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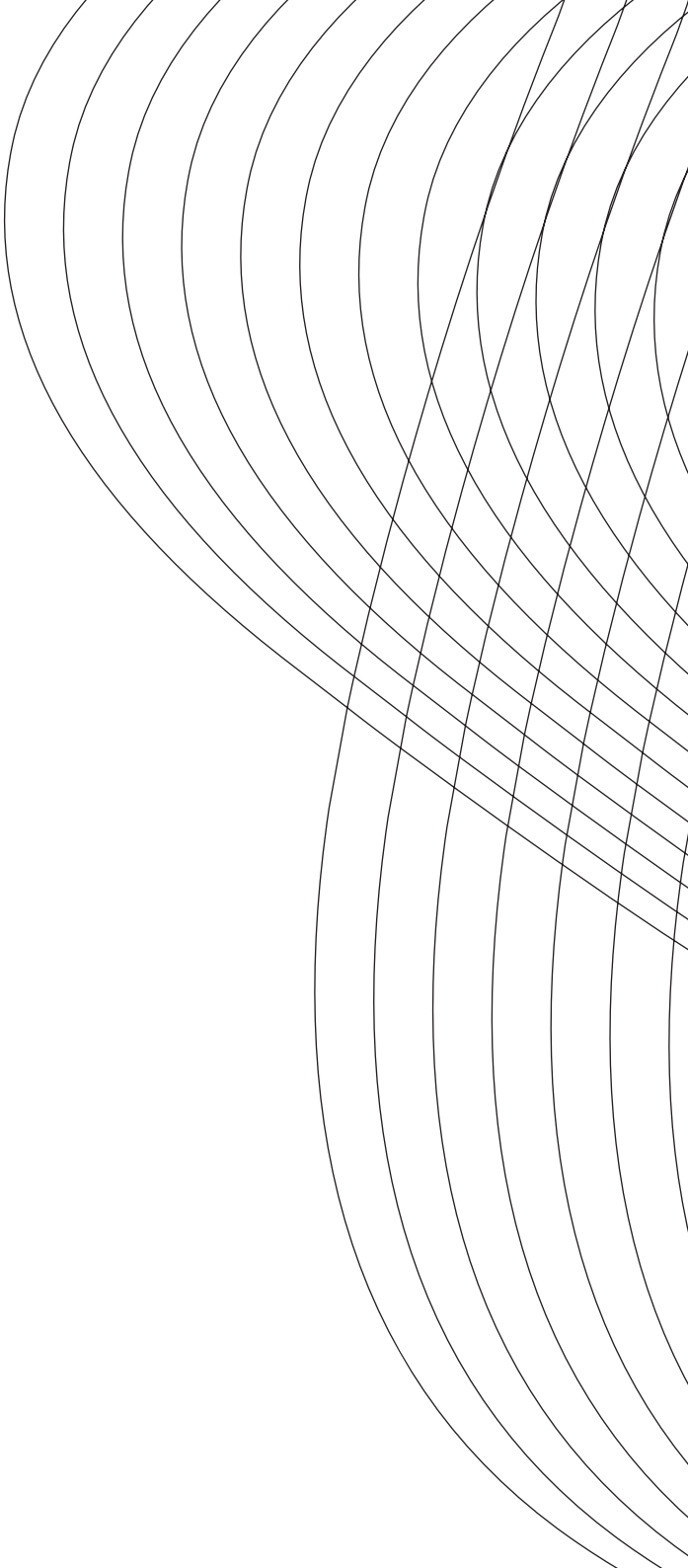
Network for Studies on Pensions, Aging and Retirement

Netspar PANEL PAPERS

Henk Nijboer and Bart Boon

Pension contract design and free choice: Theory and practice



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PREFACE

Netspar stimulates debate and fundamental research in the field of pensions, aging and retirement. The aging of the population is front-page news, as many baby boomers are now moving into retirement. More generally, people live longer and in better health while at the same time families choose to have fewer children. Although the aging of the population often gets negative attention, with bleak pictures painted of the doubling of the ratio of the number of people aged 65 and older to the number of the working population during the next decades, it must, at the same time, be a boon to society that so many people are living longer and healthier lives. Can the falling number of working young afford to pay the pensions for a growing number of pensioners? Do people have to work a longer working week and postpone retirement? Or should the pensions be cut or the premiums paid by the working population be raised to afford social security for a growing group of pensioners? Should people be encouraged to take more responsibility for their own pension? What is the changing role of employers associations and trade unions in the organization of pensions? Can and are people prepared to undertake investment for their own pension, or are they happy to leave this to the pension funds? Who takes responsibility for the pension funds? How can a transparent and level playing field for pension funds and insurance companies be ensured? How should an acceptable trade-off be struck between social goals such as solidarity between young and old, or rich and poor, and

individual freedom? But most important of all: how can the benefits of living longer and healthier be harnessed for a happier and more prosperous society?

The Netspar Panel Papers aim to meet the demand for understanding the ever-expanding academic literature on the consequences of aging populations. They also aim to help give a better scientific underpinning of policy advice. They attempt to provide a survey of the latest and most relevant research, try to explain this in a non-technical manner and outline the implications for policy questions faced by Netspar's partners. Let there be no mistake. In many ways, formulating such a position paper is a tougher task than writing an academic paper or an op-ed piece. The authors have benefitted from the comments of the Editorial Board on various drafts and also from the discussions during the presentation of their paper at a Netspar Panel Meeting.

I hope the result helps reaching Netspar's aim to stimulate social innovation in addressing the challenges and opportunities raised by aging in an efficient and equitable manner and in an international setting.

Roel Beetsma
Chairman of the Netspar Editorial Board

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PENSION CONTRACT DESIGN AND FREE CHOICE: THEORY AND PRACTICE

Policy suggestions

Insights from behavioral economics are a crucial element in designing pension systems. In response to the current pension crisis, the Goudswaard Committee (2010) has advocated the search for possibilities to increase individual choices to match heterogeneous preferences and to increase public support for the Dutch pension system as a whole, within the boundaries of collectivity and reasonable execution costs. The pension agreement by social partners and the Dutch government (2011, p. 4) proposes 'sufficient possibilities for individual flexibility with regard to the retirement decision and additional pension savings through which participants can influence their pension level'.

Based on insights from behavioral economics we provide a framework to assess which choices can be left to consumers and how these choices should be framed.

The current Dutch second-pillar system is inconsistent: Employees have little or no choice with regard to participation and the amount of pension savings, while the self-employed, on the other hand, have complete freedom of choice. It is hardly conceivable that decision-making skills change drastically the moment employees become self-employed.

Therefore, libertarian paternalistic adjustments are appropriate. The extent of these adjustments depends on one's view of the role of the government and social partners in society; does one adhere

to a fully libertarian or a more utilitarian perspective? This has direct consequences for the individual flexibility one builds into the system and how strongly one steers individual choices. Generally speaking, arguments from behavioral economics are especially relevant during the contribution phase, when dynamic inconsistency can occur. There are strong arguments to stimulate (or oblige) pension saving and to suggest or determine a minimum savings level, irrespective of one's view on society. The behavioral economics literature points out that investment decisions are often too complicated. Decisions do not reflect normative preferences and may be inconsistent. Therefore, if investment flexibility is offered, it is sensible to limit the options from which people can choose.

Actuarially fair adjustment of pension benefits to the actual retirement age appears appropriate. Compared to the contribution phase, the timeframe between the retirement decision and payout is much smaller and dynamic inconsistency is of less importance. Therefore, less nudging is required to bring decisions in line with normative preferences[1].

