirect effect on both retirement planning intentions through retirement self-efficacy (impact on propensity to plan = 0.20; 95% CI: [0.117; 0.31]; impact on willingness to learn = 0.31; 95% CI: [0.17; 0.47]), supporting H7 (see Fig. 3).

4.4. Moderation by perceived financial security, age, and construal level

To further explicate the underlying process through which an information message affects retirement planning intentions and test our hypotheses on the qualifying role of consumers' perceived urgency to act as measured by their perceived financial security (H8) and age (H9) as well as their goal construal mindset (H10), we performed a formal moderation analysis using model 1 of the SPSS Process macro (Hayes & Preacher, 2014), with each analysis using 5000 bootstrapped samples (see Fig. 4).

We find that perceived financial security negatively moderates the impact of a financial information message on participants' propensity to plan for retirement (moderation impact = -0.15 ; 95% CI [-0.13 ; -0.19]) and their willingness to learn more about retirement planning

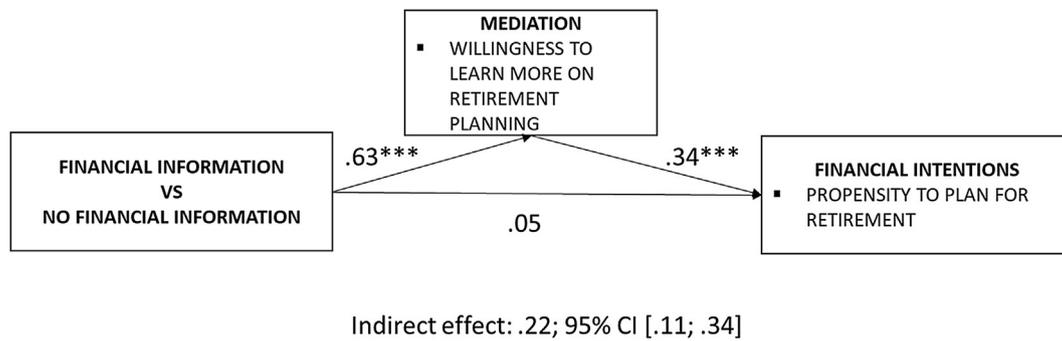
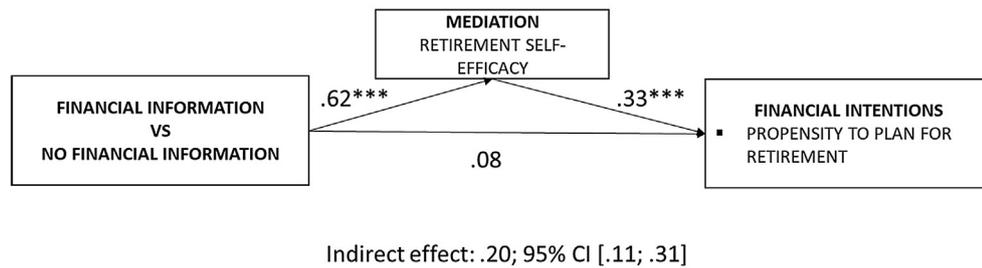


Fig. 2. Mediation by willingness to learn more.

A.



B.

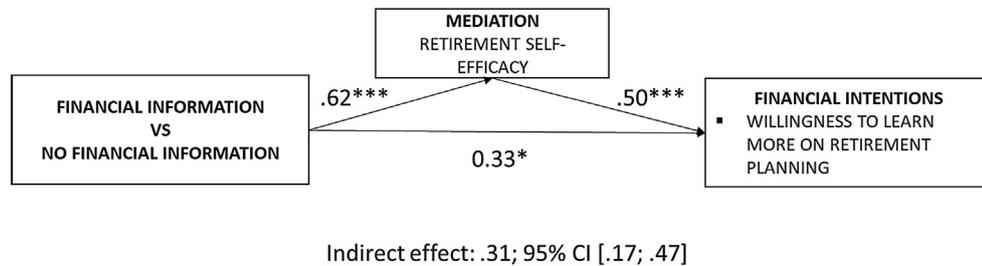


Fig. 3. Mediation by retirement self-efficacy. Notes: * $p < .100$; *** $p < .001$.

(moderation impact = -0.17 ; 95% CI [-0.13 ; -0.21]). Thus, if the perceived urgency to act is lower (i.e., higher financial security), a financial information message has a weaker effect on the willingness to learn about and start planning for a financially secure future. Hence, we find support for H8.

Next, we test for the moderation effect of age on the effectiveness of a financial information message. We do not find that age moderates the willingness to learn more about retirement planning (moderation impact = 0.01 ; 95% CI [-0.004 ; 0.03]) or the propensity to plan for retirement (moderation impact = 0.00 ; 95% CI [-0.01 ; 0.01]). Hence, we find no support for H9.

Finally, we find that construal level does not moderate the impact of a financial information message on participants' propensity to plan, whereas it does positively moderate their willingness to learn more about retirement planning (moderation impact = 0.20 ; 95% CI [0.14 ; 0.24]), supporting H10b but not H10a. In other words, participants with a higher construal level (i.e., those focusing on “why”) are more inclined to learn more about retirement planning after being exposed to a financial information message than participants with a lower construal level (i.e., those focusing on “how”).

4.5. Impact of retirement planning intentions on actual retirement planning behavior

To identify the relationship between stated intentions and actual behavior, we asked participants in the follow-up study about their

actions in the three months after their initial exposure to the financial information message. We used the same measurement scales as in the initial study, but phrased the questions in the past tense. Additionally, we measured the actual level of retirement planning activity in a more fine-grained way with a scale from [Hershey, Jacobs-Lawson, McArdle, and Hamagami \(2007\)](#). We again confirmed all scales' internal consistency and convergent and discriminant validity ([Table 3](#)). Note that H11 and H12 are not related to the treatment and are estimated accordingly.

