Netspar

Network for Studies on Pensions, Aging and Retirement

NETSPAR INDUSTRY SERIES

Creating good choice environments

Insights from research and industry practice

Elisabeth Brüggen
Thomas Post
Kimberley van der Heijden

DESIGN PAPER 88

DESIGN PAPERS are part of the **refereed Industry Paper Series**, which are refereed by the Netspar Editorial Board. Design Papers discuss the design of a component of a pension system or product. A Netspar Design Paper analyzes the objective of a component and the possibilities for improving its efficacy. These papers are easily accessible for industry specialists who are responsible for designing the component being discussed. Authors are allowed to give their personal opinion in a separate section. Design Papers are presented for discussion at Netspar events. Representatives of academic and private sector partners, are invited to these events. Design Papers are published at the Netspar website.

Colophon
Netspar Design Paper 88, October 2017

Design
B-more Design

Lay-out
Bladvulling, Tilburg

Editors
Frans Kooymans, Frans Kooymans-Text and Translation
Netspar

CONTENTS

Affiliations
Elisabeth Brüggen – Maastricht University
Thomas Post – Maastricht University
Kimberley van der Heijden – Maastricht University

Abstract

One of the most heavily debated topics in the Dutch pension industry is whether Dutch pension plan participants should receive more freedom of choice. Greater choice provides participants with more control over their retirement planning, enabling them to adapt their retirement saving strategy to their personal preferences. More choice is also supposed to increase participant engagement with their retirement strategy and pensions. However, numerous studies show that, under certain conditions, individuals view choices as being complex, confusing and risky. This creates potential for decision mistakes, anxiety and inertia. Thus, in the event that the Dutch pension system moves toward greater freedom of choice, it is important to create a choice environment that helps participants make choices and avoid undesirable consequences. To advance knowledge on good choice environments in the pension industry, we first present and discuss research on choice environments. We then present practical examples especially from markets and industries with long histories of freedom of choice (e.g. consumer goods) and formulate advice for the pension industry.

Samenvatting

Een van de meest besproken onderwerpen in de Nederlandse pensioenindustrie is of deelnemers meer keuzevrijheid zouden moeten krijgen met betrekking tot hun pensioen. Meer keuze biedt deelnemers meer controle over hun pensioenplanning en stelt hen in staat hun pensioenplanning aan hun persoonlijke voorkeuren aan te kunnen passen. Bovendien wordt er vaak beweert dat meer keuze deelnemers motiveert om een actievere houding met betrekking tot hun pensioenplanning aan te nemen. Echter tonen talkrijke studies aan dat mensen onder bepaalde voorwaarden keuzes als complex, verwarrend en riskant ervaren, waardoor de kans van beslissingsfouten, angst en uitstelgedrag juist wordt vergroot. Dus, mocht het Nederlandse pensioenstelsel meer keuzevrijheid willen bieden in de toekomst, dan is het belangrijk om een keuzearchitectuur te creëren die de deelnemer faciliteert bij het maken van keuzes en daarbij ongewenste gevolgen vermijdt. Om kennis over mogelijke keuzearchitecturen in de pensioenindustrie te bevorderen presenteren en bespreken wij onderzoek over hoe men het beste keuzes kan presenteren en geven we praktische voorbeelden van verschillende keuzearchitecturen. Hierbij kijken we vooral naar markten en industrieën met een lange geschiedenis op het gebied van keuzevrijheid (bijvoorbeeld consumptiegoederen) en gebruiken we deze inzichten om advies te geven aan de pensioenindustrie.

1. Introduction

Engagement of pension plan participants with their retirement savings is generally low. In 2014, TIAA-CREF conducted a survey on pension engagement among 1,008 randomly selected Americans. The study finds that Americans spend less time planning for retirement than for choosing a restaurant, flat-screen TV or tablet (TIAA-CREF, 2014). The engagement of Dutch pension plan participants is also low, with only one out of ten taking time to look at their personal pension situation (Wijzer in Geldzaken, 2014).

An ongoing discussion in the Netherlands involves the question of whether there should be greater freedom of choice for pension plan participants. More freedom is supposed to enable participants to adapt their retirement planning to their personal preferences. Despite the generally low engagement of pension plan participants, there are strong advocates for more freedom of choice. Some claim that 'More freedom of choice leads to more awareness about pensions plans' (Boelaars, 2012), thereby increasing engagement. Choice can be perceived as complex and confusing, however, and individuals often defer making choices, or avoid them altogether (Iyengar and Lepper, 2000). To circumvent such problems, Jetta Klijnsma, former State Secretary for Social Affairs and Employment in the Netherlands, called for the creation of a choice environment that better supports pension plan participants in their decision process (Klijnsma, 2015). But how should a choice environment be designed in order to stimulate participants to become more engaged with pension planning and to make good choices?

This paper addresses this specific question first by discussing and presenting research on choice behaviour. Then, by providing examples from industries utilizing large choice sets, we hope to generate insight for the design of choice environments. Special attention is given to the concept of choice architecture, and the ways in which to design not only choice alternatives, but also the choice set as a whole.

This paper does not take a stance on whether or which choice should be introduced in the first place, but rather uses insights from the literature and real-life examples to explore how to facilitate choices.

The paper is organized as follows: Section 2 discusses individuals' preferences for choice. Section 3 presents an overview of some important biases in consumer decision making. Section 4 first introduces the concept of choice architecture and outlines its most important aspects. This is followed by an exploration of the different choice architectures, the design of choice alternatives and the choice set. We also discuss potential ways to subconsciously influence decision making. Section 5 summarizes the most important steps in designing choice environments.

2. Individuals like choice

Individuals today face an overwhelming range of choices. One can choose, for example, between multiple supermarkets, products, transportation modes, schools and occupations. The presence of choice, while ingrained in today's Western culture and society, has not always been self-evident. Apart from the recent history, a person's lifecycle was largely predetermined from birth (Dekker, 2009). One was born and raised in a specific culture, which implied that also one's social-economic situation was largely predetermined. The most important choices in life involved one's life partner and occupation— but even those choices were often strongly influenced and constrained by culture and the social environment. Nowadays, life in Western societies is fairly unconstrained from birth (Dekker, 2009).

Do individuals actually like choice? There is ample evidence that people have a general preference for choice. Individuals experience additional utility from having more alternatives to choose from because this creates the perception of freedom of choice (Kahn, Moore & Glazer, 1987). Individuals like to have control, and giving them the opportunity to choose increases their perceived control (Veitch & Gifford, 1996). Moreover, having many choices increases the likelihood that an individual can find a close match to his or her (purchase) goal and preferences (Baumol & Ide, 1956).

Given that individuals like choice, one would expect that they make use of their freedom to choose. However, numerous studies have shown that individuals oftentimes do not make choices or defer from choosing (Iyengar and Lepper, 2000). So if more choice is provided in the Dutch pension system, would people become active and make choices? And if the answer is 'yes', would they then choose wisely?

3. Common behavioural biases in decision making

Traditionally, economists portray individuals as rational decision makers who always make good decisions for themselves and choose optimally. However, individuals are not fully rational, and several biases in human decision making have been identified. These biases significantly influence individual decision making and choice satisfaction—particularly when individuals are faced with multiple alternatives. The following section summarizes the most important insights from consumer goods marketing, psychology and behavioural economics on biases and heuristics that affect choice. For more information see also Prast (2017)

3.1 The relativity bias

The relativity bias relates to individuals' tendency to look at and evaluate things in relation to others instead of performing absolute term evaluations (Ariely, 2009). Individuals focus on the relative advantage of one alternative over another, which often leads to irrational decisions. Box 1 describes an example of irrational decision making in a shopping environment.

Box 1: Relativity makes us (predictably) irrational human beings.
Imagine you are shopping for a kitchen knife and for a nice dress for your sister's wedding. You are in a kitchen appliance store, where you are about to purchase a kitchen knife for €25. At the cash register you remember that it was only €18 in another store 12 minutes away. What would you do? Take a 12-minute trip to save €7 euros, or not? Most people would choose to take the trip and save €7 euros. Next, you are shopping for a €450 dress for your sister's wedding. Again, you are set to buy it, but hear from a lady in the dressing room that the dress is €7 cheaper in a store 12 minutes away. Would you take this 12-minute trip to save the €7? Most people would not choose to make the 12-minute trip. Now here is the thing. In both cases, you save €7, and the only question you need to ask yourself is whether you would make the 12-minute trip to save this money. Most people choose differently in both situations — even though the price for the product should be irrelevant. The fact that we compare things in relative terms makes us behave differently in each situation.
Adapted from Ariely, 2009.

3.1.1 The middle alternative

The phenomenon that alternatives that are placed in the centre of a display are chosen more often than those placed on the side is known as the centre-stage effect (Valenzuela & Raghubir, 2009). Rodway, Schepman and Lambert (2012) found that when five alternatives were displayed in either a horizontal or a vertical fashion, the alternative in the centre is preferred most often. The tendency to choose the alternative in the centre derives from the belief that the most popular alternatives are placed in the centre of a display (Valenzuela & Raghubir, 2009). Additionally, individuals

tend to think that this alternative is well-liked by others; this perceived social cue seems to motivate individuals, when they finally make their choice, to follow the herd (Valenzuela & Raghubir, 2009).

3.1.2 Decoy alternatives

Because individuals focus on the relative advantage of one alternative over another, companies often steer consumer choice by introducing decoy alternatives. A decoy alternative is an alternative in a choice set that is relatively inferior to one of the alternatives (the 'dominant' alternative). Its presence serves to increase the attractiveness and choice probability of the dominant alternative. The decoy is thus not the alternative that companies want to sell, but rather is the alternative included to make another alternative look relatively more attractive (and thus influence an individual's choice).