Restricting pension benefits to annuities may be a sensible way of overcoming dynamic inconsistency in the pension phase. Adverse selection further justifies obligatory annuities. However, certainly at higher pension levels, some flexibility with regard to lump-sum payments may be appropriate.

More specifically, given the current Dutch pension system and mixing the pure scientific perspective with our normative preferences, we offer the following policy suggestions:

– Offer no flexibility in the first pillar. The first pillar provides the basic minimum income level when old.

1 Although from a public finance approach, there are some arguments to stimulate postponement of retirement.

- Continue obligatory savings in (second-pillar) pension funds for employees.
- Provide some flexibility both with regard to pension ambition and investment choice to account for private wealth and individual risk preferences:
  - Bounded flexibility with respect to the premium (with a minimum premium stated in pension contracts; and from a government budget position also a maximum tax exemption), with a default set by the pension fund and the possibility to save e.g. 2 or 4 percentage points more or less.
  - Flexibility with respect to the investment portfolio (see also Bonenkamp et al., 2011). Pension funds set a default, with a minimum of three options that people can choose from: a low-risk option, a high-risk one and one that automatically adjusts the risk profile based on one's age. Hence, there is a choice between a fairly secure nominal (or partly indexed) benefit when pensioning; a less secure but higher pension ambition and one that combines these two.
- In order to limit the potential for adverse selection and gaming the system when introducing flexibility, reduce ex ante redistribution in collective second-pillar pension schemes.
- Consider the option of offering even more flexibility from a certain threshold pension value, both with respect to the decision to save and the risk profile. Paternalistic arguments become less important and individuals with higher incomes are more able in financial planning. Moreover, a threshold can limit income redistribution from poor to rich ('perverse solidarity').
- Compel self-employed individuals to make an active choice with regard to pension saving. E.g. the requirement to answer the question 'I save for my pension' with 'yes' or 'no' when registrating with the Chamber of Commerce. Depending on the

individual's social welfare function, the level of steering can be increased: An obligation for the self-employed to save for their pension or a state-set default pension developed for the self-employed with an opt-out possibility.

- Allow personal choice with respect to pension age, part-time pensioning, partner pensions and high-low benefits, with actuarially adjusted pension benefits.
- Set in place strict rules for third-pillar products: Provision of objective information and no use of frames that steer people in the 'wrong' direction, development of a default third-pillar product, et cetera.

Abstract

This paper discusses the insights from the field of behavioral economics with a focus on the implications for the design of pension schemes. The first part of the paper provides an international overview of the most important results from the behavioral economics literature. Next, it introduces a systematic approach to think about how to take account of these deviations from the standard framework of fully rational consumers maximizing utility. It does so by assessing behavioral economics instruments with regard to the level of paternalism they entail. Moving up on the scale of paternalism implies a stronger steering of the choices of individuals. The factors that might influence the costs and benefits of steering stronger are assessed. Policymakers need to balance the risk of steering individuals in the wrong direction with the risk of not steering those individuals that (are likely to) make suboptimal choices. An analogy is made with statistical inference, where one needs to balance similar risks: The risk of not rejecting a false hypothesis and of failing to accept a correct hypothesis. This discussion sheds further insight into the use of behavioral instruments.

The second part of the paper discusses the use of behavioral instruments in the Dutch pension system. In particular, the paper explores the possibilities and rationale to increase the use of behavioral instruments, against the background of the recent pension agreement of social partners and the government.

1. Behavioral economics literature

1.1 Deviations from standard economic assumptions

One of the most important concepts in economics is the concept of 'utility'. Microeconomic theory, social welfare functions and macroeconomics among other fields of economics, have the concept of utility at the basis of their analysis. Utility, however, is a theoretical construct that cannot directly be observed. Therefore, Paul Samuelson (1938) constructed an indirect way to unveil the utility people get from their decisions by revealed preferences. To consider not only relative utility from different decisions, but also decisions under uncertainty and in time, Von Neumann and Morgenstern (1947) came to the conclusion that if choices are complete, transitive, convex and independent, all choices can be valued and the utility deriving from choices of different individuals can be aggregated. In modern economics, many economic models take the concepts of utility, revealed preferences and rational people that make transitive and independent decisions as given. There is, however, an extensive debate about the suitability of the utility concept for explaining human behavior. This has contributed to the development of the field of behavioral economics, which questions precisely these assumptions and shows that in reality, people often differ in a consistent way from these assumptions. Not taking these deviations from the rational consumer framework into account when designing policy decreases social welfare, the total sum of utility.

The increasing stream of behavioral economics teaches us that people do not always take decisions rationally. According to the framework put forward by DellaVigna (2009), people differ from

the standard model in three ways.[2]
1) They have nonstandard preferences;
2) They have nonstandard beliefs; and
3) They engage in nonstandard decision-making

Each of these deviations is based on several aspects that are of importance when people make decisions.

1.1.1 Nonstandard preferences

Preferences are nonstandard for three reasons. First, preferences may not be transitive or time-consistent. This is important when choices are made at different points in time. The usual assumption of economists is that individuals are time-consistent: faced with the same information base, they would take the same decision at different moments in time. Delaying consumption by one day is valued the same today as in one year. In reality, people put much more weight on a nearby delay than on the same delay in a year's time. Generally, nearby consumption is overvalued and people are time-inconsistent (Frederick et al., 2002).

A second non-standard element is loss-aversion. Risk-aversion in itself may be rational, but loss-aversion is not, as the framing of the choice influences derived utility. Kahneman and Tversky (1979) demonstrated with their prospect theory that reference points matter. A certain outcome framed as a loss is valued differently than the same outcome framed as a gain-making use of a lower reference point. This makes the reference point relevant for the decisions people make. Moreover, it has been shown that

2 Note that the distinction is not clear-cut. We nonetheless follow the framework put forward by DellaVigna (2009) in this section, to ensure consistency with the existing literature.

people can be risk averse for gains and risk loving for losses at the same time (Rabin, 1998).

A third point where preferences are different from what is generally assumed relates to social preferences. People do not only care about themselves, but they also care for others. Interpersonal preferences are not taken into account in standard economic models. Moreover, it has been shown that people also value their relative position compared to their peers (Layard, 2005). If your colleague earns more for doing the same work you do, the utility you derive from your salary drops.

1.1.2 Nonstandard beliefs

Nonstandard beliefs are a second branch of deviations from the standard set of assumptions. Sometimes decisions are so difficult that people simply do not have the capability to take the right or optimal decisions. And even if we know all the rules of chess, we are not all equally good chess players. Usually it is assumed in economic models that everyone has the capability to maximize their utility. However, capability to make utility-maximizing decisions is not evenly distributed over the population. For instance, it seems difficult to understand that people buy so-called 'woekerpolissen' — insurance policies for disability with cost structures over 40% — and take loans at high interest rates for their new car, while they have enough financial assets on their own.

Such nonstandard beliefs manifest themselves in overconfidence, the law of small numbers, and projection bias. Overconfidence means that people think that they have better information than they actually have, and think that they are more apt to perform a certain task than they actually are. For example, 93% of the people with a driver's license think that they

drive better than average. Similarly, managers overestimate their control over firms (DellaVigna, 2009).

The law of small numbers implies that people adapt their expectations too much to limited past experiences. For example, they might thus infer after throwing two sixes with a dice that the chance of throwing another six with these particular dice is larger than one in six. In contrast, people might also believe that throwing another six is highly unlikely (the so-called gamblers fallacy), whereas the actual probability is independent of the past throws.