Results from the follow-up study show that participants' intentions to learn more about retirement planning have a positive impact on their actual search for retirement planning information during the three months following the initial study ($B = 0.32$, $F[1, 277] = 66.24$, $p < .001$), while their propensity to plan is also positively related to actual retirement planning ($B = 0.36$, $F[1, 277] = 34.21$, $p < .001$) ([Table 4](#)). These results provide supportive evidence for H11.

Regarding the retirement planning activity scale of [Hershey et al. \(2007\)](#), we find that participants with a higher willingness to search for more information on retirement matters in the initial study were also more active in the ensuing three months. In particular, we find a positive relationship between the willingness to search for more information and actually reading articles and brochures ($B = 0.29$, $F[1, 277] = 17.28$, $p < .001$) as well as books ($B = 0.24$, $F[1, 277] = 26.98$, $p < .001$), visiting websites ($B = 0.34$, $F[1, 277] = 36.26$, $p < .001$), and listening to television/radio shows ($B = 0.29$, $F[1, 277] = 25.38$, $p < .001$) on financial planning more

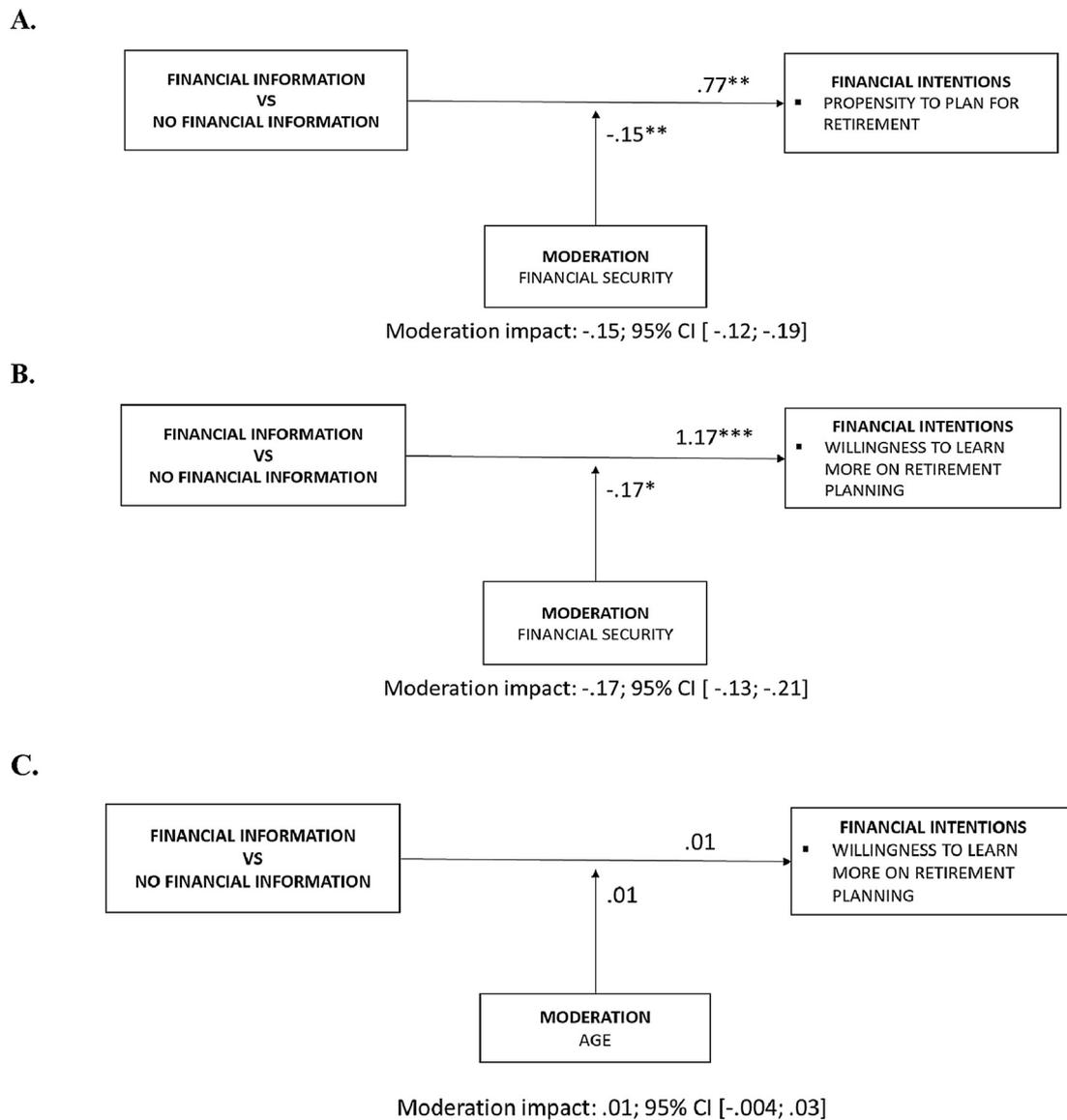


Fig. 4. Moderation by perceived financial security, age, and construal level. Notes: * $p < .100$; ** $p < .01$, *** $p < .001$.

frequently. We also find a positive relationship between willingness to learn more about retirement planning and actually discussing retirement plans with a specialist at work ($B = 0.16$, $F[1,277] = 7.96$, $p < .010$) and other actual planning activities (conducting a net worth assessment: $B = 0.32$, $F[1,277] = 31.42$, $p < .001$; identifying specific plans for the future: $B = 0.30$, $F[1,277] = 27.60$, $p < .001$; organizing financial records: $B = 0.33$, $F[1,277] = 35.86$, $p < .001$). Overall, participants' willingness to learn more about retirement planning has a positive and significant relationship with their aggregate retirement planning activity level as measured by the unweighted average of all activities included in the retirement planning activity scale of Hershey et al. (2007) ($B = 0.30$, $F[1,277] = 43.93$, $p < .001$).