An experiment in a movie theatre by the TV show *Brain Games* on the National Geographic Channel shows the effect of a decoy alternative in a popcorn choice set[1]. The experiment presents the following choice set: a small popcorn for €3, a medium popcorn for €6.50 and a large popcorn for €7. When only the small and large size popcorns are offered, the cinema sells the small popcorn the most. When the medium popcorn option is added, most visitors buy the large popcorn. The medium popcorn

Box 2: Decoy alternatives: 'The Economist example'

'*The Economist* example' is a classic example of a choice set with a decoy alternative. The original choice set consists of the web-only subscription of $59.00 and the print & web subscription of $125.00. When choosing between the two alternatives, out of a 100 people, 68 consumers choose for the web-only option and 32 choose for the print & web alternative. However, things change when the print subscription of $125.00 is added to the choice set, or the so-called decoy alternative. When choosing between the three alternatives, now 84 consumers choose the print & web alternative, and only 16 choose the web only subscription. No consumer chooses the print-only alternative. This is a classic example where it is extremely beneficial from a company's point of view to add an extra (inferior) option (in this case, the print-only subscription) in order to sell a more expensive option, and thereby shift consumer preferences. *Adapted from Predictably Irrational by Dan Ariely*

1 http://channel.nationalgeographic.com/brain-games/videos/the-decoy-effect/

makes the large popcorn look more attractive and eventually increases overall popcorn revenues.

Another classic example where the decoy alternative is added to the choice set, thereby shifting consumer preferences, is '*The Economist* example' (see box 2).

3.2 Anticipated regret

A third behavioural bias that potentially influences choice is anticipated regret. Regret is defined as a negative cognitively based emotion that one experiences when realizing or imagining that the present situation would have been better, had one decided differently (Zeelenberg, 1999). The anticipation of regret may substantially influence current decision making in uncertain situations under different circumstances.

First, anticipation of regret is more likely to occur when an individual is faced with a large number of alternatives from which to choose (Schwartz, 2004). With a large set of alternatives, exhaustive comparison is often impossible. The concern that a better alternative may be identified after the choice has been made may induce an individual to anticipate the feeling of future regret and therefore may deter that person from making the choice in the first place (Schwartz, 2004)

Second, regret regulation theory also proposes that regret is more likely to occur when decisions are considered important by the decision maker's social network or when the outcome is important (Zeelenberg & Pieters, 2007). Since retirement income is very important in a person's life and people may want to compare favourably to others in their social network, pension providers may evoke anticipated regret by stimulating participants to engage in desirable behaviours (e.g. save more).

Third, Zeelenberg and Pieters (2004) show that regret is not necessarily context-specific, but depends on specific characteristics of the setting. In their study, the authors compare decision making for general state lotteries with decision making

Box 3: Anticipated regret in the Postal Code Lottery.
A perfect example where (anticipated) regret influences decision making is the Dutch Postal Code Lottery ('Postcodeloterij'). This lottery uses postal codes as a lottery ticket– which implies that everyone, in fact, has a ticket: one needs only to validate it. Anticipating regret might prompt people to validate their ticket, since this ticket protects them against the possibility of severe regret in case they have the winning postal code. The use of postal codes is what makes the Postal Code Lottery so different from all the other lotteries, since in the end, everyone (so, also non-players) will always find out the outcome (whether they have the winning postal code), whereas in other lotteries you have to buy a 'random' ticket. You do not, of course, want to see your neighbours win a million euros and be left with empty hands yourself, do you?
Adapted from Zeelenberg, 1999.

for lotteries that are designed to evoke severe regret (postal code lottery; see box 3 for more details). They find that the influence of regret on gambling decisions is conditional on specific lottery characteristics, and is not uniform with regard to lottery participation in general. Box 3 describes in more detail how the postal code lottery integrated anticipated regret into the design of the lottery.

3.3 Option attachment

Another bias is option attachment to unchosen alternatives. When choosing between different alternatives, an individual may, upon close consideration and deliberation of the different alternatives, experience not only a sense of prefactual ownership of all the alternatives, but also a sense of attachment to them (Carmon, Wertenbroch & Zeelenberg, 2004). When finally making a choice for one of the alternatives, individuals might experience post-choice discomfort, since the foregone alternatives are considered to be more attractive after the choice than before the choice. This feeling is even stronger when the loss is greater (i.e. in terms of the number of foregone alternatives) (Carmon et al., 2004). As an example, imagine someone looking for a holiday and deliberating on the choice of several hotels. Looking at pictures of the hotels in the catalogue and on the website, that person begins to imagine drinking a cocktail at the pool bar of hotel A, enjoying the sea view of hotel B, and getting a massage at the sauna of hotel C. Through close deliberation of the alternatives, that person became, in effect, attached to all three hotels, which means that when a choice was finally made for hotel A, he or she may experience some discomfort (since hotels B and C have also become very appealing now).

4. Designing choice environments

4.1 Choice architecture and its three pillars to success

"*You can't design a neutral building. There is no such thing. A building must have doors, elevators, restrooms. All of these details influence choices people make.*" – Richard Thaler, May 2008.

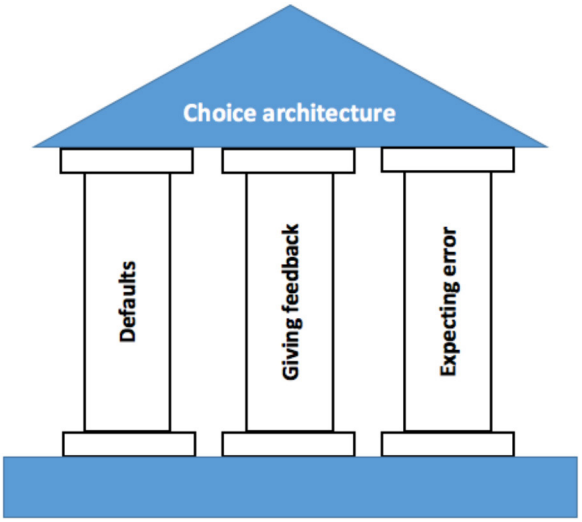


Figure 1: The three pillars of choice architectures

Choice architecture is the practice of influencing choice preferences by changing the presentation of the choice alternatives (Thaler & Sunstein, 2008). Choice can be presented in different ways and the chosen alternative often depends on how the choice is presented (Johnson, Shu, Delleart, Fox, Goldstein, Haubl, Larrick, Payne, Peters, Schkade, Wansink & Weber, 2012). Supermarkets, for example, place A-level brands at eye level to make them more frequently bought. Private label brands are often placed either higher or lower on the shelf. In this example, choice architecture is used to increase revenues, since the A-level brands are often more expensive than the store's own brands. However, choice architectures are also often used to carefully nudge people to make better decisions for themselves. A supermarket can, for example, also place healthy alternatives at eye level in order to stimulate healthier food consumption. The following discussion takes a neutral perspective on the question of whether choice architecture should be used in order to increase company revenue or enhance an individual's welfare.

Thaler & Sunstein (2008) propose three important pillars in designing a good choice architecture: establishing defaults, giving feedback and expecting error (see figure 1). We discuss each pillar in more depth in the next three subsections.

4.1.1 Defaults

A default is the alternative that an individual automatically obtains in case he or she does not choose. Defaults have been successful, for example, in increasing participation in organ donation (Johnson & Goldstein, 2003) and for enrolment, contribution

rates, or investment allocations in occupational pension schemes. García-Huitrón and Ponds (2016) provide a systematic overview on the prevalence of defaults and freedom of choice within pension schemes around the world. A specific example (Bateman et al., 2014) describing how an Australian pension fund uses defaults with respect to multiple dimensions of the pension choice appears in Section 4.2.4.

The status quo bias, which entails that individuals have a general preference for things to stay the same by doing nothing, implies that whenever there is a default alternative, a large number of people is expected to end up with it, even when it is not the best alternative for them (Besedes, Deck, Sarangi & Shor, 2015). People may also end up with the default because they rely on the perceived expertise of the company (Goldstein, Johnson, Herrmann & Heitmann, 2008). Thus, people may end up with default alternatives for different reasons and without significant thought, rendering it imperative that greater attention be paid to the design of defaults.

4.1.2 Giving feedback

The second pillar is *giving feedback* (Thaler & Sunstein, 2008). Providing feedback is one of the best ways to improve performance, and a well-designed system is capable of informing individuals when they are doing things right or when they are making mistakes. A good example are displays at the side of a road that measure driving speed, flashing a sad smiley in case one is driving too fast and a happy smiley in case one is driving at the right speed.

In terms of pensions, feedback may occur in the form of pension planners and pension overview statements (e.g., the Dutch UPO).

4.1.3 Expecting error

The third pillar is *expecting error* (Thaler & Sunstein, 2008). Individuals make mistakes, and a good choice architecture should account for this tendency by minimizing the impact of mistakes. For example, in the Paris subway system, users have to insert a card in an electric turnstile in order to gain access to the platforms. The card has a magnetic strip on one side, but is otherwise symmetric. There are many ways to put the metro card in the electric turnstile at the Paris subway, but irrespective of how people insert the card, they will gain access to the platform (Thaler & Sunstein, 2008).