Projection bias is another fallacy related to nonstandard beliefs, and means that people incorrectly think that their current preferences are the same as their future preferences. Hungry people buy more when shopping, because they 'believe' they want more food in the coming days as well, and when it is cold they think that they like more cold-weather items during the summer than they actually do.

1.1.3 Nonstandard decision-making

The third way in which people deviate from the standard model is by nonstandard decision-making. Apart from nonstandard beliefs as just discussed, also the context in which people operate may influence the decisions people make. Examples are the way choices are framed; the underweighting (or overweighting) of information because of limited attention; suboptimal heuristics used for choices out of menu sets; social pressure and persuasion and emotions. These are considered briefly below.

First we consider framing. When presenting essentially the same options in a different way, people do not make consistent choices: the way that choices are framed is relevant. This is related to loss-aversion and reference points. Epley and Gneezy (2007) discussed recent empirical evidence for the effects of framing

of financial windfalls as a gain or as a returned loss or rebate. They referred to experimental studies in which people consume substantially more if windfalls are described as bonuses than if they are marked as rebates.

Framing may also bias the perception of risk probabilities (Kooreman and Prast, 2010). Johnson et al. (1993) showed through experimental studies that people want to pay more for a flight insurance against any act of terrorism than for a flight insurance for any reason (although the differences in prices is not significant). When people may choose between equal medical treatments with exactly the same chances to survive, but framed as mortality or survival rates, people choose more than twice a reduction in the mortality rates (Rabin, 1998).

Inattention to information is a second example of nonstandard decision-making and is in some way the opposite of the law of small numbers. If the costs of processing information outweigh the (potential) benefits, it can be rational for individuals to neglect it. However, there are some examples in the literature for which this explanation is not sufficient. In the reaction on financial news of investors, there seems to be a reaction delay of 50% on financial news (only 50% of the news is immediately taken into account in the price). Another example is that of shipping costs: when shipping costs are not included in the stated price of Ebay products, average return increases (Hoissain and Morgan, 2006). In contrast, saliency – which leads to extra attention to information – has substantial effects also (Finkelstein, 2009). People may also be unable to process information. This can lead to errors or choice avoidance. Choice avoidance occurs when people do not know what to do. They feel uncomfortable making a decision and rather than running the risk of having to regret a decision, they procrastinate or decide not to choose.

A third element is heuristics. If people have to make a complicated choice, they might turn to heuristic aids. For example, heuristics in (investment) decisions can imply any of the following: Excess diversification (or 1/n heuristic); preference for the familiar; preference for the salient; choice avoidance; and confusion in implementing the actual choices. Such heuristics are especially important in investment decisions. When making the choice between ten funds, people are inclined to allocate 10% of their investment to each of the funds, independent of the different risk profiles (the 1/n heuristic; Benartzi and Thaler, 2001). Preference for the familiar is shown in pension decisions in Sweden, where people overinvest in Swedish shares (Cronqvist and Thaler, 2004) and in the United States, where people overinvest their savings and pensions in their own company (while their human capital already bears company risk). Preference for the salient is shown by studies that indicate that people invest in those shares that fluctuated a lot the day before (Barber and Odean, 2008).

Fourth, social (peer) pressure and persuasion can influence decisions and preferences. To some extent this is similar to the impact of peer pressure on individual preferences. It has been shown that the social norm with respect to labor participation affects the participation rates in a country (see Nijboer et al., 2011).

Finally, emotions matter when making decisions. When the weather is nice, tips tend to be higher. When people are in a 'hot state' they decide more impulsively and process and/or weigh the available information differently than they would in more neutral circumstances. This may indeed be an argument for buyer protection legislation, such as the three days rejection period in the Netherlands when buying a house and the colportage regulation that diminishes the possibility of door-to-door selling.

The summary above indicates that there are many situations, contexts and behavioral aspects of human beings that are not in line with standard assumptions. In fact, the above discussion clearly shows that these deviations occur in a structural, consistent matter. Hence, the assumption that *on average* consumers behave rationally does not hold. Beshears et al. (2008) argued that under certain circumstances the choices people make are not in line with their actual, real, or so-called normative preferences. In such situations, paternalistic interventions may be warranted. In response to these insights, several new policy tools have been proposed.

1.2 New policy instruments

The insights from behavioral economics can be used to propose 'new' paternalistic instruments for policymakers that may affect behavior. The economic toolkit of providing information (to enable people to make well thought-out choices), regulation and taxes and subsidies (to collect government revenues and internalize externalities) can be extended by new 'soft paternalistic instruments'. These instruments are relevant, because they 1) have a substantial effect on behavior; and 2) can be implemented at low cost (Kooreman and Prast, 2010). Moreover, behavioral economics instruments do not reduce freedom of choice in the same way as regulation does. We will consider the following instruments: setting the default, framing and commitment mechanisms.

1.2.1 Setting the default

People suffer from status quo bias (Samuelson and Zeckhauser, 1988). This means that when people have different choices, they prefer the status quo above change — even if a change offers

larger gains than the status quo. This provides a theoretical argument for the relevance of setting default options.[3] People may stick to the default, either because they do not want to be held responsible for their active choices; are not aware of not choosing; prefer to procrastinate; see the default as advisory; may stick because of transaction costs (Smith et al., 2009). There is ample evidence pointing to the relevance of the default option in very different fields of choice, such as moral domains like organ donation (Johnson and Goldstein, 2003), regarding homework (DellaVigna, 2009) and in social insurance domains (see, for pensions, e.g. Cronqvist and Thaler, 2004; Thaler and Benartzi, 2004).

People may argue that defaults have their effects due to the costs associated with choosing. It may be optimal to stick to the default when opting out is costly and/or the positive effects of opting out are small. However, also in case of important (financial) decisions we see large effects of changing the default on 'revealed behavior' (indeed, not preferences) – so large that it is believed these cannot be attributed to preferences or transaction costs, but are due to 'behavioral' decision-making.

Libertarian paternalists argue that the default option should be set by policymakers in a way to 'Steer people's choices in welfare-improving directions, without eliminating freedom of choice' (Sunstein and Thaler, 2003, p. 1). People may deviate from the default and choose for an alternative option, but when they do not, they are not left with a detrimental choice. Because in every choice situation there is explicitly or implicitly a default, and because this default may have a significant impact on actual choice behavior, care should be taken when setting the default.

3 Van Rooij and Teppa (2008) show that procrastination is also an important explanation for the relevance of default options.

1.2.2 Framing

The reference point can be influenced by framing. The same option can be framed as a win or a loss (Tversky and Kahneman, 1984). This may affect behavior, due to loss-aversion and the different weighting of gains and losses by consumers. Moreover, also procrastination and time inconsistency contribute to the relevance of the reference point people have when making a decision.

Obviously, framing and defaults are highly interrelated. It was argued that framing in terms of losses and gains can affect people's behavior. Also changing labels can have serious effects on behavior. Kooreman (2000) showed that people spend substantially and significantly more of their money on children's clothes if the income they receive is labeled as 'child benefits'. Therefore, setting labels can be an inexpensive tool to steer people's choices (Kooreman and Prast, 2010).