Propensity to plan also led consumers to more frequently consult articles and brochures ($B = 0.27$, $F[1,277] = 22.58$, $p < .001$), books ($B = 0.14$, $F[1,277] = 6.18$, $p < .100$), and websites ($B = 0.23$, $F[1,277] = 16.11$, $p < .001$), and to listen to television/radio shows ($B = 0.23$, $F[1,277] = 15.52$, $p < .001$) on financial planning. Furthermore, we find a positive relationship between the propensity to plan for retirement and actually discussing retirement plans with a professional in the field ($B = 0.21$, $F[1,277] = 13.49$, $p < .100$) or a knowledgeable friend ($B = 0.11$, $F[1,277] = 3.70$, $p < .100$), assessing one's net worth ($B = 0.24$, $F[1,277] = 17.30$, $p < .001$),

organizing financial records ($B = 0.25$, $F[1,277] = 19.59$, $p < .001$), and identifying specific plans for the future ($B = 0.29$, $F[1,277] = 25.94$, $p < .001$). Overall, participants' propensity to plan has a positive and significant relationship with their aggregate retirement planning activity ($B = 0.31$, $F[1,277] = 29.46$, $p < .001$).

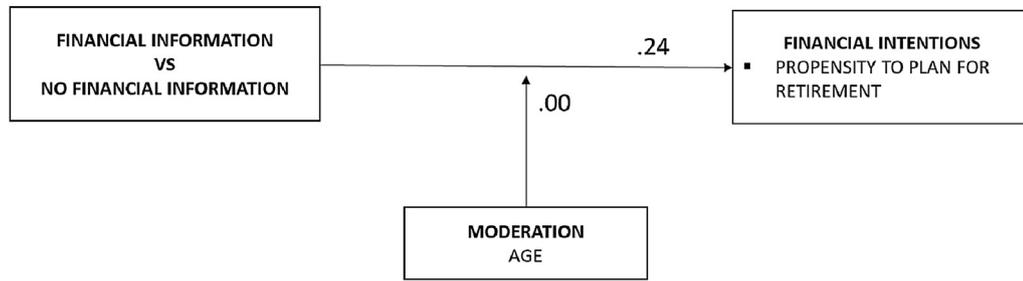
4.6. Moderation of the intention-behavior relationship by self-control

We again carry out a formal moderation analysis, following the procedure described above. Results show that self-control positively moderates the relationship between participants' propensity to plan for retirement and their actual retirement planning behavior (moderation impact = 0.34; 95% CI [0.28; 0.40]), while we find no moderating effect for the relationship between willingness to learn more and actually searching for more information on retirement, lending partial support for H12 (see Fig. 5).

5. Conclusion

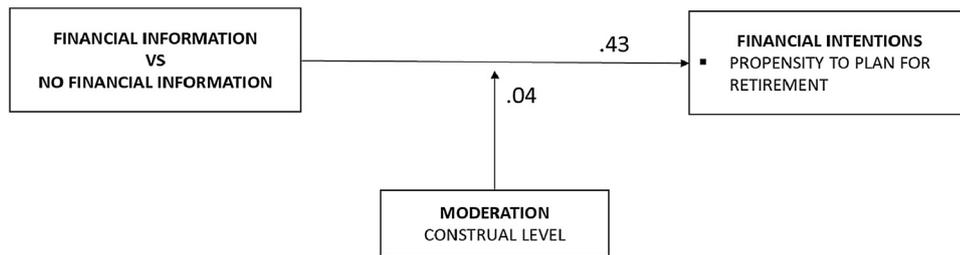
Retirement planning is of mounting importance for both individual (financial) well-being and society at large (Brüggen, Hogreve, Holmlund, Kabadayi, & Löfgren, 2017; Netemeyer, Warmath,

D.



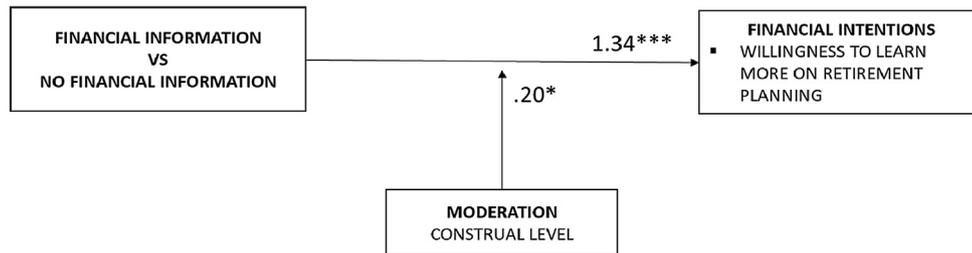
Moderation impact: .00; 95% CI [-.01; .01]

E.



Moderation impact: .04; 95% CI [-.02; .05]

F.



Moderation impact: .20; 95% CI [.14; .24]

Fig. 4. (continued)

Fernandes, & Lynch, 2018). Within a challenging context of a growing retiree population and decreased Social Security funding, consumers face increasing self-responsibility for retirement planning and managing personal finances (van Rooij et al., 2011). At the same time, financial markets and the decisions consumers must make regarding retirement preparation and management are increasingly complex (Lusardi and Mitchell 2009). As a result, retirement planning becomes ever more demanding, and informing and teaching consumers how to manage their finances is an urgent policy matter (Lusardi & Mitchell, 2007b). This urgency prevails not just in the U.S., but worldwide. For example, in many European countries, pension reforms require consumers to make complex decisions on planning for supplementary retirement income, and governments have founded public pension platforms to assist consumers in procuring information, improving knowledge, and advancing retirement planning (Debets et al., 2018).

For instance, the Swedish Pensions Agency provides both general and personalized information to its citizens, including orange envelopes with statements of contributions paid, a fund report, and a forecasted future pension (<https://www.pensionsmyndigheten.se/other-languages/english-engelska>). In the U.K., Pension Wise Support by the Money and Pensions Service offers free retirement guidance,

providing general information, personalized simulators, and human support (<https://www.pensionwise.gov.uk/en>). Pension Danmark presents information and advice on financial matters such as saving and insurance, but also on health in retirement (<https://www.pension.dk/en/member/>). Despite these initiatives, government communication on retirement issues still needs further improvement to be effective (Prast & van Soest, 2015). Accordingly, a growing literature examines the effects of financial education as well as pension communication on consumer financial decision-making and retirement planning (e.g., Debets et al., 2018, Fernandes et al., 2014, Peeters et al., 2018), to which our present study contributes.