In the pension context, individuals make the common mistake of procrastinating (Potters & Prast, 2009). While making decisions, they discount time hyperbolically, meaning that 'immediate available rewards have a disproportionate effect on preferences relative to more delayed rewards, causing a time-inconsistent taste for immediate gratification' (Ariely & Wertenbroch, 2002). Individuals may also use heuristics,

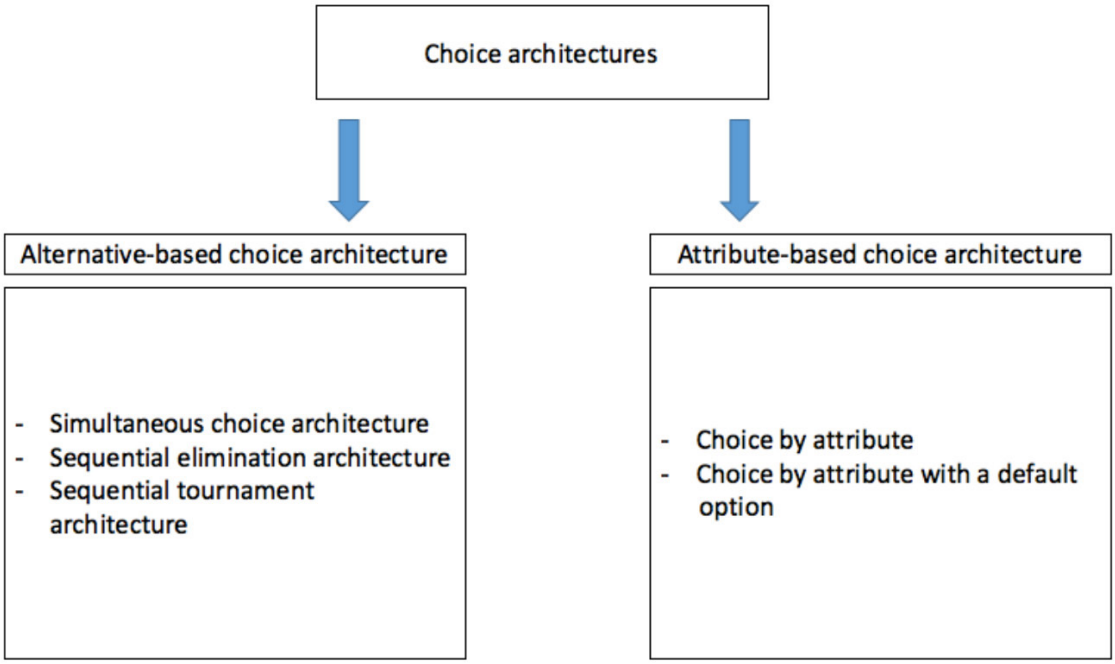
which are 'short cuts that afford simpler, if not optimal, solutions to a problem' (Ericson, White, Laibson & Cohen, 2015). It is safe to assume that individuals have a lack of self-control; a well-designed pension system should take these tendencies into account and seek to protect individuals from making mistakes.

4.2 Overview of choice architectures

Choice overload, which is the term used when there are too many alternatives from which to make a selection, has been shown to result in adverse consequences such as reduced satisfaction, decreased motivation to choose and higher regret (Scheibehenne, Greifeneder & Todd, 2010). In order to avoid or alleviate these negative consequences, choice architectures can help people process alternatives. Choice architectures, in turn, influence both consumer choices and the satisfaction they experience in making them.

We distinguish between two main types of choice architectures: alternative-based and attribute-based (see figure 2). The three sub-types of alternative-based choice architectures represent choices *in terms of complete alternatives*. An example is displaying a choice of complete alternatives for a digital camera: a black 18-megapixel camera for €100, or a silver 16-megapixel camera for €75. The two sub-types of attribute-based choice architectures represent choices *in terms of attributes*. Again, using the example of a digital camera, people can choose the number of megapixels

Figure 2: Different choice architectures

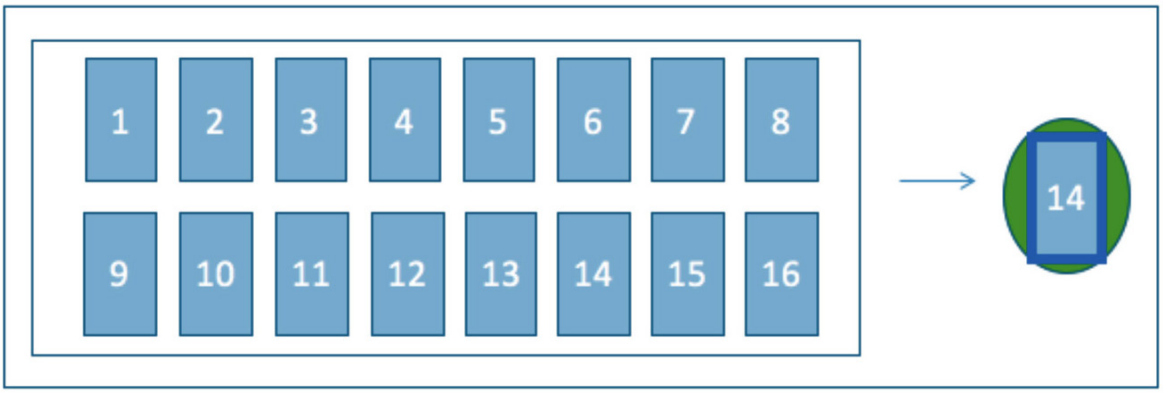


(16, 18 or 20), colour (black, white, blue or silver) and price (€75, €100 or €150). In the following, we explain the different architectures in more detail and discuss their implications.

4.2.1 Simultaneous choice architecture

The first sub-type of alternative-based choice architecture is simultaneous choice architecture (Besedes et al., 2015), which entails showing all choice alternatives side by side. For example, sixteen different alternatives of digital cameras (alternative 1 is a black 18-megapixel camera for €100, alternative 2 is a silver 16-megapixel camera for €75, and so forth) are all presented simultaneously, from which the individual must make a selection (see figure 3). The use of this architecture is common in supermarkets, where people see all alternatives presented on the shelf. Quite easily, the number of alternatives may be large enough to induce choice overload (Besedes et al., 2015). Careful consideration of the number of simultaneously displayed alternatives is important. Research on an investment menu change in an American occupational pension fund suggests that reducing the number of choices by half may potentially result in employees making better investment choices (Keim and Mitchell, 2016). Keim and Mitchell (2016) compare investment choices before and after the investment menu change and find that turnover and expense ratios decreased. Most of the results, however, seem to be explained by inertia— in that the effects found seem to result primarily from defaulting participants whose funds were eliminated from the menu into target date funds. No effects were found for existing participants whose funds remained on the investment menu (choices of participants newly added after the menu change were not observed).

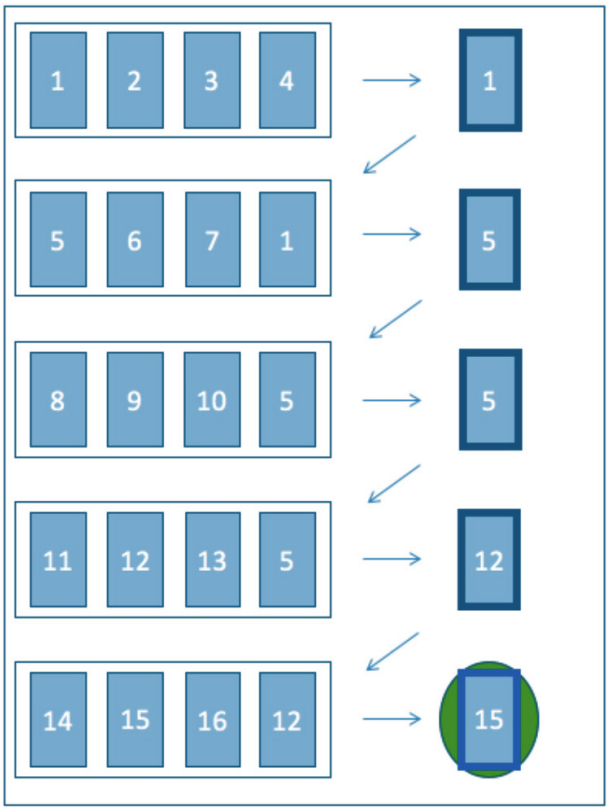
Figure 3: Simultaneous choice architecture



4.2.2 Sequential elimination architecture

A second alternative-based choice architecture is the sequential elimination architecture (Besedes et al., 2015), which presents the alternatives in different rounds (see figure 4). In case of a total of sixteen alternatives, first, four random alternatives are presented, from which an individual must select one. The three alternatives that are not selected are then eliminated, replaced by three new alternatives alongside the previously selected alternative. Subsequently, the individual again selects one alternative. The three unchosen alternatives are again eliminated and replaced with three new alternatives. This procedure repeats for five rounds until one alternative is left, which is the final choice. Since the sequential elimination architecture is a sequential approach, and the alternatives are not presented all at once, it has the potential to reduce choice overload without reducing the number of alternatives from which to choose.

Figure 4: Sequential elimination architecture

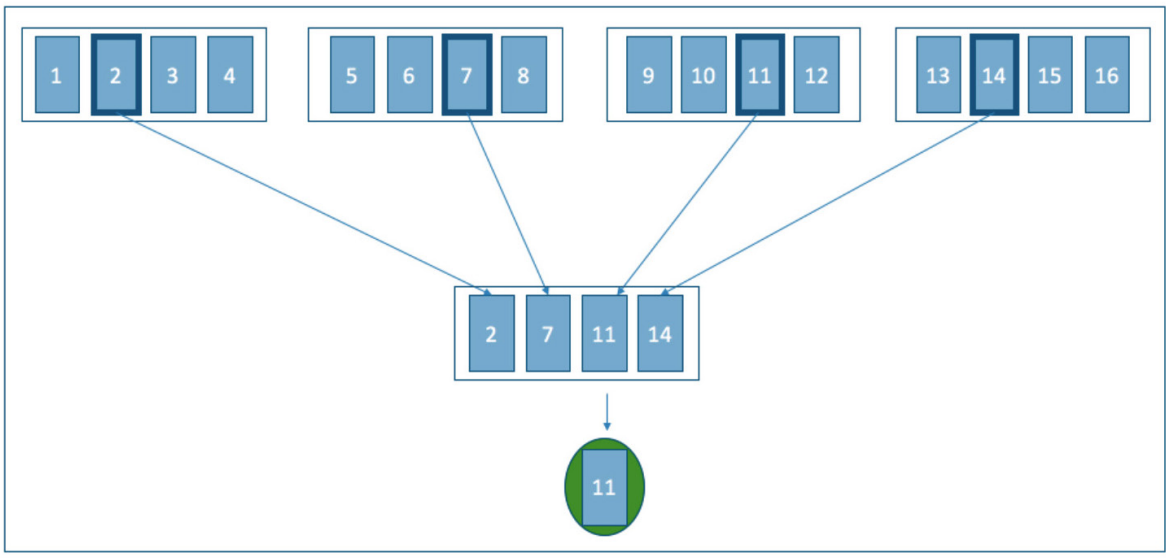


4.2.3 Sequential tournament architecture

A third alternative-based choice architecture is the sequential tournament architecture (Besedes et al., 2015), which randomly divides the sixteen alternatives into four sets of four alternatives each (see figure 5). An individual selects from each choice set one alternative, each of which is combined into a new smaller choice set of four alternatives. Subsequently, the individual picks one alternative from the new choice set, which is the final choice.