1.2.3 Commitment mechanisms

A third policy tool that may be appropriate in light of behavioral economics is commitment mechanisms. People may be aware of their shortcomings, but fail to resist the temptation of short-term welfare maximization (at the expense of one's long-term welfare), due to myopia, status quo bias, loss-aversion and/or time-inconsistency (Thaler and Benartzi, 2004). Benhabib and Bisin (2005) argued that people can commit themselves to prevent making time-inconsistent decisions, react less impulsively and avoid temptations. Simple behavioral economics models do not pay attention to the combination of automatic, impulsive processes and controlled processes that use the pre-frontal cortex. The authors analyzed self-control strategies (internal commitment

mechanisms) in consumption–saving decisions that can reduce time–inconsistency problems.

However, also external commitment mechanisms may help overcome these problems. Commitment mechanisms provide people with the possibility to commit themselves in advance to act as a dynamically consistent consumer. Casinos, for example, provide the possibility to limit the amount of visits per period. When people choose to commit themselves to such limitations, and subsequently want to enter the casino more often, entry will be refused. Commitment may also be increased by fixing recurrent appointments. For example, when leaving the dentist's office after a half yearly checkup, a new appointment for over six months may be made on the spot, knowing well that people generally do not like going to the dentist and might procrastinate making an appointment otherwise.

We now turn to a discussion of behavioral aspects in the pension domain, before putting forward a more structured framework of new behavioral and 'old' policy instruments.

2. Behavioral economics and pensions

Insights from behavioral economics are especially relevant for the pension domain. Decision-making with regard to pensions is particularly prone to the behavioral biases and deviations from rational consumer theory (Beshears et al., 2011):

> 'Saving and investing for retirement can be especially daunting, as it involves making large long-term commitments in a domain in which many individuals will never develop significant expertise. Learning is hindered by the fact that each individual goes through the lifecycle savings problem only once, outcomes are realized with substantial delay and noise, and the rapid pace of financial innovation renders previously acquired knowledge obsolete.'

2.1 General view

First, saving for pensions implies a major time interval. The 20-40-40 rule of thumb indicating that in the Netherlands 20% of the final pension outcome consists of premiums, 40% of returns on premiums paid during the working life and 40% of returns accumulated after the first pension annuity has been paid out, underlines the importance of starting to save early in life. Procrastination, myopia and time inconsistency are among the main reasons for paternalistic interventions in the Dutch pension domain (Van Els et al., 2007). Governments act paternalistically to prevent people making choices they regret later in life.

Second, financial choices are perceived as difficult. People may not have sufficient knowledge to make rational decisions — even if they want to. Kooreman and Prast (2010) summarized research that shows that financial literacy is limited for substantial parts of

the population. Even basic financial concepts such as (compound) interest are not well understood. Van Rooij et al. (2007) showed that more than 50% of the people would score their own financial expertise as a '1' or a '2' on a scale of 1–7 (very low to very high). Pension products – and decisions, in particular – may be difficult and complex. People are often not able to grasp the utility they derive from different options in the pension domain.

Lusardi and Mitchell (2011a) showed that around the world financial literacy is associated with retirement planning. Financial literacy differs between segments of the population. The less-educated, lower incomes and some ethnic minority groups are less likely to plan for retirement, leaving them less-well positioned for old age than is necessary (Lusardi and Mitchell, 2011b).

Centiq (2009) investigated whether Dutch people are aware of the amount of their pension savings, whether they can assess if it is sufficient and whether they know which instruments could be used to supplement pensions, if required. Two-thirds of the Dutch population was assessed as being fully 'pension unaware', and 27% as (partly) aware of their pensions. Generally, the 'unaware' are relatively young and have less education, less income and less savings. Also women are overrepresented.

Van Dalen et al. (2006) compared attitudes and found that especially low incomes are at risk of under-saving when they have to decide about their pensions. They concluded that more freedom of choice is a blessing for some and a curse for others.

In response to this, Van Rooij and Teppa (2008) analyzed the attractiveness of default options. Based on the DNB Household Survey they argued that financial illiteracy, limited ability to understand financial decisions and procrastination provide the most powerful explanations for sticking with the default.

Third, money illusion may play a role (Fehr and Tyran, 2001). People underestimate the effect that inflation has on the real value of their future income. This mechanism may be especially important if people have the opportunity to choose from different options in the benefit phase. Should they take a lump sum, wage- or inflation-linked benefits or nominal benefits? Money illusion suggests that people opt for nominal benefits due to their misunderstanding of the effect of inflation. Hence, framing may influence utility. However, recent survey evidence suggests that when the effect of inflation is explained before the questionnaire is given, slightly more people opt for more risky benefits with the ambition of compensating for (wage) inflation over a nominal guaranteed pension (GFK, 2011).

Fourth, in the context of difficult and complex decisions, people obviously make errors. Cronqvist and Thaler (2004) described errors in investment decisions in the pension domain. After a partial privatization in Sweden, people could deposit 2.5% of the payroll on personal saving accounts. They were stimulated to choose by either allocating pension savings in one of 456 investment funds or opting for a well-developed default. The authors show that the (well-developed) default option outperformed the funds people choose themselves ex ante as well as ex post (the defaults are characterized by better spread risks, more international and sectoral diversification, more hedged funds, more inflation-linked funds, et cetera).

Fifth, dealing with long-term up- and downward risks is of major importance in the pension domain. Brown et al. (2008) showed that framing is of great importance with respect to the decision to annuitize pensions or not in the US. If annuities are framed in a consumption frame (insurance of income during the rest of life), then 72% of the people opt for annuities, whereas

if they are framed as an investment decision (risk that you lose everything when you die tomorrow), only 21% opt for the annuity.

Sixth, pensions have a big impact on financial well-being, and 'wrong' decisions cannot be undone at a later age. People may be left without money in their old age. Clearly, the government also has a direct financial stake in that people that save too little might qualify for social benefits later in life, although this is of less relevance in the Dutch context, due to the PAYG first-pillar pension to which everyone is entitled.

Seventh, pensions have a large impact on lifetime welfare, while learning from mistakes is hardly possible (the feedback through pension payout comes much later in life, when it is often too late). The point at which people understand they have made a mistake in an investment decision or in the savings rate, may be too late to fill the gap – or may be possible only at very high cost.

2.2 Pension decisions

This section discusses the literature on behavioral economics regarding a number of specific pension decisions.

2.2.1 Participation and savings rates

Madrian and Shea (2001) showed that automatic enrollment in a 401(k) savings plan increases participation, compared to an opt-in system. They also showed that people stick to the default savings rate. Carroll et al. (2009) demonstrated that a mandatory decision to participate (or not) increases participation rates by 28%, compared to an opt-in system.

Thaler and Benartzi (2004) took a prescriptive approach, which means that they provided people (often second-best) advice on how to improve decision-making and how to get closer to the ideal. The authors incorporated the notion that people are loss

averse, procrastinate and are short-sighted. They developed a pension savings plan, that – to prevent procrastination and lack of self-control – commits people to save part of their salary increases (so net income does not decrease and people do not 'lose income'), while opting out is always possible. Experiments in the US with this scheme of automatic escalation show that savings rates increase substantially.

Labeling also plays a role. When contributions of employers were labeled as 'employee contributions' to pensions, the savings percentage increased (Card and Ransom, 2007).

A deposit account is a means by which to commit oneself not to touch one's savings. Slightly less committing are accounts where the interest rate increases with each year one does not touch the money in the account (such as 'klimsparen').