5.1. Contributions to research

Our study contributes to the literature in several ways. First, we advance the understanding of how to effectively stimulate consumers' intentions and behavior regarding retirement planning. An important finding is that, overall, consumers seem to react more to the presence of a financial message than to its specific format, as manipulated in our study, even though our pre-test indicated an effective manipulation of message format. The only exception to this pattern of findings is that we

Table 3
Scale items, factor loadings, and construct validity of follow-up study.

Construct	Item wording	Mean	Min/Max	SD	Item loading	Cronbach's alpha	AVE	CR
Having planned for retirement (Lynch et al., 2010)	1. I have set financial goals for what I want to achieve with my money.	3.89	1/7	1.88	0.79	0.93	0.74	0.95
	2. I have decided beforehand how my money will be used.	4.55		1.79	0.84			
	3. I have actively considered the steps I need to take to stick to a budget.	4.33		1.85	0.90			
	4. I have consulted my budget to see how much money I have left.	4.53		1.94	0.89			
	5. I have looked to my budget in order to get a better view as to my spending in the future.	4.42		1.87	0.91			
	6. I feel better to have my finances planned out.	4.50		1.80	0.84			
Having learned more about retirement planning (Stawski et al., 2007)	I have looked up information to learn more about retirement planning.	2.75	1/7	1.99	n/a	n/a	n/a	n/a
Retirement planning activity level (Hershey et al., 2007)	1. Frequently read articles/brochures on investing or financial planning.	2.85	1/7	2.00	0.73	0.90	0.32	0.80
	2. Read one or more books on investing or financial planning.	2.05		1.71	0.84			
	3. Frequently visited financial planning sites on the World Wide Web.	2.84		2.11	0.70			
	4. Gathered or organized your financial records.	3.99		2.22	0.24			
	5. Regularly tuned into television/radio shows on investing or financial planning.	2.64		1.99	0.79			
	6. Conducted a thorough assessment of your net worth.							
	7. Identified specific spending plans for the future.							
	8. Discussed financial planning goals with a professional(s) in the field.	3.80		2.24	0.24			
	9. Discussed financial retirement plans with an employer's benefits specialist.	3.69		2.13	0.23			
	10. Discussed retirement plans with a knowledgeable friend or acquaintance.	2.67		2.21	0.54			
	1.88		1.58	0.50				
	2.79		2.12	0.35				

Notes: SD = standard deviation; AVE = average variance extracted; CR = composite reliability; all constructs were measured on a Likert scale ranging from 1 = “Completely disagree” to 7 = “Completely agree.”

find that a message from a government source is more effective than a peer-generated message in improving the willingness to learn more about retirement planning. Moreover, while most studies do not include a hanging control group not receiving a financial information message to isolate its potential effect, our study does so and thus addresses this shortcoming of previous work (Peeters et al., 2018). Importantly, we also assess the relationship between stated retirement planning intentions and actual behavior in the period after initial exposure to an information message. In doing so, we contribute to the ongoing discussion on whether financial intentions translate into actual behavior and the duration of the effect of financial education (Fernandes et al., 2014). Indeed, our follow-up study showed that consumers who are interested in learning more and are ready to start planning for retirement convert their intentions into actual behavior, even after three months.

Second, we expand the emerging literature on the importance of consumers' subjective financial capability versus their objective financial literacy (Allgood & Walstad, 2016; Hoffmann & McNair, 2019; Peeters et al., 2018) by illustrating that retirement self-efficacy helps explain consumers' response to a financial information message. To date, the literature on retirement self-efficacy and its antecedents and consequences is limited. By demonstrating how retirement self-efficacy mediates the effect of a financial information message on retirement planning, we advance the nascent field of financial self-efficacy regarding retirement decisions.

Finally, we tap into the importance of key consumer characteristics, including perceived financial security (Strömbäck et al., 2017), construal level (Trope & Liberman, 2003), and self-control (Rabinovich & Webley, 2007), in understanding the effectiveness of financial information messages. In doing so, we contribute to the emerging—although still limited—literature on financial education, which argues that consumers' personality should be considered to understand when and why financial education may or may not be successful (e.g., Fernandes et al., 2014). Importantly, we show that the impact of financial information messages is not the same for everyone. That is, the retirement planning intentions of consumers who perceive their actual financial situation to be less secure and who have a construal level which is congruent with that focused on in the information message (i.e., a higher construal level) are more influenced by a retirement information message. Moreover, the relationship between retirement intentions and actual retirement planning behavior is stronger for consumers with more self-control.

5.2. Implications for practice

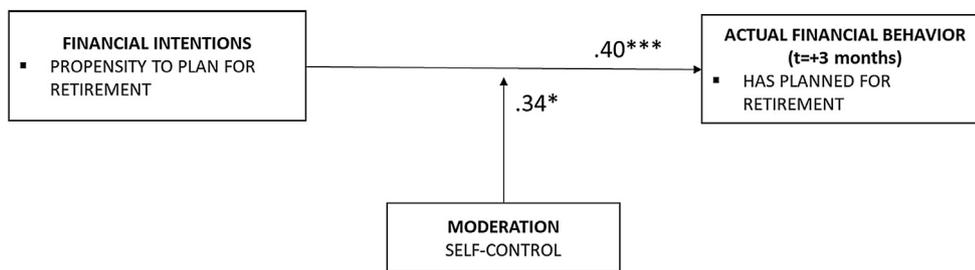
Our results offer some guidelines for policy makers on how to inform consumers and effectively stimulate their retirement planning intentions and behavior. Regarding message format, we only find that a message from a government source is more effective than a peer-

Table 4
Impact of retirement planning intentions on actual retirement behavior.