The sequential elimination architecture and the sequential tournament architecture both use a sequential approach in order to come to a final decision. The architectures differ in the sense that the former carries the previously selected alternative into a next round, while the latter carries all selected alternatives into one final round. The sequential tournament architecture thereby avoids the status quo bias, which entails that individuals have a general preference for things to stay the

Figure 5: Sequential tournament architecture



same by doing nothing or by sticking to a decision made previously. Besedes et al. (2015) find that sequential tournament architecture improves the quality of decision making, thereby making it an interesting option for designing alternative-based choice architectures. However, they also find that people's preferences are not in line with their performance. Sequential tournaments are the least preferred design (21%) compared to sequential elimination (23%) and simultaneous choice (59%). And even people who do best in the sequential tournament prefer simultaneous choice architectures. Interestingly, although people tend to select better options with sequential tournaments, they seem to like such set-ups the least.

4.2.4 Choice by attribute

Apart from the alternative-based choice architectures, it is also possible to present choice by attribute (Huffman & Kahn, 1998). Attributes are the dimensions that describe and comprise an alternative in a choice set, and each attribute consists of several options (e.g. colour is one of the attributes of a digital camera, and the options are black, white, silver and blue). The attribute-based architecture presents the attributes to the individuals, who indicate their preference for each attribute and end up with a complete alternative in the end.

Results from Huffman & Kahn (1998) show that for high variety assortments, the attribute-based presentation (as compared to the alternative-based presentation) reduces perceived complexity, facilitates people's willingness to make a choice and makes people feel as though they have enough information to make a choice.

Furthermore, people learn more from providing information by attribute (Huffman & Kahn, 1998).

In both the digital camera and automobile industry, choice is often provided by attribute. In these industries, it might be extremely difficult for people to choose by alternative because of the overload of alternatives. In order to make choice easier, people are asked for their preferences with respect to each specific attribute (color: white; price: €75, megapixels: 16); the alternative that best matches their preferences (a €75, 16 megapixels white camera) is subsequently found.

A variant of attribute-based architecture includes a default option for each attribute. In this way, especially in difficult choice situations (that is, when it is difficult to assess what is the "right" choice), individuals can be nudged into a desired direction while preserving their freedom of choice (see section 4.1.1). In the camera example, *black* can be the default option for the attribute *colour*.

In Australia, pension fund UniSuper allows participants to tailor their pension plan to their specific needs, within specific boundaries. One particular option for each attribute is presented as the default, and participants can further customize the plan to their specific needs. Bateman et al. (2014) analyse member records and survey data from UniSuper, finding that a majority of participants end up with the default option. The UniSuper example is described in more detail in box 4.

Box 4: UniSuper: an example from Australia

'UniSuper' is an industry pension fund in Australia for employees of the higher education and research sector. The plan consists of a default employer contribution rate of 17%, a default 7% post-tax employee contribution, a default insurance cover, a balanced investment and a DB plan. Employees are free to change from a DB to DC plan within 24 months from the date to elect. Furthermore, employees are free to reduce the standard member contributions and/or change these from post-tax to pre-tax contributions. Additionally, they can change either the insurance cover or the investment option. Lastly, they can make additional contributions from either post-tax pre-tax earnings (which is the voluntary contribution). So employees are allowed to make changes, from the default, specific to their personal circumstances.

Adapted from Bateman et al., 2014.

Attributes	Full time employee
Employer contribution	17%
Plan type	DB(default) or DC
Employee contributions	
standard	7% post tax
voluntary	Default nil **(84% default)**
insurance	Default cover **(90% default)**
Investment choice	Defaults (balanced) **(55% default)**

4.3 The design of the choice environment

Next to the choice architecture, the design of the choice environment (how exactly choices are presented) is important in both determining the complexity of the choice and fostering choice in general (Chernev, Böckenholt & Goodman, 2015; Greifender, Scheibehenne & Kleber, 2010). In the restaurant industry, menus are carefully designed to facilitate choice in order to maximize profits (Menu Cover Depot, 2013). Menu engineering expert Gregg Rapp concludes from his experience that it is better not to list prices in columns but rather to list them directly after the dish— and it is better not to use dollar or euro signs, since this reminds people of money (Menu Cover Depot, 2013). Furthermore, occasionally adding a description to a dish (e.g. to list it as your specialty) or adding pictures of a specific dish might increase sales of that dish.

4.3.1 Designing choice attributes

Attributes are the dimensions that describe and comprise an alternative in a choice set. A car might, for example, consist of the attributes of price, vehicle type, vehicle chassis/body and energy consumption, which allow comparison between different alternatives. Generally, increasing the number of attributes increases choice complexity (Greifender et al., 2010), thereby raising the likelihood of people making errors in their decision making (Marois & Ivanoff, 2005).

Despite research in different industries, no clear-cut way has been found of determining the optimal number of attributes in order to ensure a high level of decision quality. In the next subsections, we use the findings of different literature streams to provide some practical advice for attribute design.

Alignability of the attributes

An important consideration in designing attributes in a choice set is the alignability of the attributes (Gourville and Soman, 2005). An *alignable assortment* indicates that the alternatives differ on the same attributes. For example, most cars differ in terms of energy consumption, price, vehicle chassis and vehicle type. In comparison, a *non-alignable assortment* indicates that the alternatives have different attributes and thus are unique for each alternative. One car might, for example, be equipped with an alarm system, while another features a sun roof.

The availability of non-alignable assortments makes it less likely that consumers choose an alternative— the alternatives in such assortments being more difficult to compare and thus requiring more cognitive effort (Gourville and Soman, 2005). Additionally, non-alignable assortments might increase anticipated regret, since consumers have to make a trade-off between attributes (Broniarczyk, 2008; Gourville

and Soman, 2005). The trade-off of one alternative exhibiting a particular desirable attribute (sun roof) but not another (alarm system) might lead to difficulty in selecting a preferred alternative. Furthermore, research by Herrmann, Heitmann, Morgan, Henneberg & Landwehr (2009) shows that alignable attributes increase satisfaction and decision speed.

Lessons for pension providers: ***Pension providers should ensure that choice alternatives presented to pension plan participants differ only on alignable attributes.***

Sorting of the attributes

A second consideration in designing choice alternatives is the sorting/organization of the attributes, which means that the attributes for all alternatives are presented in the same order. Thus, when presenting a choice between the different cars, dealers may for all alternatives present the attribute 'price' first, followed by 'vehicle type', and so forth.

Hoch, Bradlow & Wansink (1999) conducted an experiment showing that increased satisfaction is experienced with alternatives displayed in an organized manner, compared with those displayed in an unorganized assortment. Furthermore, organized assortments also increase store choice (Hoch et al., 1999). Evidence from an experiment with jelly beans shows that when assortments are organized by colour and flavour, consumption quantities increase much more when consumers are exposed to a large rather than to a small assortment (Kahn & Wansink, 2004). In a disorganized assortment where colours and flavours are mixed, the consumption quantities were the same in the small and large assortments— which is highly likely due to the increased perceived variety in the large assortment that demotivated choice.

Lessons for pension providers: ***Pension providers should ensure that the attributes comprising an alternative are presented in the same order for each choice alternative.***

The order of the attributes

Third, determining the relative order of the attributes that comprise an alternative is important in creating satisfaction (Levav, Heitmann, Herrmann & Iyengar, 2010). The previous subsection highlighted the importance of ordering the attributes similarly for each alternative. In determining this order, however, it is important to look at the number of options that comprise an attribute. Generally, attributes consist of different options. The attribute 'vehicle type' for the car consists, for example, of the options diesel, petrol, hybrid or electric.

Evidence from three field experiments by Levav et al. (2010) shows that satisfaction with a decision is higher in the low-to-high ordering than in the high-to-low ordering. This means that attributes comprised of fewer options were preferably listed first as choice alternative, followed by attributes comprised of more options. In the car example, presenting first 'energy consumption' (three options), followed by 'vehicle type' (four options), 'vehicle chassis' (five options) and 'price' (six options) would create more satisfaction than presenting the attributes in the reversed order ('price', 'vehicle chassis', 'vehicle type' and 'energy consumption'). Furthermore, using a high-to-low ordering increases the tendency of consumers to accept the default (Levav et al., 2010).

Lessons for pension providers: ***Pension providers should ensure that, in a choice alternative, attributes comprised of fewer options are presented first, followed by those comprised of more options.***

Inter-attribute correlations

Another important consideration in designing choice alternatives is the inter-attribute correlation (Fasolo, McClelland & Todd, 2007), which explains how the attributes are related to each other. Attributes can be either positively related to each other (for example, a cheaper car also has lower horse power), or negatively related (for example, a more expensive car has lower horse power).

Negatively correlated attributes (higher price, lower horsepower) complicate decision making because they call for trade-offs; individuals making such trade-offs may experience choice conflict (Fasolo et al., 2007). Positively correlated attributes make decision making easier, requiring fewer trade-offs.

Lessons for pension providers: ***To simplify decision making, pension providers should ensure that attributes are positively correlated.***

4.3.2 Designing the choice set

Apart from the specific design of the choice alternatives in a choice set, it is also important to consider the choice set as a whole. Designing the choice set involves not only determining the number of alternatives one wants to offer, but also considering the possibility of categorizing the alternatives.

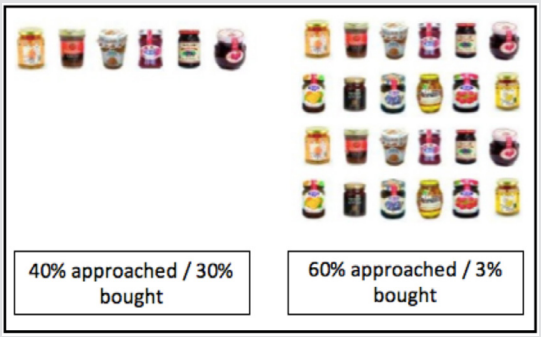
The number of alternatives in a choice set

An important step in designing a choice set is determining the number of alternatives to include in a given choice set. Unfortunately, there is neither an optimal number of alternatives to include nor a specific number of alternatives that defines a larger

(more extensive) or a smaller (limited) choice set. In any case, care should be taken to avoid choice overload.