Note, however, that Bronchetti et al. (2011) showed that the effectiveness of defaults may depend strongly on the particular context at hand. Although there is ample evidence that defaults are highly effective in e.g. white-collar workers' 401(k) saving decisions, their controlled experiment showed that defaults were almost ineffective in directing tax refunds of low-income tax filers towards savings via U.S. savings bonds. One explanation offered (and supported by ancillary evidence) was that the 'nudge' was ineffective in part because the low-income tax filers in the study had targeted plans to spend their tax refunds beforehand.

2.2.2 Investment portfolio

Nonstandard decision-making was discussed in section 1 of this paper. These deviations from standard economic models are especially important for investment decisions: The way choices are framed; the underweighting (or overweighting) of information because of limited attention and suboptimal heuristics used in

decision-making. When employer matches are by default invested in employer stocks, portfolios consist of substantially more employer stocks (Beshears et al., 2011). Individuals pay too little (too much) attention to (ir)relevant information. Salient funds get more investments, past returns are weighted too heavily and people pay too little attention to fees (Beshears et al., 2011).

Agnew and Szykman (2005) showed that less knowledgeable individuals (knowledge is determined by a financial test) choose the default six to ten times more than do 'high-knowledgeable' individuals. And those high-knowledgeable individuals are best inclined to choose when facing only a limited number of investment options. Faced with an abundance of options, 'choice overload' occurs, and even the high-knowledgeable prefer not to choose and just stick to the default. Agnew (2006) also found that people who earn more than 100,000 dollars a year make better investment choices: They hold 12.7% less company stocks, are 3% less likely to follow the 1/n heuristic and participate in a fund 37.7% more than those who earn 46,000 dollars a year.[4] Moreover, it has been shown that women generally make better choices than men do, despite being less financially literate. Possibly this can be attributed to overconfidence on the part of men.

2.2.3 Pension starting date

Financial considerations are by no means the only important factor in decisions about people's retirement age. Also social norms play a role (Euwals et al., 2009). If the 'social norm' is

4 There is some empirical literature indicating that the 1/n heuristic can outperform mean variance optimization. Nevertheless, it cannot be fully rational. Consider the 1/n strategy with only two investment categories A and B. It dictates a 50-50 mix. Now consider a split of A in two arbitrary categories A1 and A2 (change the frame). It now leads to a different 'optimal' mix between A and B, even though the available information has not markedly changed.

leaving the labor market to provide space and create jobs for younger workers, as it was in the Netherlands some decades ago, people retire earlier than when the social norm dictates continuing to work later in life to take responsibility for society. Research into the role of social norms with respect to the moment one leaves the labor force is quite scarce, but in other domains the impact of social norms has been studied much more extensively, and appears to be rather substantial.[5]

Brown et al. (2011) showed that framing may influence the moment when Americans will start claiming social security benefits. Eligible individuals are entitled to claim benefits as of age 62, but may also postpone this to as late as age 70. The actual level of benefits is actuarially adjusted based on the average life expectancy. A breakeven framework, emphasizing the minimum number of years one needs to live in order for a delay in claiming to be financially optimal, leads to a substantially earlier expected claiming date (in the order of 12 months) than alternative frames. More generally, the presentation of gains (as opposed to losses) leads to later claiming. Evidence of an 'anchoring' effect with respect to age is also found. This is further evidence that even conscious, high-stake financial decisions are sensitive to framing.

2.2.4 Annuities

Butler and Teppa (2007) showed that rational arguments play a significant role in the decision to either annuitize pensions or choose a lump sum in Switzerland. Decisions are generally based on expected life-time utility, implying that people with less pension capital opt for a lump-sum benefit – the rationale being that after the lump-sum money is spent, people may apply for

5 Schultz et al. (2007) provided examples in the environmental domain and Nijboer et al. (2011) in the field of labor participation.

means-tested social benefits. However, the authors also show the relevance of the sponsor's default option: when annuitization is the default, substantially more people 'choose' for annuities.

Brown and Nijman (2011) discussed the rationale for annuitization (insurance income during people's life) and an amount of money at once (liquidity provision, precautionary motives and bequests). The authors concluded that from a welfare economic perspective sketching the optimum is not possible, but that there are arguments for more flexibility in the decumulation phase of Dutch pensions. They suggested that a minimum amount should be (inflation-linked) annuities, with freedom of choice for the other pension savings.

3. Framework behavioral instruments and scale of paternalism

Although some may argue that there are only three basic categories of policy instruments, being 'carrots, sticks and sermons' symbolizing economic incentives, legal instruments and information, respectively (Bemelmans-Videc et al., 1998), others would argue for a more elaborate taxonomy. This section analyzes behavioral instruments according to the level of paternalism they presume. We introduce a scale with increasing paternalistic government intervention. Even though Bronchetti et al. (2011) claimed that 'a nudge is not a shove', some of the more paternalistic instruments come very close.

3.1 The scale of paternalism

First of all, the least interventionalist approach is providing *information/education*. This reduces information asymmetries and increases informed choices. However, being well-informed does not mitigate all behavioral biases people face, such as time inconsistency and loss-aversion.

Second, *framing* can be used to bring decisions more in line with normative preferences. It is important to note that there is always some form of framing even if it is not actively pursued. Therefore, an active and well thought-out framing strategy should be preferred. Clearly framing influences, but does not actually reduce, freedom of choice. Framing can be especially effective when the reference point is important, and in decision-making under uncertainty.

Commitment mechanisms also leave freedom of choice with the individual. However, after choosing to commit (with the use of a commitment mechanism), an individual is constrained and usually sticks to the commitment made. Moreover, the goal

of commitment mechanisms is to reduce attractive behavior in the short term at the cost of long-term well-being. Therefore commitment mechanisms can be seen as more paternalistic than framing. Commitment mechanisms can be especially useful when people are time-inconsistent. They are less paternalistic than defaults and obligatory choices, because individuals are required to make an active choice to enter a commitment mechanism or not.

Defaults are more intrusive because they may change the outcome even if people do not choose or act otherwise, in contrast to the earlier instruments. It is not surprising that only governments can use this instrument at the macro-level, and thus impose a preferred outcome. Procrastination and choice avoidance increase sticking to the default.

A special case of obligation is the *obligation to choose*. The government forces people to choose. Outcomes are arguably more in line with people's real preferences (Beshearsh et al., 2008). However, people who from a principal point of view do not want to choose are forced to do so against their will and possible competence. Botti and Iyengar (2006) analyzed how choice may impair social welfare. Too many choices may increase cognitive costs and may lead to suboptimal decision strategies (consumers use more simple decision rules when options increase) and procrastination. Moreover, if choice between negative outcomes is enforced, it may increase psychological pain. People are happier when a doctor argues (and decides) what is good for them, compared with having to make the same decisions themselves. More choice may in some circumstances lead to a decrease in subjective and objective well-being. The exact place of obligatory choices on the scale of paternalism is not clear. We feel that it intrudes upon freedom of choice more than setting a default does,

and less than taxes and subsidies do – but the opposite could also be argued.

Next on the scale of paternalism are more traditional instruments: *taxes, levies and subsidies*. The first goal of taxation is of course to raise revenues, but taxes are also used to internalize external effects, e.g. by pricing environmental pollution or unhealthy behavior. Taxes can be regarded as more paternalistic than defaults, because people really have to pay them, unless they choose to evade buying products that are taxed.

Finally, the government can *oblige* or *forbid* people to do something. One can use this instrument when the 'harm principle' is relevant: It is forbidden to harm others or act against one's own best interests. Of course it also depends on people's political view to what extent paternalistic interventions are desirable (see also below). Nowadays, for most of the employees in the Netherlands it is obligatory to save for their second-pillar pension.