Independent variable		Impact of willingness to learn more about retirement matters on retirement planning (standardized coefficient)		Impact of propensity to plan for retirement on retirement planning (non-standardized coefficient)	
Dependent variable	SE	Impact of willingness to learn more about retirement matters on retirement planning (non-standardized coefficient)	SE	Impact of propensity to plan for retirement on retirement planning (standardized coefficient)	SE
Have planned for retirement	0.18*	0.216*	0.05	0.36***	0.44***
Have searched for more information on retirement planning	0.32***	0.37***	0.06	0.26	0.45
Overall retirement planning activity level (unweighted average of all items of Hershey et al., 2007)	0.30***	0.36***	0.04	0.31***	0.37***
Retirement planning activity detailed measures					
Frequently read articles/brochures on investing or financial planning.	0.29***	0.34***	0.06	0.27***	0.44***
Read one or more books on investing or financial planning.	0.24***	0.23***	0.05	0.14*	0.20*
Frequently visited financial planning sites on the World Wide Web.	0.34***	0.41***	0.06	0.24	0.40
Gathered or organized your financial records.	0.33***	0.41***	0.07	0.10	0.46
Regularly tuned into television/radio shows on investing or financial planning.	0.29**	0.32**	0.05	0.23***	0.37***
Conducted a thorough assessment of your net worth.	0.32***	0.26***	0.07	0.24***	0.44***
Identified specific spending plans for the future.	0.30***	0.36***	0.07	0.29***	0.50***
Discussed financial planning goals with a professional(s) in the field.	0.25	0.20	0.07	0.21*	0.38*
Discussed financial retirement plans with an employer's benefits specialist.	0.16**	0.15**	0.05	-0.07	-0.14
Discussed retirement plans with a knowledgeable friend or acquaintance.	0.08	0.16	0.07	0.13*	0.27*

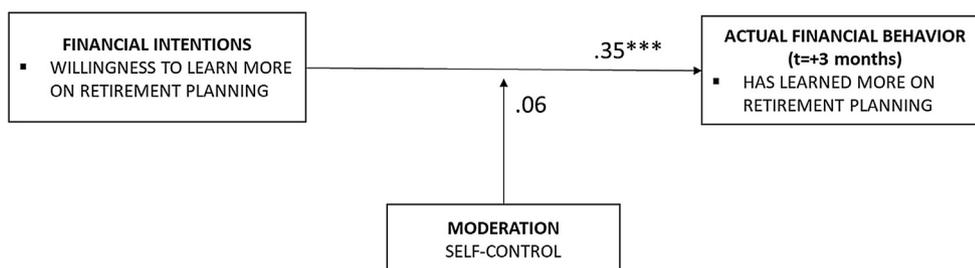
Notes: Coefficients correspond to the estimates of individual linear regressions; * $p < .100$; ** $p < .010$; *** $p < .001$; SE = standard error of individual linear regression.

A.



Moderation impact: .34; 95% CI [.28; .40]

B.



Moderation impact: .06; 95% CI [-.05; .17]

Fig. 5. Moderation by self-control. Notes: * $p < .100$; *** $p < .001$.

generated message in terms of improving consumers’ willingness to learn more about retirement planning. Policy makers are thus advised to (continue to) enhance campaigns by seeking and communicating government endorsement. For instance, the U.S. Department of Labor should continue to stress its authorship of the *savingmatters.dol.gov* website and blog. A supporting tag line, such as that used by the Consumer Financial Protection Bureau—“An official website of the United States government”—might be another effective means of strengthening the influence of a credible information source.

Furthermore, prior financial education campaigns may have been less effective because of the short-lasting effect of providing factual financial information only (Mandell & Klein, 2009), but also because of neglecting to account for psychological factors (Fernandes et al., 2014). In this regard, our study documents an important mediating role of willingness to learn more about retirement matters. Hence, individuals’ curiosity about the topic of retirement planning is crucial and policy makers should take active measures to stimulate consumer learning and self-education (Bauer, Eberhardt, & Smeets, 2019). Furthermore, we find that financial self-efficacy regarding retirement matters mediates the impact of a financial information message on retirement planning intentions. Accordingly, financial education campaigns should not provide factual information only, but include a subjective factor addressing consumers’ perceived capability. When designing and evaluating interventions, policy makers are advised to measure and act upon subjective financial capability as an outcome variable of equal importance as objective financial literacy. A possible approach is to include motivating messages, such as “Whether you are 18 or 58, you can take steps toward a better, more secure future,” as featured in the brochure “Savings Fitness: A Guide to Your Money and Your Financial Future” developed by the U.S. Department of Labor (2018). Another way to stimulate retirement self-efficacy is to provide consumers with information on role models with whom they might associate themselves, who actively engage in beneficial behavior in terms of retirement preparation, setting an example that they can then follow (Forbes,

2015).

Next, the moderating role of perceived financial security in explaining the variation in the impact of a financial information message means that to leverage consumers’ financial behavior, communication campaigns should highlight the urgency to act immediately to secure one’s financial well-being in retirement. Specifically, policy makers might trigger consumers’ evaluation of their financial security and heighten their sense of urgency by alerting them that younger generations will have to save more for retirement than older generations and that starting early is critical (e.g., as communicated on the website of the U.S. Department of Labor). Providing a simulator of the funds required in retirement and the time needed to accumulate this amount of wealth is likely to lead to a higher perceived urgency to act, and therefore strengthen the behavioral reaction of consumers to a financial information message on retirement planning.

Furthermore, given its moderating role, policy makers developing communication campaigns should also take into account consumers’ mindset in terms of their construal level by including clear reasons as to why starting retirement planning is important and how it should be done. Ideally, policy makers should identify the construal level of their target population and frame their message to suit. Matching is particularly important since research shows that for high-level construers, specific (vs. nonspecific) goals lead to savings success because they are perceived as more important. However, specific (vs. nonspecific) goals are also perceived as more difficult, which is discouraging for low-level construers (Ülkümen & Cheema, 2011).