Iyengar and Lepper (2000) demonstrate that an extensive choice set that initially attracts people may subsequently deter them from making a choice (see box 5). Therefore, it is important to balance these two things. On the one hand, offering more choice increases the likelihood of there being a product matching an individual's preferences (Baumol & Ide, 1956). On the other hand, offering more choice makes an extensive comparison of all alternatives unlikely (from a time-and-effort perspective) and may ultimately lead to no choice (Schwartz, 2004).

Box 5: A drawback of too many alternatives in an assortment.
Iyengar & Lepper (2000) conducted an experiment involving two stands with a variety of jams. One stand consisted of an extensive choice set (24 jams) and the other featured a limited choice set (six jams). People considered the stand with extensive choice (24) as initially more attractive (60% of the people passing by approached the stand), but only 3% of all people exposed to the extensive choice set finally bought a jar of jam. The stand with the smaller assortment (six) was considered initially less attractive (only 40% of the people passing by approached the stand), but in the end 30% of the consumers exposed to the smaller choice set purchased a jar of jam.
Adapted from Ivengar & Lepper, 2000.



Despite the fact that there is no recommended number of alternatives to include in a choice set, there is ample research on this topic from several industries. In the restaurant industry, for example, research was able to pinpoint the optimal number of alternatives per category (i.e. starters, main courses and desserts). In the fast-food industry, the optimal number of dishes per category is six for starters, desserts and all kinds of main courses such as pastas, fish, burgers, vegetarian and so forth (Spence & Piqueras-Fiszman, 2014). For fine dining restaurants, the optimal number of dishes for starters and desserts is seven and a total of ten main courses is preferred (Spence & Piqueras-Fiszman, 2014). Research in the hospitality industry has also been conducted on the optimal number of vacations. Park & Jang (2012) conducted a study where students had to choose a destination for Spring break. They could choose among a variety of alternatives, including Orlando, Acapulco and Hawaii. The results showed that the likelihood of 'no choice' was minimized when 22 choices were provided. Malhotra (1982) conducted a study where individuals hypothetically bought houses. The study shows that when individuals were provided with ten or more alternatives in

a choice set, or with information on 15 or more attributes, they experienced information overload (that is, they were constrained by their cognitive limitations). Research on pension plan (401(k)) contributions with data from 800,000 employees shows that offering fewer than ten plans results in significantly higher participation rates (Iyengar, Jiang & Huberman, 2003; Iyengar, 2004).

All of the above-mentioned studies essentially argue that the size of the choice sets should be determined carefully in order to avoid choice overload. This stream of research contrasts with the findings by Besedes et al. (2016), who show that sequential tournament architectures (discussed in section 4.2.3) achieve the goal of decreasing choice overload without reducing the number of alternatives (Besedes et al., 2015).

Recent research also claims that it is important to avoid considering the number of alternatives and number of attributes in isolation; rather, one should focus on the relation between the two. The number of alternatives in relation to the number of attributes ultimately determines choice complexity and the amount of information to be processed (Greifender et al., 2010; Scheibehenne et al., 2010). Greifender et al. (2010) sheds more light on choice complexity in two studies. The first involved the choice for a pen with either six, 15 or 30 alternatives and either one or six attributes. The second study involved a more real-life example with the choice of an mp3 player having either six or 30 alternatives and either four or nine different attributes. Both studies conclude that when there are several attributes, increasing the number of alternatives decreases post-choice satisfaction. When there is only one attribute (the pen example) or four attributes (mp3 example), there is no difference in post-choice satisfaction between the number of alternatives.

Furthermore, research by Herrmann et al. (2009) shows that in case the attributes are alignable (i.e. when attributes are similar for all alternatives), increasing the number of alternatives increases customer satisfaction. In contrast, in case of non-alignable attributes (i.e. when attributes differ for each alternative), increasing the number of alternatives decreases customer satisfaction.

Lessons for pension providers: ***Pension providers should balance the number of alternatives and attributes in order to offer sufficient variety and avoid choice overload.***

The categorization of alternatives

Another consideration in designing a choice set has to do with the choice categorizing the alternatives. Cars, for example, can be categorized as sports cars, business cars, family cars and economy cars. Mogilner, Rudnick & Iyengar (2008) studied

a coffee choice setting and found that individuals who were unfamiliar with the different coffee types and flavours were more satisfied when making a choice in the presence of categories than in their absence. Relying on the categories to help them recognize the variety in the choice set, these individuals were as satisfied in their choices as their counterparts who were familiar with the choice environment.

Choosers who are familiar with the domain are able to see the variety of the assortment without the aid of categories, and achieve satisfaction with their chosen alternative. An important implication of this study is that the content labels of the categories (informative e.g. 'spicy' or uninformative e.g. 'category A') were not important in creating this satisfaction (Mogilner et al., 2008).

Lessons for pension providers: ***Pension providers should make use of category labels; these will increase the satisfaction of people unfamiliar with pensions, but will not affect the satisfaction of those who are familiar.***

This aligns with one of the open rules from the Dutch Authority for Financial Markets: pension communication should be well-balanced, which means that it should help participants in making a well-considered choice based on consistent information.

4.4 Influencing decisions

This section discusses several ways to (subconsciously) influence consumer decision making. Specifically, we discuss framing of alternatives, priming and the effect of fluency.

4.4.1 Framing

Choice depends on how the choice set is framed (Bettman, Luce & Payne, 1998). The classic experiment by Tversky & Kahneman (1981) on saving lives shows that framing can change one's preferences significantly. The example is described in box 6.

Program A: 200 people will be saved **(72%)**	Program C: 400 people will die **(22%)**
Program B: 1/3 probability that 600 people will be saved 2/3 probability that no people will be saved **(28%)**	Program D: 1/3 probability that nobody will die 2/3 probability that 600 people will die **(78%)**

We present here three examples from the pension industry. The first appears in Eberhardt et al. (2017), who tested two potential frames for an email newsletter from a pension fund trying to engage participants to click on a link. The first frame is the "investment" (gain) frame, where individuals are triggered to respond to the benefits of investing in their future by informing themselves. The second frame is the "assurance" (loss-avoiding) frame, where individuals are triggered to focus more

Box 6: Framing of choices
The following experiment by Tversky & Kahneman (1981) shows that preferences change, and may even reverse, when the decision problem is framed in a different way. Two groups of respondents were asked to show their preference for the consequences of the programs in the table below. The first group was asked to indicate their preference for program A or B. The results in the table show that 72% prefer program A, indicating that saving 200 lives is more attractive than the risky prospect of equal expected value (1/3 * 600 = 200). The second group of respondents was asked to indicate their preference for program C or D. The results show that the certain death of 400 people is less acceptable than the 2/3 probability that 600 people will die. The experiment shows that framing matters: choices involving gains encourage risk-averse behaviour, while those involving losses encourage risk-taking behaviour.
Adapted from Tversky & Kahneman, 1981.

on ensuring that they do not lose out by failing to inform themselves. Eberhardt et al. (2017) find that engagement is higher when saving for retirement is framed as an assurance as opposed to an investment: the link in the assurance-framed newsletter is twice as likely to be opened compared to the investment-framed version.

The second example is the hypothetical choice experiment by Bockweg et al. (2016). Subjects had to choose between a lump-sum pay-out and a pension annuity, where combinations of gain/loss and investment/consumption frames were applied. Results show that the combination of investment and loss framing (investment and gain) results in the lowest (highest) percentage of money converted into a lump-sum pay-out.

The third example involves the methods used by the British pension provider NEST to discourage participants from deviating from the default investment option. The fund with higher expected return but also higher risk compared to the default fund is labelled "Higher Risk Fund", whereas the fund with lower expected return but also lower risk is labelled "Lower Growth Fund."[2]

Lessons for pension providers: ***The exact wording of choice matters. Pension providers should do more research in the area of framing to understand how framing influences decisions with respect to retirement.***

4.4.2 Priming

Another way to influence decision making is by priming. Priming can be considered as an increased sensitivity to a cue in the environment arising from a recent experience related to that cue, and is a subconscious process. For example, when thinking about

2 https://www.nestpensions.org.uk/schemeweb/NestWeb/public/whatisnest/contents/other-fund-choices.html

buying a particular car, one might suddenly perceive more cars of that brand driving on the road than usual.

Research in the area of priming has studied, for example, the effect of priming in terms of time vs money on product attitude. Mogilner and Aaker (2009) conducted a study on Ipods, and found that priming individuals with time (rather than money) makes them focus on the experience of the product (in this case, the Ipod), and also results in an augmented personal connection to the product. Subsequently, this leads to a more favourable product attitude. This effect is particularly likely to happen with experiential products where using a product defines a product's value.

The effect of priming *time* is so strong, that even when it is tied to a negative cost, it leads to more favourable product attitudes. People who were asked how much time they invested in fixing their laptop showed a more favourable product attitude and a heightened feeling of personal connection towards the product compared to people who were asked how much money they invested (Mogilner & Aaker, 2009).

Priming influences not only product attitudes, but also product choice. Berger & Fritzsimons (2008) show that having individuals complete a survey with an orange (green) pen writing in orange (green) made them more likely to choose an orange (green) product such as a Fanta (Sprite). Furthermore, their study shows that slogans linking fruit and vegetables to an environmental cue (in this case, for individuals whose daily environment contains more of those cues) served to increase consumption of fruits and vegetables.

Another area of priming that has been researched has to do with *construal levels*. Construal level theory posits that 'the same object or event can be represented at multiple levels' (Fujita, Trope, Liberman & Levin-Sagi, 2006). High levels describe objects as more abstract, distant, neutral or out of context (e.g. enjoying sports); low levels describe objects as more concrete, closer, contextual or superficial (e.g. watching the Olympics).

There are several ways of priming high- and low level construal. One way is to manipulate proximity in terms of time (Forster, Friedman & Liberman, 2004). One can ask participants to imagine an unrelated near-future event (imagine performing an intellectual task tomorrow) to enhance more concrete thinking, whereas if they were to imagine an unrelated distant-future event (imagine performing an intellectual task a year from now) it would enhance more abstract thinking.