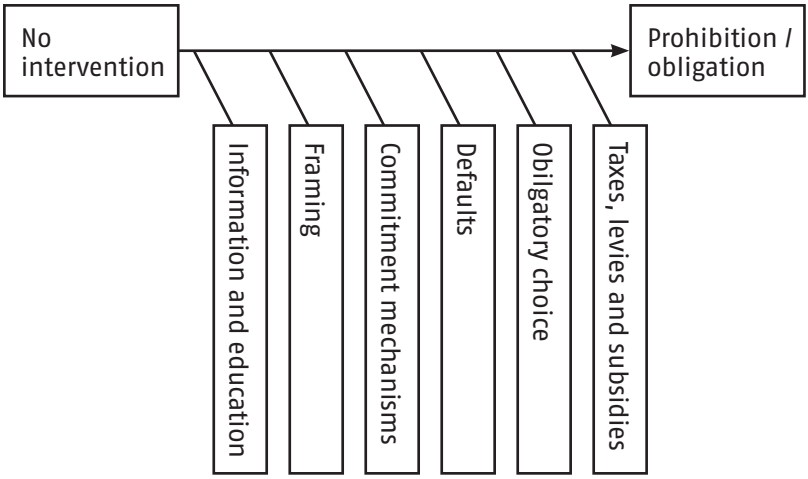

Figure 1: Scale of paternalism

Table 1: BE-instruments in Dutch pension schemes and products

	Information/ education	Framing	Commitment mechanisms	Defaults	Obligatory choice	Taxes	Prohibitions/ obligations
Government	Information about the state pension; websites such as Pensioenkijker.nl	Frame the state pension as an income for the basic needs. Frame policy instruments such that it makes behaving in line with its aim attractive, e.g. 'doorwerkbonus'*	Could be developed for self-employed	State pension starts at age 65, in the future it may be possible to delay or get in advance pension benefits	Oblige the self-employed to make an active decision on pension build-up	EET scheme, lower social security premiums after state pension age, 'doorwerkbonus'	Obligatory pension savings
Social partners	Information about second-pillar pension system	Frame choices about retirement age not in financial terms but in terms of what people want when retired (e.g. to live in their own house, have holidays, car, et cetera)	Could be developed for people who build up a low pension and self employed	Having a partner pension	Some DC-pension funds offer a limited number of investment strategies; people have to choose	Not available	Obligatory pension premiums
Employers	Explaining the pension product they offer to their employees	Frame their pension as premium free for employees	A saving scheme for people that do not have enough pension	Save for the life course account as a default	No examples in the current Dutch pension system available	Not available	Not available
Insurance companies/ third pillar	Information about third-pillar products	Framing pension shortages**	Save more Tomorrow system	Set the default investment strategy for a given pension product	Offer three types of investment strategies	Not available	Not available

* Note: The 'doorwerkbonus' itself falls in the category of subsidies, but the decision to frame it as subsidy for continuing to work may increase the effectiveness of the instrument.

** See e.g. the pension check at www.ing.nl which almost always states after answering 13 questions that people have a possible pension shortage (even when you are 28 and worked your whole life in the public sector).

In the literature it is often stated that pension providers can and should use Behavioral Economics (BE-) instruments such as defaults. However, as will be clear by now, a much wider array of instruments is available and to some extent already deployed. Table 1 provides some examples of BE-intervention within pension schemes and products. In addition to the instruments noted, to reduce choice stress insurers and social partners can choose *to reduce the amount of different investment options* for a pension product. Reducing the amount of options can even increase the percentage of people who take a decision (Iyengar and Lepper, 2000).

3.2 Choosing between instruments

Having proposed this scale of paternalism, the relevant question is what the appropriate behavioral intervention is under different circumstances. If one moves up the scale, the level of paternalism increases and the steering is stronger. This can be justified if a less forceful intervention does not sufficiently reveal the normative preferences people have. As deployment of behavioral instruments may come at a cost (see also below), deployment should be as little as possible, but as much as needed. However, the question remains how to implement such a general rule. Before discussing the different options in more detail, we first provide an alternative perspective on weighing the different behavioral instruments and the level of paternalism they entail.

3.2.1 An alternative perspective: Type-I and type-II errors

Clearly, an important factor in choosing the specific behavioral policy instruments is the aspired level of freedom of choice for the consumer. This can be seen from an alternative perspective,

taken from the statistical literature.[6] When statistically testing a hypothesis, one can make one of two errors. A type-I error indicates a false positive: The null hypothesis (e.g. the patient is healthy) is rejected, while the patient nonetheless is healthy. Such an error might lead to unnecessary treatment. In contrast, a type-II error indicates a false negative: While the patient is ill and requires treatment, the test score does not reject the null hypothesis of a healthy patient. Determining the desired balance between these two errors is crucial for the decision-making process. For statistical analysis, it is often desired that the chance of a type-I error is 1, 5 or at most 10%. Tests are designed such that given the maximum acceptable level of a type-I error, the type-II error is minimized (or alternatively put, the power — being the chance of rejecting the null hypothesis when indeed it is false — is maximized).

Similarly, when applying behavioral instruments, one can make errors of both the first and second type. One can influence (stimulate, coerce) a person towards a certain choice, while it is not optimal for the individual. This is a type-I error, analogue to treating a healthy patient. Also, one can decide not to interfere with the individual's choice: One can then decide to make a 'wrong' decision, which can be viewed as a false negative, or as not treating an individual that is ill. The government or some other party might have interfered to prevent the individual erring. Obviously, the probability of steering individuals in the wrong direction increases when the group subject to behavioral instruments is more heterogeneous.

6 This terminology has been applied to a wide range of different fields. For example, in the field of justice and retention, a suspect may be convicted and sent to prison while innocent (false positive), or alternatively, one may be acquitted while guilty (false negative).

In contrast to statistical inference, there is no requirement to limit the probability of a type-I error to 10% or less, when applying behavioral instruments. In analyzing the use of behavioral economic instruments one may value the costs of type-I and II errors more evenly. The reason is that behavioral instruments leave the individual the possibility to deviate from the default option. If the costs of erring become too large, it remains the responsibility of the individual to make the right, or optimal, choice – given his individual (normative) preferences.

In deciding to apply behavioral instruments one not only needs to balance the probabilities of type-I and II errors, but also the potential costs of such errors and the benefits of guiding people towards an optimal choice. It is often very complicated to explicitly estimate probabilities and potential costs and benefits, certainly when dealing with more heterogeneous groups.

Camerer et al. (2003) made a plea for asymmetric paternalism based on a very stylized model. The main point that the authors made is that BE-instruments should be used if the total sum of the benefits to society is larger than the total costs. In their model, the authors assumed that there are two types of consumers: boundedly rational (naives; p) and rational (often called sophisticates; (1-p)). Moreover, it was assumed that BE-policy is designed to reduce mistakes of the boundedly rational people, while this policy might impose costs on rational consumers. They constructed a simple model with **B** representing the net benefits of boundedly rational agents, **C** the net costs of rational agents, **I** the implementation costs of the policy, and **DP** as the effect of the BE-policy on firms profits. The BE-policy is beneficial if:

$$(p * B) - [(1 - p) * C] - I + DP > 0 \quad (1).$$

The authors call a policy asymmetrically paternalistic if it creates large benefits for those who are boundedly rational while imposing relatively little harm on those that already act rationally.