Finally, to ensure consistent retirement planning behavior in terms of consumers’ follow-up on their intentions, addressing their self-control is important. Self-control might be stimulated with reflections on one’s past behavior or the future consequences of one’s current behavior (Nenkov, Inman, & Hulland, 2007). Also, consumers can be provided with a list of precise goals and ways to achieve them (Inzlicht & Schmeichel, 2012). Alternatively, appealing to an individual’s successes, such as graduating from college, acquiring a house, or becoming

Table A1
Comparison of socio-demographics of the experimental cells vs. the overall U.S. population.

	Gender	Age	Ethnicity	Education
Experimental condition: text only				
Government descriptive N = 67	Male 43.9%	Min 22	Caucasian 80.7%	High school 7%
	Female 56.1%	Max 89 Mean (SD) 54.2 (15.1) Median 55	Black 5.3% Hispanic 1.8% Asian 8.8%	College 21.1% Associate 17.5% Bachelor's 29.8% Master's 17.5% PhD 1.8%
Government prescriptive N = 65	Male 52.3%	Min 18	Caucasian 87.7%	High school 20%
	Female 47.7%	Max 80 Mean (SD) 51.1 (14.7) Median 52	Black 3.1% Hispanic 1.5% Asian 7.7%	College 15.3% Associate 12.3% Bachelor's 29.2% Master's 18.5% PhD 3.1%
Peer descriptive N = 66	Male 46%	Min 25	Caucasian 85.7%	High school 12.7%
	Female 54%	Max 99 Mean (SD) 52.7 (15.8) Median 55	Black 3.2% Hispanic 3.2% Asian 5%	College 19% Associate 11.1% Bachelor's 28.6% Master's 15.9% PhD 1.2%
Peer prescriptive N = 57	Male 47%	Min 19	Caucasian 86.4%	High school 21.2%
	Female 53%	Max 80 Mean (SD) 53.5 (13.9) Median 55	Black 6.1% Hispanic 3% Asian 3% Native 1.5%	College 19.7% Associate 13.6% Bachelor's 27.3% Master's 9.1% PhD 3%
Experimental condition: graphs				
Government descriptive N = 57	Male 53%	Min 20	Caucasian 78.8%	High school 15.1%
	Female 47%	Max 86 Mean (SD) 49.8 (16.4) Median 51	Black 3% Hispanic 6.1% Asian 9.1% Native 1.5%	College 21.2% Associate 9.1% Bachelor's 30.3% Master's 10.6% PhD 3%
Government prescriptive N = 66	Male 50.7%	Min 19	Caucasian 85.1%	High school 16.4%
	Female 49.3%	Max 78 Mean (SD) 53.4 (15.1) Median 52	Black 3.7% Hispanic 4.5% Asian 6% Native 1.5%	College 17.9% Associate 4.5% Bachelor's 41.8% Master's 14.9% PhD 3%
Peer descriptive N = 63	Male 52.4%	Min 19	Caucasian 79.4%	High school 25.4%
	Female 47.6%	Max 80 Mean (SD) 53.5 (13.9) Median 55	Black 6.3% Hispanic 1.6% Asian 12.7%	College 22.2% Associate 7.9% Bachelor's 20.6% Master's 15.9% PhD 1.6%
Peer prescriptive N = 63	Male 47.4%	Min 20	Caucasian 82.5%	High school 14.1%
	Female 52.6%	Max 70 Mean (SD) 48.2 (13.7) Median 48	Black 5.3% Hispanic 3.5% Asian 3.5% Native 1.8%	College 24.6% Associate 10.5% Bachelor's 29.8% Master's 17.5% PhD 1.8%
Experimental condition: hanging control				
N = 196	Male 46.2%	Min 18	Caucasian 76.4%	High school 27.7%
	Female 53.8%	Max 68 Mean 47,2 (Std. Dev. 16.8) Median 49	Black 7.7% Hispanic 10.3% Asian 5.1% Native 0.5%	College 28.2% Associate 10.3% Bachelor's 23.6% Master's 8.2% PhD 0.5%
U.S. Population^a				
	Male 49.2%	Under 18 years 22.4%	Caucasian 60.4%	High school or higher 87.7%
	Female 50.8%	18–65 years 61.6%	Black 13.4%	Bachelor's or higher 31.5%
		Over 65 years 16%	Hispanic 18.3% Asian 5.9% Native 1.5%	

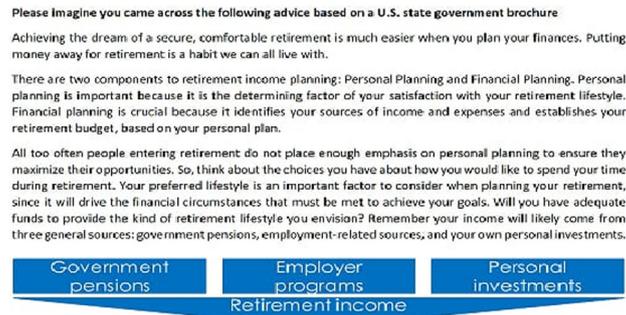
Notes: SD = standard deviation, a = source is <https://www.census.gov/quickfacts/fact/table/US/IPE120218>.

a parent, can induce higher self-control and promote better behavior (Nikolova, Lambertson, & Haws, 2016). Consumers might also be incentivized to make a budget, as self-monitoring increases awareness and fosters self-control (Beames, Schofield, & Denson, 2017). Finally, peer communities can also contribute to improving commitment, thus motivating consumers to put intentions into actions (Ariely &

Wertenbroch, 2002).

5.3. Limitations and future research

Our work has some limitations, which offer opportunities for future research. First, we exposed participants to static information. Actively



When you are considering when to claim your government pension (Social Security retirement benefits), one important factor to take into account is how long you might live.

According to data compiled by the U.S. Social Security Administration:

- A man reaching age 65 today can expect to live, on average, until age 84.3.
- A woman reaching age 65 today can expect to live, on average, until age 86.6.

You can retire at any time between age 62 and full retirement age (70). However, if you claim benefits early, your benefits are reduced a fraction of a percent for each month before your full retirement age.