A second way to manipulate construal level is by using a particular question form, such as 'why' or 'how' (Freitas, Gollwitzer & Trope, 2004; Fujita et al., 2006). 'Why' questions (such as, 'why do I maintain good health?') serve to prime people to a higher construal level. 'How' questions (such as, 'how do I maintain good health?')

serve to prime people to a lower construal level. Those who answered 'why' questions displayed less of a tendency to prefer immediate over delayed outcomes (Fujita et al., 2006).

Lessons for pension providers: ***Pension providers should do research in the area of priming to gain insight into what works best for pension plan participants.***

4.4.3 Fluency

Fluency is 'the subjective experience of ease or difficulty associated with completing a mental task' (Oppenheimer, 2008). The font style of the presented information is one of many ways to influence the subjective feeling of difficulty. A more difficult-to-read font style (e.g. FLUENCY) is less fluently processed compared to an easier-to-read font style (e.g. fluency) (Alter, Oppenheimer, Epley & Eyre, 2007; Novemsky, Dhar, Schwarz & Simonson, 2007). People facing a more difficult-to-read font might therefore experience a subjective feeling of difficulty.

Experienced fluency can influence subsequent choice, especially when people attribute the experienced difficulty to the choice itself instead of to the fluency manipulation (Novemsky et al., 2007). On the one hand, this subjective feeling of difficulty can induce choice of the middle alternative; on the other hand, such disfluency may enhance choice deferral (Novemsky et al., 2007).

Lessons for pension providers: ***Pension providers should do research in the area of fluency to discover what works best for pension plan participants.***

5. Conclusion

This paper provides practical advice on how best to design a choice environment. We draw upon a variety of research studies and examples from industries with a history of choice (e.g., consumer goods). We discuss several choice architectures and different ways to design not only choice alternatives, but also choice sets as a whole. Furthermore, we discuss the way in which not only several biases but also other factors influence decision making. Box 7 summarizes the most important steps to consider when designing a choice environment for pension plans.

Although choice options in the Dutch pension system are currently rather limited, this paper provides relevant insights to consider along the road toward greater choice. Even now, when choice is still restricted, most participants are able to make some choices— whether they want to opt for the partner pension, take a high/low construction during the pay-out phase, and retire sooner, later, or continue to work part-time. This paper also illustrates the importance of carefully designing each touch-point and communication moment with pension plan participants.

Recent developments, such as the shift from DB to (collective) DC plans, increase the choice possibilities of participants— for example, with regard to their investment profile. Also the 2016 Law for improved premium schemes ('Wet verbeterde premieregeling'; WVP) provides people with a choice between two options: either a variable pension pay-out (in which the accumulated pension capital continues to be invested) or a fixed pension pay-out.

This has implications also for the large and growing sector of self-employed persons without personnel ('ZZPers'), who need to actively opt for participation in a pension scheme. Our insights may help not only to increase the number of ZZPers who sign up for a pension scheme, but also to guide them in making good choices for their individual situations.

Based on insights from behavioural economics, our conclusion is clear: although people want choice, in practice they often either defer making use of the choices available, or tend to take decisions based on heuristics. People are also strongly influenced by the choice architecture and the framing of messages. Our recommendation thus involves caution regarding the introduction of choices in the retirement context. Wherever people have choice, those seeking to guide them would be well advised to carefully determine the choice architecture and the framing of the message— and to keep Thaler's and Sunstein's words in mind: "Nudge for the better".

Box 7: The seven steps in designing a good choice environment:

1. **Determine your goal.** Define the ideal behaviour that you would like to stimulate.
2. **Determine the design of the alternatives.** Determine the number of attributes, make sure the attributes are aligned, ordered in a low- to high fashion and sorted.
3. **Determine the design of the choice set.** Keep the number of alternatives limited to avoid choice overload. Aligning the attributes will allow you to increase the number of alternatives. Furthermore, categorizing attributes will generate more satisfaction among individuals with less knowledge.
4. **Consider the presentation of the choice set.** Do individuals choose by alternative or by attribute? Do you include defaults? Do you present all of the alternatives at the same time or sequentially? Consider the advantages of sequential tournament architecture.
5. **Consider possible ways to influence participant decision making.** Framing, priming and improving fluency can influence participant decision making.
6. **Test the choice environment on real individuals.** Conduct focus groups, in-depth interviews or field experiments to see how different choice sets play out.
7. **Adjust the choice architecture if needed.** Did your ideas work?....Great! If not, adjust the choice architecture and test it again. Also, share your knowledge so that the pension industry as a whole will become smarter.

References

Alter, A.L., Oppenheimer D.M., Epley N. & Eyre R.N. (2007), "Overcoming Intuition: Metacognitive Difficulty Activates Analytic Reasoning," *Journal of Experimental Psychology: General*, 136, 4, 569–576.

Ariely, D. (2009), *Predictably Irrational. The Hidden Forces that Shape our Decisions*. Harper Collins. ISBN: 978-0-06-135324-6.

Ariely, D. & Wertenbroch, K., (2002), "Procrastination, Deadlines, and Performance: Self-Control by Precommitment," *Psychological Science*, 13, 3, 219-224.

Bateman, H., Deetlefs, J., Dobrescu, I., Newell, B., Ortmann, A. & Thorp, S. (2014), "Just Interested or Getting Involved? An Analysis of Superannuation Attitudes and Actions," *Economic Record*, 90, 289, 160-178.

Berger, J. & Fitzsimons, G.M. (2008), "Dogs on the Street, Pumas on Your Feet: How Cues in the Environment Influence Product Evaluation and Choice," *Journal of Marketing Research*, 45, 1, 1-14.

Bettman, J.R., Luce, M.F. & Payne, J.W. (1998), "Constructive Consumer Choice Processes," *Journal of Consumer Research*, 25, 3, 187-217.

Baumol, W.J. & Ide, E.A. (1956), "Variety in Retailing," *Management Science*, 3, 1, 93–101.

Besedes, T., Deck, C., Sarangi, S. & Shor, M. (2015), "Reducing Choice Overload without Reducing Choices," *The Review of Economics and Statistics*, 97, 4, 793-802.

Bockweg, C., Ponds, E., Steenbeek, O. & Vonken, J. (2016), "Framing and the Annuitization Decision - Experimental Evidence from a Dutch Pension Fund," *Netspar Discussion Paper Series* # 03/2016-007.

Boelaars, I. (2012), *Verzekerd!* Nummer 4, September 2012. Retrieved from: https://www.verzekeraars.nl/actueel/verzekerd/Documents/2012/Nr%204/welles_nietes_keuzevrijheidspensioen.pdf

Broniarczyk, S.M. (2008), "Product Assortment," in *Handbook of Consumer Psychology*, eds. C.P. Haugtvedt, P.M. Herr and F.R. Kardes, 755-79. New York, N.Y.: Lawrence Erlbaum Associates.

Brown, N.J., Read, D. & Summers, B. (2003), "The Lure of Choice," *Journal of Behavioral Decision Making*, 16, 297-308.

Carmon, Z.I.V., Wertenbroch, K. & Zeelenberg, M. (2004), "Option Attachment: When Deliberating Makes Choosing Feel like Losing," *Journal of Consumer Research*, 30, 1, 15-29.

Chernev, A., Böckenholt, U. & Goodman, J. (2014), "Choice Overload: A Conceptual Review and Meta-analysis," *Journal of Consumer Psychology*, 25, 2, 333-358.

Dekker, G. (2009), "Leven tussen Keuzedwang en Keuzevrijheid", *Wapenveld over Geloof en Cultuur*, 59, 1, 30-36.

Eberhardt, W., Brüggen, E., Post, T. & Hoet, C. (2017), "Engaging Pension Plan Participants: Investment and Insurance Frames," *Netspar Design Paper Series* # 72.

Ericson, K.M.M., White, J.M., Laibson, D. & Cohen, J.D. (2015), "Money Earlier or Later? Simple Heuristics Explain Intertemporal Choices Better than Delay Discounting Does," *Psychological Science*, *26*, 6, 826–833.

Fasolo, B., McClelland, G.H. & Todd, P.M. (2007), "Escaping the Tyranny of Choice: When Fewer Attributes Make Choice Easier," *Marketing Theory*, 7, 13–26.

Forster, J., Friedman, R.S. & Liberman, N. (2004), "Temporal Construal Effects on Abstract and Concrete Thinking: Consequences for Insight and Creative Cognition," *Journal of Personality and Social Psychology*, 87, 177–189.

Freitas, A.L., Gollwitzer, P.M. & Trope, Y. (2004), "The Influence of Abstract and Concrete Mindsets on Anticipating and Guiding Others' Self-regulatory Efforts," *Journal of Experimental Social Psychology*, 40, 739 –752.

Fujita, K., Trope, Y., Liberman, N. & Levin-Sagi, M. (2006), "Construal Levels and Self- Control," *Journal of Personality and Social Psychology*, 90, 3, 351 -367.

García-Huitrón, M. & Ponds, E. (2016), "Participation and Choice in Funded Pension Plans: Guidance for the Netherlands from Worldwide Diversity", *Netspar Design Paper Series* # 55.

Goldstein, D.G., Johnson, E.J., Herrmann, A. & Heitmann M. (2008), "Tool Kit: Nudge Your Customers toward Better Choices," *Harvard Business Review*, 99-105.

Gourville, J.T. & Soman, D. (2005), "Overchoice and Assortment Type: When and Why Variety Backfires," *Marketing Science*, 24, 3, 382–95.

Greifender, R., Scheibehenne, B. & Kleber, N. (2010), "Less May be More when Choosing is Difficult: Choice Complexity and too Much Choice," *Acta Psychologica* 133, 45-50.

Hayek, F. (1944), *The Road to Serfdom*, University of Chicago Press. ISBN 978-0-226-32061-8.

Herrmann, A., Heitmann, M., Morgan, R., Henneberg, S.C. & Landwehr, J. (2009), "Consumer Decision Making and Variety of Offerings: The Effect of Attribute Alignability," *Psychology & Marketing*, 26, 4, 333-358.

Hoch, S.J., Bradlow, E.T. & Wansink, B. (1999), "The Variety of an Assortment," *Marketing Science* 18, 4, 527-546.