Asymmetric paternalism, and the basic result that benefits should outweigh costs, provides little direct guidance for practical policymaking because the model is very theoretical. Determining C and B is quite a challenge. Moreover, not all choices are binary. Although the choice to start saving for an old-age pension may be binary, the choice as to how much to save is not.

3.2.2 Factors that influence the probability and cost of mistakes

To be more specific in the considerations that are important in the pension domain, we examine the probability of making type-I and type-II errors and relate it to the use of BE-instruments.

As discussed above, the scale of paternalism obviously provides some guidance as to which behavioral instrument to deploy. Further guidance is provided by the objective to minimize the chance of steering anyone in the wrong direction, and the costs of doing so, while maximizing the benefits of steering those that would otherwise have made a suboptimal decision. We provide a (non-exclusive) list of factors that may influence the chances and costs of erring. The more relevant the following elements, the stronger the arguments for (soft-) paternalistic government interventions:

- *Complexity of the choice*. In the context of complicated financial products such as pensions and annuities, people may prefer not to choose, and will procrastinate (Iyengar and Lepper, 2006), or may be more likely to make errors.[7] Complexity

7 See e.g. Choi et al. (2006) for the substantial impact of reducing complexity of choices in the 401(k) pension system. Chetty and Saez (2009) described an example in the tax domain.

could be reduced by using BE-instruments like framing and maximizing the amount of options.

- *Known mistakes*. Sometimes people know that they are not able to make a choice themselves. Van Rooij et al. (2007) showed that a majority of people prefer that pension choices are made for them, because they lack the knowledge and/or ability to take decisions themselves that are in their own best interest.
- *Time between decision and consumption*. As the time lag between (saving)decision and (pension)benefit increases, myopia and time-inconsistency become more of a problem.
- *One-off decisions*. One-off decisions leave little scope for learning from one's mistakes, a situation that provides an argument for the use of BE-instruments.
- *Hot states*. When one can expect beforehand that an individual will be in a 'hot state' or will be emotional when deciding, the benefits of steering that person in the right direction may be higher than if the person is in a position to make a well informed, neutral decision (Camerer et al., 2003).
- *Homogeneity of the population*. In a homogenous population, it is more likely that what is good for one person is also good for the other. Chances of erring diminish, and one may be inclined to apply more coercive, paternalistic instruments. Nijman & Oerlemans (2008) discussed five heterogeneric factors of pension fund populations:
  - *Pension saved*. Individuals with relatively low pension saved for their old age should want to save more than others do.
  - *Career*. Individuals with more upward career potential might – from a consumption smoothing point of view – want to save less today and more tomorrow for their pension.

  - *Life cycle*. Young people with a lot of human capital may want to take greater risk in their investments than people who are retired.
  - *Investment horizon*. People who can, and are willing, to adjust their retirement age in response to their pension capital may prefer more risk (and lower premiums) than others.
  - *Risk-aversion*. People may differ in their risk attitude.
- *Potential financial consequences*. Generally, if the financial stakes are higher, the costs of erring increase (although there may be diminishing marginal returns with diminishing marginal costs).
  - Who bears the consequences? The impact of the financial consequences depends also on whether the instrument is actuarially neutral. If the financial decision simply relates to postponing one's individual consumption by saving for retirement, erring is regrettable — but one may not actually lose money, only the use derived from it may be different. However, if the decision is related with collective redistributional instruments, erring may mean a transfer of wealth from one individual to another. This may be seen as more costly.
- Dominance. If certain products or options dominate others (in terms of net benefit for the individual), while in practice one sees that individuals make a different choice, more coercive instruments up to obligations/prohibitions may be warranted. An example is the prohibition of excessive hidden fees in financial products.

Combining the scale of paternalism with the factors that may influence the chances of erring and the costs of erring, we

propose a decision aid with regard to when to deploy which behavioral instrument. The more likely it is that the rational consumer assumption will not hold, the stronger the case for more coercive steering of choices. For example, if someone in a hot state needs to take a one-off decision (limited experience), balancing the costs and benefits of complicated financial products (pensions, annuities) over a long period of time (myopia, time-inconsistency), then the chance of a type-II error may increase

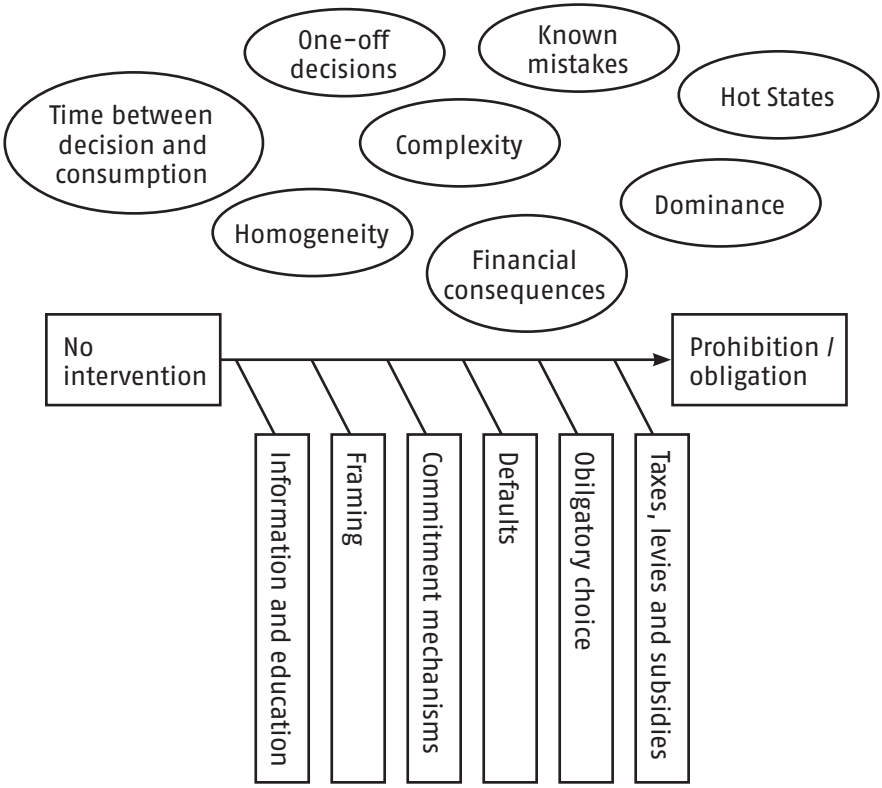

Figure 2: BE-instruments: When to use?

(and potentially also the costs of erring); in such a case stronger paternalism may be more warranted. In contrast, if the relevant group is very heterogeneous, this is an argument for a less coercive intervention. Since all of these factors may interact, there is generally no one-to-one relation between the arguments for applying behavioral economics and the deployment of particular instrument. Only in case of a dominant choice that consumers in practice often do not pick, may strong paternalism be warranted. But even then, decision makers should be aware of all the factors that play a role, and should weigh the different arguments in favor and against the type of intervention.

Obviously, the level of coercion influences the chance of erring and potentially also the costs of erring. As one moves up the scale of paternalism, steering becomes harder and it is less likely that an individual deviates from the 'state-preferred' choice. However, at a given level of heterogeneity, this increases the chance of erring.