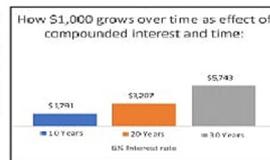
Here is a list of further recommendations to plan a secure retirement:

1. Start saving, keep saving, and stick to your goals

You know that saving is a rewarding habit. Look at what you're earning and how much you're spending. Put together a budget, and find some money to put into savings. The sooner you start saving, the more time your money has to grow. Make saving for retirement a priority. You should be saving at least 10% to 15% of your income, not including any retirement contributions from your employer. Remember, it's never too early or too late to start saving.

Even small investments become larger investments, if you leave them there over time, and let the interest compound and grow: it is called the power of compounding. The money you save in a savings account, in your 401(k) plan, mutual funds or other account, earns interest or investment earnings. When you leave the money there, over time you also earn interest on your interest, or earnings on your earnings. Although this sounds like a slow process, when you start early it can result in some amazing growth in your money over the long haul.

In the figure below is an example of how \$1,000 grows into higher amounts over time because of compounded interest. Thus, for an interest rate of 6% the \$1,000 becomes \$1,791 in 10 years, \$3,207 in 20 years, and \$5,743 in 30 years. Clearly, more time and higher interest rates both help your money grow. That is why the retirement savings should not be touched: if you withdraw your retirement savings early you will miss out on the effect of compounded interest.



2. Know your retirement needs

Retirement is expensive. Experts estimate that you will need at least 70 percent of your preretirement income – for lower incomes, this is 90 percent or more – to maintain your standard of living when you stop working.

3. Contribute to your employer's retirement savings plan

If your employer offers a retirement savings plan, such as a 401(k) plan, sign up and contribute all you can. Your taxes will be lower, your company may kick in more, and automatic deductions make it easy. Over time, compounded interest and tax deferrals make a big difference in the amount you will accumulate.

4. Learn about your employer's pension plan

If your employer has a traditional pension plan, check to see if you are covered by the plan and understand how it works. Ask for an individual benefit statement to see what your benefit is worth. Before you change jobs, find out what will happen to your pension benefit.

5. Consider basic investment principles

How you save can be as important as how much you save. Inflation and the type of investments you make play important roles in how much you'll have saved at retirement. Know how your savings or pension plan is invested. Put your savings in different types of investments. By diversifying this way, you are more likely to reduce risk and improve return. Your investment mix may change over time depending on a number of factors such as your age, goals, and financial circumstances. Financial security and knowledge go hand in hand.

6. Put money into an Individual Retirement Account

You can put up to \$5,500 a year into an Individual Retirement Account (IRA); you can contribute even more if you are 50 or older. You can also start with much less. IRAs also provide tax advantages. When you open an IRA, you have two options – a traditional IRA or a Roth IRA. The tax treatment of your contributions and withdrawals will depend on which option you select. Also, the after-tax value of your withdrawal will depend on inflation and the type of IRA you choose. IRAs can provide an easy way to save. You can set it up so that an amount is automatically deducted from your checking or savings account and deposited in the IRA.

7. Find out about your Social Security benefits

Social Security pays benefits that are on average equal to about 40 percent of what you earned before retirement.

8. Ask Questions

While these tips are meant to point you in the right direction, you'll need more information. Read publications on the topic, talk to your employer, your bank, your union, or a financial adviser. Ask questions and make sure you understand the answers. Get practical advice and act now.

Fig. A2. Prescriptive information from government source with graphical illustrations.

participating in online peer discussions may influence consumers' intentions to plan for retirement to a greater degree than simply consulting these sources (Jarvis, 2002) and could explain the weaker effect of peer-generated information versus government-provided information. Furthermore, that prescriptive messages did not have a stronger effect than descriptive ones might have occurred because normative influence can be relatively ineffective in a retirement context (Bauer et al. 2019) or because informational influences can be a stronger driver

of consumers' financial behavior than normative influences (Hoffmann & Broekhuizen, 2009). To clarify the exact role of message tone in message effectiveness, future studies could explore alternative ways to introduce prescriptive norms, as our manipulation might have been not prominent enough to trigger behavioral change.

The absence of an effect of graphical illustrations may be the result of providing an insufficient quantity of illustrations or could be explained by them not being sufficiently descriptive to induce an impact.

Please imagine you came across the following exchange of advice on a consumer forum

ABOUT THE FORUM

Achieving the dream of a secure, comfortable retirement is much easier when you plan your finances. Putting money away for retirement is a habit we can all live with.

There are two components to retirement income planning: Personal Planning and Financial Planning. Personal planning is important because it is the determining factor of your satisfaction with your retirement lifestyle. Financial planning is crucial because it identifies your sources of income and expenses and establishes your retirement budget, based on your personal plan.

All too often people entering retirement do not place enough emphasis on personal planning to ensure they maximize their opportunities. So, think about the choices you have about how you would like to spend your time during retirement. Your preferred lifestyle is an important factor to consider when planning your retirement, since it will drive the financial circumstances that must be met to achieve your goals. Will you have adequate funds to provide the kind of retirement lifestyle you envision? Remember your income will likely come from three general sources: government pensions, employment-related sources, and your own personal investments.

When you are considering when to claim your government pension (Social Security retirement benefits), one important factor to take into account is how long you might live.

According to data compiled by the U.S. Social Security Administration:

- A man reaching age 65 today can expect to live, on average, until age 84.3.
- A woman reaching age 65 today can expect to live, on average, until age 86.6.

You can retire at any time between age 62 and full retirement age (70). However, if you claim benefits early, your benefits are reduced a fraction of a percent for each month before your full retirement age.

NEW DISCUSSION: 7 participants, 6 replies

Q: Hello, my new employer has asked me about my pension plan. I am 21 and never thought about it. Should I start planning for my retirement already? What should I do? Thanks for your advice! Kate

Futureretiree101: Living a happy and long life is much easier when you plan for it. And you should plan for it in terms of your finances. Putting money away for retirement is a habit we can all live with. Think about what you want to do when retired, what will make you happy...and then calculate just how much money you will need to achieve it. And then, then start saving. For sure, the earlier the better!