Huffman, C. and Kahn, B. (1998), "Variety for Sale: Mass Customization or Mass Confusion?" *Journal of Retailing*, 74, 4, 491-513.

Iyengar, S. (2004), "How Much Choice Is too Much?: Determinants of Individual Contributions in 401K Retirement Plans," In *Pension Design and Structure: New Lessons from Behavioral Finance*. Ed. O.S. Mitchell and S.P. Utkus. New York: Oxford University Press, 2004.

Iyengar, S.S. & Lepper, M.R. (2000), "When Choice is Demotivating: Can One Desire too Much of a Good Thing? " *Journal of Personality and Social Psychology*, 79, 6, 995–1006.

Iyengar, S.S., Jiang, W. & Huberman, G. (2003), "How Much Choice is too Much? Contributions to 401(k) Retirement Plans," Working Paper presented at the Wharton Pension Research Council, April 2003.

Johnson, E.J. & Goldstein, D. (2003), "Do Defaults Save Lives?" *Science*, 302, 1338-1339.

Johnson, E.J., Shu, S., Dellaert, B.G.C., Fox, C.R., Goldstein, D.G., Haubl, G., Larrick, R.P., Peters, E., Payne, J.W., Schkade, D. & Wansink, B. (2011), "Beyond Nudges: Tools of a Choice Architecture," *Marketing Letters*, 23, 487-504.

Kahn, E.B., Moore, L.W. & Glazer, R. (1987), "Experiments in Constrained Choice," *Journal of Consumer Research*, 14, 1, 96–113.

Kahn, E.B. & Wansink B. (2004), "The Influence of Assortment Structure on Perceived Variety and Consumption Quantities," *Journal of Consumer Research*, 30, 4, 519-533.

Keim, D.B. & Mitchell, O.S. (2016), "Simplifying Choices in Defined Contribution Retirement Plan Design," *NBER Working Paper* No. 21854.

Klijnsma (2015), "Hoofdlijnen van een Toekomstbestendig Pensioenstelsel." Brief naar De Voorzitter Van De Tweede Kamer Der Staten-Generaal. 15 July 2015. Retrieved from:http://www.pensioenfederatie.nl/Document/Nieuws/Kamerbrief_hoofdlijnen_van_een_toekomstbestendig_pensioenstelsel.pdf

Levav, J., Heitmann, M. Herrmann, A. & Iyengar, S.S. (2010), "Order in Product Customization Decisions: Evidence from Field Experiments," *Journal of Political Economics*, 118, 2, 274-299.

Malhotra, N.K. (1982), "Information Load and Consumer Decision Making," *Journal of Consumer Research*, 8, 4, 419-30.

Marois, R. & Ivanoff, J. (2005), "Capacity Limits of Information Processing in the Brain," *Trends in Cognitive Science* 9, 6, 296–305.

Menu Cover Depot (2013), "Menu Engineering: How to Raise Restaurant Profits 15% or More" Retrieved on 21 March 2016 from: http://www.menucoverdepot.com/resource-center/articles/restaurant-menu-engineering/

Mogilner, C. & Aaker, J. (2009), "The Time vs. Money Effect: Shifting Product Attitudes and Decisions through Personal Connection," *Journal of Consumer Research*, 36, 2, 277- 291.

Mogilner, C., Rudnick, T. & Iyengar, S.S. (2008), "The Mere Categorization Effect: How the Presence of Categories Increases Choosers' Perceptions of Assortment Variety and Outcome Satisfaction," *Journal of Consumer Research*, 35, 2, 202–215.

Novemsky N., Dhar, R., Schwarz, N. & Simonson, I. (2007), "Preference Fluency in Choice", *Journal of Marketing Research*, 44, 3, 347-356.

Olyslager, P. (n.d.), "*The Decoy Effect in Price Tables,*" Retrieved May 6, 2016, from http://www.paulolyslager.com/decoy-effect-price-tables/

Oppenheimer, D.M. (2008), "The Secret Life of Fluency," *Trends in Cognitive Sciences*, 12, 6, 237-24.

Oppewal, H. & Koelemeijer, K. (2005), "More Choice is Better: Effects of Assortment Size and Composition on Assortment Evaluation," *International Journal of Research in Marketing*, 22, 1, 45–60.

Park, J.-Y. & Jang, S. (2012), "Confused by too Many Choices? Choice Overload in Tourism," *Tourism Management*, 35, 1-12.

Potters, J. & Prast, H. (2009) "Gedragseconomie in de Praktijk," In Tiemeijer, W., Thomas, C. & Prast, H. (Eds.), *De Menselijke Beslisser. Over de Psychologie van Keuze en Gedrag*, WRR/ Amsterdam University Press.

Prast, H. (2017), "De psychologie van pensioenkeuzes", Netspar Brief 10, https://www.netspar.nl/netspar-brief-10-the-psychology-pension-choices

Rodway, P., Schepman, A. & Lambert, J., (2012), "Preferring the One in the Middle: Further Evidence for the Centre-stage Effect," *Applied Cognitive Psychology*, 26, 215– 222.

Scheibehenne, B., Greifeneder, R. & Todd, P.M. (2010), "Can There Ever be too Many Options? A Meta-Analytic Review of Choice Overload," *Journal of Consumer Research*, *37*, 3, 409–425.

Schwartz, B. (2004), *The Paradox of Choice: Why More Is Less*, New York: HarperCollins.

Spence, C. & Piqueras-Fiszman, B. (2014), *The Perfect Meal: The Multisensory Science of Food and Dining*. Oxford: Wiley-Blackwell.

Tversky A. & Kahneman, D. (1981),"The Framing of Decisions and the Psychology of Choice," *Science*, 211, 4481, 453–458.

Thaler, R.H. & Sunstein, C. (2008), *Nudge: Improving Decisions about Health, Wealth, and Happiness*. New Haven, CT: Yale University Press.

TIAA-CREF (2014), IRA Survey. Retrieved from: https://www.tiaa.org/public/about-tiaa/news-press/press-releases/pressrelease495.html

Valenzuela, A. & Raghubir, P. (2009), "Position-based Beliefs: The Center-stage Effect," *Journal of Consumer Psychology*, 19, 185–196.

Van Dalen, H. & Henskens, K. (2016), "Keuzevrijheid in Pensioen," *Netspar Brief* 5.

Veitch, J.A. & Gifford, R. (1996), "Choice, Perceived Control, and Performance Decrements in the Physical Environments," *Journal of Environmental Psychology*, 16, (3), 269-276.

Wijzer in Geldzaken (2014), Pensioenmonitor 2014: Een Onderzoek naar Kennis, Houding en Gedrag rondom de Oudedagvoorziening onder de Nederlandse Beroepsbevolking.

Zeelenberg, M. (1999), "Anticipated Regret, Expected Feedback and Behavioural Decision Making," *Journal of Behavioural Decision Making*, 12, 2, 93-106.

Zeelenberg, M. & Pieters, R. (2007), "A Theory of Regret Regulation 1.0," *Journal of Consumer Psychology*, 17, 1, 3-18.

Zeelenberg, M. & Pieters, R. (2004), "Consequences of Regret Aversion in Real Life," *Organizational Behavior and Human Decision Processes*, 93, 2, 155-168.

OVERZICHT UITGAVEN IN DE DESIGN PAPER SERIE

1 Naar een nieuw pensioencontract (2011)
Lans Bovenberg en Casper van Ewijk
2 Langlevenrisico in collectieve pensioencontracten (2011)
Anja De Waegenaere, Alexander Paulis en Job Stigter
3 Bouwstenen voor nieuwe pensioencontracten en uitdagingen voor het toezicht daarop (2011)
Theo Nijman en Lans Bovenberg
4 European supervision of pension funds: purpose, scope and design (2011)
Niels Kortleve, Wilfried Mulder and Antoon Pelsser
5 Regulating pensions: Why the European Union matters (2011)
Ton van den Brink, Hans van Meerten and Sybe de Vries
6 The design of European supervision of pension funds (2012)
Dirk Broeders, Niels Kortleve, Antoon Pelsser and Jan-Willem Wijckmans
7 Hoe gevoelig is de uittredeleeftijd voor veranderingen in het pensioenstelsel? (2012)
Didier Fouarge, Andries de Grip en Raymond Montizaan
8 De inkomensverdeling en levensverwachting van ouderen (2012)
Marike Knoef, Rob Alessie en Adriaan Kalwij
9 Marktconsistente waardering van zachte pensioenrechten (2012)
Theo Nijman en Bas Werker
10 De RAM in het nieuwe pensioenakkoord (2012)
Frank de Jong en Peter Schotman
11 The longevity risk of the Dutch Actuarial Association's projection model (2012)
Frederik Peters, Wilma Nusselder and Johan Mackenbach
12 Het koppelen van pensioenleeftijd en pensioenaanspraken aan de levensverwachting (2012)
Anja De Waegenaere, Bertrand Melenberg en Tim Boonen
13 Impliciete en expliciete leeftijdsdifferentiatie in pensioencontracten (2013)
Roel Mehlkopf, Jan Bonenkamp, Casper van Ewijk, Harry ter Rele en Ed Westerhout
14 Hoofdlijnen Pensioenakkoord, juridisch begrepen (2013)
Mark Heemskerk, Bas de Jong en René Maatman
15 Different people, different choices: The influence of visual stimuli in communication on pension choice (2013)
Elisabeth Brüggen, Ingrid Rohde and Mijke van den Broeke
16 Herverdeling door pensioenregelingen (2013)
Jan Bonenkamp, Wilma Nusselder, Johan Mackenbach, Frederik Peters en Harry ter Rele
17 Guarantees and habit formation in pension schemes: A critical analysis of the floor-leverage rule (2013)
Frank de Jong and Yang Zhou
18 The holistic balance sheet as a building block in pension fund supervision (2013)
Erwin Fransen, Niels Kortleve, Hans Schumacher, Hans Staring and Jan-Willem Wijckmans
19 Collective pension schemes and individual choice (2013)
Jules van Binsbergen, Dirk Broeders, Myrthe de Jong and Ralph Koijen
20 Building a distribution builder: Design considerations for financial investment and pension decisions (2013)
Bas Donkers, Carlos Lourenço, Daniel Goldstein and Benedict Dellaert