Almostretired_Frank: Everything depends on when you plan to retire and how long you gonna live. FYI men live, on average, until age 84.3 and women until age 86.6. And those are just averages. You can just as well live past 90 or 95. With early retirement from age 62 it is a long time. And retirement is expensive. I heard you need at least 70 percent of your preretirement income. For lower incomes, it is even 90 percent or more. So, the earlier you start putting aside, the better quality of life you will have once retired.

Michael46: Hello, Kate. I tell you from my personal experience: start putting away as early as possible and do not touch it till you are retired! I have two twin brothers, each of us received \$1,000 for our 18th birthday from our grandparents. First, all of us put these money on a saving account with a 6% interest rate. My brother Ted withdrew his money 10 years after: he got \$1,791; I decided to use the saved money when I was 38 and in 20 years my \$1,000 became \$3,207! Our brother Jim was even smarter and opened his savings account only when he was 48: due the compounded interest effect he got \$5,743, so he earned \$4,743 just for putting away the money for 30 years.

nonickname: Hi Kate! If you start a new job the first thing to do is to ask your employer about an available retirement savings plan. If your employer offers a retirement savings plan, such as a 401(k) plan, sign up and contribute all you can. Your taxes will be lower, your company may kick in more, and automatic deductions make it easy. Over time, compound interest and tax deferrals make a big difference in the amount you will accumulate. If your employer has a traditional pension plan, check to see if you are covered by the plan and understand how it works. Ask for an individual benefit statement to see what your benefit is worth.

Professionalsaver09: If you want to secure your future, manage it yourself. How you save can be as important as how much you save. You have to understand that inflation and the type of investments you make play important roles in how much you'll have saved at retirement. For instance, put your savings in different types of investments. By diversifying this way, you are more likely to reduce risk and improve return. Financial security and knowledge go hand in hand. Also, you can put money into an Individual Retirement Account (IRA); you can contribute \$5,500 a year and even more if you are 50 or older. You can also start with much less. IRAs also provide tax advantages. When you open an IRA, you have two options – a traditional IRA or a Roth IRA. The tax treatment of your contributions and withdrawals will depend on which option you select. Also, the after-tax value of your withdrawal will depend on inflation and the type of IRA you choose. IRAs can provide an easy way to save. You can set it up so that an amount is automatically deducted from your checking or savings account and deposited in the IRA.

Jennifer52: Dear Kate, I agree with every advice given here. But what is more important: get information and ask questions! Find out about your Social Security benefits, read publications on the topic, talk to your employer, your bank, your union, or a financial adviser. Ask questions and make sure you understand the answers. Get practical advice and then act; the sooner the better.

Fig. A3. Descriptive information from consumer forum text only.

Despite our visualizations being similar in design to those used by various governmental organizations (e.g., Federal Bank at www.stlouisfed.org or U.S. Security and Exchange Commission at www.investor.gov), they might have been not very visually appealing, leading to an absence of an effect on consumer intentions. Future research could improve message salience by incorporating more than the two simple illustrations that we included. Finally, conceivably, the experimental conditions were not that drastically different.

As an alternative to our experimental manipulations, future research could consider interactive images and infographics and explore the impact of interactive tools (Lusardi et al., 2017), especially as interactivity has a positive effect on consumers' engagement with retirement planning (Brüggen et al., 2019). Future studies could explore

the extent to which virtual simulations and games can help shape consumers' financial attitudes and decisions (Romero & Usart, 2013). Such tools may be especially beneficial in increasing the retirement engagement of younger generations, such as Millennials. These less experienced consumers often experience financial fragility and therefore particularly need to develop their actual and perceived financial capabilities (e.g., Friedline & West, 2016; West & Friedline, 2016). In this regard, personalized information might be helpful. For instance, individual projections—such as the orange envelopes provided by the Swedish Pensions Agency for individual retirement income projections—could increase personal contributions to (retirement) savings accounts (see e.g., Dolls, Doerrenberg, Peichl, & Stichnoth, 2018; Goda, Manchester, & Sojourner, 2014). Furthermore, future studies should

control for information novelty and relevance as perceived by participants, as information must be relevant to have an impact on the receiver (Trumbo, 1999).

Second, although ours is one of the first studies to examine the impact of retirement planning intentions on the actual behavior of consumers at a later time, and the timeframe in which we evaluate changes in consumers' retirement planning behavior is consistent with that used in studies on the effectiveness of financial planning programs (e.g., Boyce & Danes, 1998; Danes, 2005), the three-month period between the initial and follow-up study is still relatively short. Future research could examine the impact of longer delays on the effectiveness of financial information messages, adding to the literature on fading over time (cf. Fernandes et al., 2014). Moreover, although we rely on a panel of Qualtrics that aims to deliver a sample that is close to the overall U.S. population in terms of socio-demographic characteristics, our sample could still be biased by the selection criteria of the panel (i.e., self-selection into the panel by people who are willing to regularly complete questionnaires) and the personal motivation of participants to complete the follow-up study. Furthermore, the studied actual behaviors are self-reported. It is possible that respondents may have wanted to confirm their earlier stated intentions and over-report. Hence, future studies could assess consumers' retirement planning behavior in a real decision-making context to overcome potential panel selection bias and/or self-reporting bias.

Despite these limitations, our study contributes to the emerging

Appendix A1. National representativeness of the sample

See Table A1

Appendix A2. Examples of financial information used in the experimental manipulations

See Figs. A2 and A3.

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literature on how to increase consumer engagement with retirement matters (Deetlefs et al., 2019). Importantly, our work has implications for policy makers deciding how to craft an effective financial information message aimed at improving consumers' retirement planning intentions and behavior. Indeed, a key message in this regard is not to overestimate the impact of message format, but to pay careful attention to consumers' psychological characteristics when evaluating campaign effectiveness.

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