21 Escalerende garantietoezeggingen: een alternatief voor het StAr RAM-contract (2013)
Servaas van Bilsen, Roger Laeven en Theo Nijman
22 A reporting standard for defined contribution pension plans (2013)
Kees de Vaan, Daniele Fano, Herialt Mens and Giovanna Nicodano
23 Op naar actieve pensioenconsumenten: Inhoudelijke kenmerken en randvoorwaarden van effectieve pensioencommunicatie (2013)
Niels Kortleve, Guido Verbaal en Charlotte Kuiper
24 Naar een nieuw deelnemergericht UPO (2013)
Charlotte Kuiper, Arthur van Soest en Cees Dert
25 Measuring retirement savings adequacy; developing a multi-pillar approach in the Netherlands (2013)
Marike Knoef, Jim Been, Rob Alessie, Koen Caminada, Kees Goudswaard, and Adriaan Kalwij
26 Illiquiditeit voor pensioenfondsen en verzekeraars: Rendement versus risico (2014)
Joost Driessen
27 De doorsneesystematiek in aanvullende pensioenregelingen: effecten, alternatieven en transitiepaden (2014)
Jan Bonenkamp, Ryanne Cox en Marcel Lever
28 EIOPA: bevoegdheden en rechtsbescherming (2014)
Ivor Witte
29 Een institutionele beleggersblik op de Nederlandse woningmarkt (2013)
Dirk Brounen en Ronald Mahieu
30 Verzekeraar en het reële pensioencontract (2014)
Jolanda van den Brink, Erik Lutjens en Ivor Witte
31 Pensioen, consumptiebehoeften en ouderenzorg (2014)
Marike Knoef, Arjen Hussem, Arjan Soede en Jochem de Bresser
32 Habit formation: implications for pension plans (2014)
Frank de Jong and Yang Zhou
33 Het Algemeen pensioenfonds en de taakafbakening (2014)
Ivor Witte
34 Intergenerational Risk Trading (2014)
Jiajia Cui and Eduard Ponds
35 Beëindiging van de doorsneesystematiek: juridisch navigeren naar alternatieven (2015)
Dick Boeijen, Mark Heemskerk en René Maatman
36 Purchasing an annuity: now or later? The role of interest rates (2015)
Thijs Markwat, Roderick Molenaar and Juan Carlos Rodriguez
37 Entrepreneurs without wealth? An overview of their portfolio using different data sources for the Netherlands (2015)
Mauro Mastrogiacomo, Yue Li and Rik Dillingh
38 The psychology and economics of reverse mortgage attitudes. Evidence from the Netherlands (2015)
Rik Dillingh, Henriëtte Prast, Mariacristina Rossi and Cesira Urzì Brancati
39 Keuzevrijheid in de uittreedleeftijd (2015)
Arthur van Soest
40 Afschaffing doorsneesystematiek: verkenning van varianten (2015)
Jan Bonenkamp en Marcel Lever
41 Nederlandse pensioenopbouw in internationaal perspectief (2015)
Marike Knoef, Kees Goudswaard, Jim Been en Koen Caminada
42 Intergenerationele risicodeling in collectieve en individuele pensioencontracten (2015)
Jan Bonenkamp, Peter Broer en Ed Westerhout
43 Inflation Experiences of Retirees (2015)
Adriaan Kalwij, Rob Alessie, Jonathan Gardner and Ashik Anwar Ali
44 Financial fairness and conditional indexation (2015)
Torsten Kleinow and Hans Schumacher
45 Lessons from the Swedish occupational pension system (2015)
Lans Bovenberg, Ryanne Cox and Stefan Lundbergh

46 Heldere en harde pensioenrechten onder een PPR (2016)
Mark Heemskerk, René Maatman en Bas Werker
47 Segmentation of pension plan participants: Identifying dimensions of heterogeneity (2016)
Wiebke Eberhardt, Elisabeth Brüggen, Thomas Post and Chantal Hoet
48 How do people spend their time before and after retirement? (2016)
Johannes Binswanger
49 Naar een nieuwe aanpak voor risicoprofielmeting voor deelnemers in pensioenregelingen (2016)
Benedict Dellaert, Bas Donkers, Marc Turlings, Tom Steenkamp en Ed Vermeulen
50 Individueel defined contribution in de uitkeringsfase (2016)
Tom Steenkamp
51 Wat vinden en verwachten Nederlanders van het pensioen? (2016)
Arthur van Soest
52 Do life expectancy projections need to account for the impact of smoking? (2016)
Frederik Peters, Johan Mackenbach en Wilma Nusselder
53 Effecten van gelaagdheid in pensioen-documenten: een gebruikersstudie (2016)
Louise Nell, Leo Lentz en Henk Pander Maat
54 Term Structures with Converging Forward Rates (2016)
Michel Vellekoop and Jan de Kort
55 Participation and choice in funded pension plans (2016)
Manuel García-Huitrón and Eduard Ponds
56 Interest rate models for pension and insurance regulation (2016)
Dirk Broeders, Frank de Jong and Peter Schotman
57 An evaluation of the nFTK (2016)
Lei Shu, Bertrand Melenberg and Hans Schumacher
58 Pensioenen en inkomensongelijkheid onder ouderen in Europa (2016)
Koen Caminada, Kees Goudswaard, Jim Been en Marike Knoef
59 Towards a practical and scientifically sound tool for measuring time and risk preferences in pension savings decisions (2016)
Jan Potters, Arno Riedl and Paul Smeets
60 Save more or retire later? Retirement planning heterogeneity and perceptions of savings adequacy and income constraints (2016)
Ron van Schie, Benedict Dellaert and Bas Donkers
61 Uitstroom van oudere werknemers bij overheid en onderwijs. Selectie uit de poort (2016)
Frank Cörvers en Janneke Wilschut
62 Pension risk preferences. A personalized elicitation method and its impact on asset allocation (2016)
Gosse Alserda, Benedict Dellaert, Laurens Swinkels and Fieke van der Lecq
63 Market-consistent valuation of pension liabilities (2016)
Antoon Pelsser, Ahmad Salahnejhad and Ramon van den Akker
64 Will we repay our debts before retirement? Or did we already, but nobody noticed? (2016)
Mauro Mastrogiacomo
65 Effectieve ondersteuning van zelfmanagement voor de consument (2016)
Peter Lapperre, Alwin Oerlemans en Benedict Dellaert
66 Risk sharing rules for longevity risk: impact and wealth transfers (2017)
Anja De Waegenaere, Bertrand Melenberg and Thijs Markwat
67 Heterogeniteit in doorsneeproblematiek. Hoe pakt de transitie naar degressieve opbouw uit voor verschillende pensioenfondsen? (2017)
Loes Frehen, Wouter van Wel, Casper van Ewijk, Johan Bonekamp, Joost van Valkengoed en Dick Boeijen
68 De toereikendheid van pensioenopbouw na de crisis en pensioenhervormingen (2017)
Marike Knoef, Jim Been, Koen Caminada, Kees Goudswaard en Jason Rhuggenaath

69 De combinatie van betaald en onbetaald werk in de jaren voor pensioen (2017)
Marleen Damman en Hanna van Solinge
70 Default life-cycles for retirement savings (2017)
Anna Grebenchtchikova, Roderick Molenaar, Peter Schotman en Bas Werker
71 Welke keuzemogelijkheden zijn wenselijk vanuit het perspectief van de deelnemer? (2017)
Casper van Ewijk, Roel Mehlkopf, Sara van den Bleeken en Chantal Hoet
72 Activating pension plan participants: investment and assurance frames (2017)
Wiebke Eberhardt, Elisabeth Brüggen, Thomas Post en Chantal Hoet
73 Zerotopia – bounded and unbounded pension adventures (2017)
Samuel Sender
74 Keuzemogelijkheden en maatwerk binnen pensioenregelingen (2017)
Saskia Bakels, Agnes Joseph, Niels Kortleve en Theo Nijman
75 Polderen over het pensioenstelsel. Het debat tussen de sociale partners en de overheid over de oudedagvoorzieningen in Nederland, 1945-2000 (2017)
Paul Brusse
76 Van uitkeringsovereenkomst naar PPR (2017)
Mark Heemskerk, Kees Kamminga, René Maatman en Bas Werker
77 Pensioenresultaat bij degressieve opbouw en progressieve premie (2017)
Marcel Lever en Sander Muns
78 Bestedingsbehoeften bij een afnemende gezondheid na pensionering (2017)
Lieke Kools en Marike Knoef 79 Model risk in the pricing of reverse mortgage products (2017)
Anja De Waegenaer, Bertrand Melenberg, Hans Schumacher, Lei Shu and Lieke Werner
80 Expected Shortfall voor toezicht op verzekeraars: is het relevant? (2017)
Tim Boonen
81 The Effect of the Assumed Interest Rate and Smoothing on Variable Annuities (2017)
Anne Balter and Bas Werker
82 Consumer acceptance of online pension investment advice (2017)
Benedict Dellaert, Bas Donkers and Carlos Lourenço
83 Individualized life-cycle investing (2017)
Gréta Oleár, Frank de Jong and Ingmar Minderhoud
84 The value and risk of intergenerational risk sharing (2017)
Bas Werker
85 Pensioenwensen voor en na de crisis (2017)
Jochem de Bresser, Marike Knoef en Lieke Kools
86 Welke vaste dalingen en welk beleggingsbeleid passen bij gewenste uitkeringsprofielen in verbeterde premieregelingen? (2017)
Johan Bonekamp, Lans Bovenberg, Theo Nijman en Bas Werker
87 Inkomens- en vermogensafhankelijke eigen bijdragen in de langdurige ouderenzorg: een levensloopperspectief (2017)
Arjen Hussem, Harry ter Rele en Bram Wouterse
88 Creating good choice environments – Insights from research and industry practice (2017)
Elisabeth Brüggen, Thomas Post and Kimberley van der Heijden

Netspar

Network for Studies on Pensions, Aging and Retirement

This is a publication of:
Netspar
Phone +31 13 466 2109
E-mail info@netspar.nl
www.netspar.nl

October 2017