3.3 The social welfare function

The choice of instrument also depends on one's perspective of society. From a libertarian[8] perspective, everybody should strive to maximize individual utility, and the government only intervenes to facilitate this – i.e. to prevent individuals from harming others (Mill's harm principle). This is in line with a belief that either the government cannot know what maximizes individual utility or that the utility of different individuals cannot be summed. Hence, in a liberal society, more weight will be put on free choice and responsibility, and on the costs of steering those that would otherwise have made an optimal choice, i.e. more weight (cost)

8 Note that the labels of liberalism and utilitarianism are not clear-cut and have changed over time.

will be given to type-I errors. This corresponds to a position on the left-hand side of the scale of paternalism (Figure 2).

In contrast, a utilitarian approach where the government strives to provide the greatest happiness to the greatest number of people is based on a social welfare function that sums the utility of each individual. To realize this, one should know the utility function of each individual and be able to compare and aggregate the utility of different individuals. According to modern liberalism, the government should take away obstacles that prevent individuals from living freely or from fully realizing their potential, including the obstacle of ignorance. This presupposes that the government may know better what is in an individual's best interest than the individual itself. Under such assumptions, government intervention to steer individual choices appears more plausible to lead to an improvement. Therefore, more egalitarian societies might put more weight on type-II errors, not helping those that would otherwise make a mistake.

Note that libertarian paternalism requires neither full knowledge of individual utility functions, nor the possibility to aggregate private utilities to a social utility function. But it does assume that the government 'has a fairly good idea of what is generally good for individuals'. Further, note that also in more liberal societies there may be a place for behavioral instruments, as they can also be an alternative for even more forceful / less liberal government interventions such as regulatory taxes or banning orders.

3.4 Three internally consistent second-pillar pension schemes

Taking into account that perspectives on society may differ, we sketch three internally consistent second-pillar pension systems. Arguments from behavioral economics are especially relevant in

Table 2: Three internally consistent second-pillar schemes and their consequences

System characteristic	**Libertarian**	Consequences	**Libertarian paternalism**	Consequences	**Paternalistic**	Consequences
Participation (all people, including self-employed)	Free	Under savings	Default to participate	Among 60-80 percent participation.* Pressure on current (ex ante) redistribution in pension system	Obligatory	No preference matching on individual level
Collectivity	No	No intergenerational risk sharing and redistribution	Encouraged collectivism	Bounded solidarity	Yes	Obligatory ex ante redistribution, gains of inter-generational risk sharing
Savings level	Everyone can choose	Under savings	Default savings rate	Pressure on current (ex ante) redistribution in pension system	Obligatory savings rate	No preference matching on individual level
Investment portfolio	Freedom of choice	Suboptimal investments, private suppliers exploit consumer's information problems	Default option with 2-4 restricted choices (lower and higher risk options)	More preferences matching than in paternalistic system, less consumer exploitation than in freedom of choice	No choice	No preference matching on individual level
Retirement age	Actuarially fair choices	Preference matching	Actuarially fair choices; maybe advisory age to set social norm (No reason to be pater-nalistic; social norm to increase labor participation)	Preference matching, some stimulation to work longer	Actuarially fair choices; maybe advisory age to set social norm (No reason to be paternalistic; social norm to increase labor participation)	Preference matching, some stimulation to work longer
Annuity or lump sum	Actuarially fair choices	Risk of consuming too much in first phase, some adverse selection (and reduction of longevity risk by people who have low survival rates)	Annuity as default, maximum amount lump sum	Reduce means for immediate needs, but a higher income guarantee later in life	Annuity as default, maximum amount lump sum	Reduce means for immediate needs, but a higher income guarantee later in life

* Estimation based on US experiences; see e.g. Madrian and Shea (2001) and Choi et al. (2006).

the pension-building phase. Then dynamic inconsistency plays a major role.

It is clear from the behavioral economics literature that investment decisions are generally too complicated. Most people are not able to take decisions that reflect (or are even consistent with) their normative preferences. This provides an argument for at least reducing the maximum amount of (well thought-out) options from which people can choose.

With respect to the retirement age, the time between decision and effect is relatively short. Therefore, if the adjustment to pension level is actuarially fair, people can decide when they prefer to stop.

Reasonable arguments can be made for allowing some lump-sum benefits, restricted by the objective of maintaining a reasonable replacement rate after retirement. Also, asymmetric information and the potential for adverse selection provide an argument to limit lump-sum benefits.

4. Dutch pension system

This second part of the paper relates the theoretically developed framework to the Dutch pension system. In order to do this, we provide a brief description of the Dutch pension context. First, we describe the relevant aspects of the Dutch pension system, focusing on behavioral aspects in second-pillar contracts. We also describe the different actors and discuss their possibilities to deploy behavioral instruments. Next, we discuss the pension crisis of recent years and the response of the pension sector to the crisis. For a more elaborate discussion of the Dutch pension framework, see the descriptions by OECD (2009) or Van der Lecq and Steenbeek (2007).

The most important parties in determining the use of behavioral instruments in pensions in the Netherlands are the following:

- The Dutch state: basic pension, tax system, regulation
- Pension funds (social partners): second-pillar pensions
- Pension administrators: providing extra insurance policies for (partner)pensions and disability, and providing savings and investment possibilities
- Insurers in the second and third pillars
- Employers: perhaps providing advice to buy extra insurance

The Dutch state plays a key role. Not only because it provides the first-pillar AOW, but also in setting the rules with regard to the fiscal stimulation of second- and third-pillar pensions. We discuss the current use of behavioral instruments by these actors in each of the three pillars.

4.1 First pillar

The Dutch pension system consists of three main pillars. First, the general old-age pension act (AOW) is a basic pension provision by the state for people aged 65 or older. It is financed on a pay-as-you-go basis. Anyone living in the Netherlands contributes to the AOW between the ages of 15 and 65, irrespective of whether one works. People that do not reside in the Netherlands, but do pay income tax in the Netherlands and work here are also insured. For each year between the ages of 15 and 65 that one has lived in the Netherlands, one builds an entitlement of 2% of the old-age pension, totaling 100% if one has been insured for the full period[9].

In the first pillar, up until now, there are very few choices one can make to influence the old-age pension level. For the sake of completeness, we mention them nonetheless:

- The level of the old-age pension differs for singles and couples. This is related to the lower costs of living for couples, and is not expected to influence the choice of individuals to live together and marry or not.
- For those temporarily living abroad or those migrating to the Netherlands after the age of 15, it is possible to voluntarily insure oneself for the years between 15 and 65 spent abroad, so to be entitled to the full AOW pension at 65. The default is no insurance, but information is provided, including a calculating tool to see whether it is financially attractive or not.[10]

9 As part of social welfare, a means-tested supplementary old-age pension is available for those that have no pension or an incomplete basic old-age pension.

10 See *https://secure5.svb.nl/wizard-migranten/flow/wizardimmigrant?execution=e2s2*

Clearly, neither of these 'choices' is the result of behavioral considerations; they are related to needs and fairness. The limited use of behavioral instruments in the general old-age pension act may be best explained by its purpose: to provide a minimum income level at old age to those insured. Allowing for more flexibility could jeopardize this.

4.2 Second pillar[11]

Occupational pension

The second-pillar pension system consists of occupational, quasi-mandatory pensions. There are three types of pension funds: Single-company pension funds, industry-wide or sectoral pension funds, and a limited number of collective pension funds for certain professions (such as pharmacists and dentists). The company and sectoral pension schemes are negotiated and determined by employer's organizations and unions jointly. The professional pension funds are negotiated only by the professionals themselves.

Participation in the sectoral pension plan has in many cases been declared mandatory by the government, at the sector's request. Similarly, the government may compel groups of professionals to enroll in a pension plan. Second-pillar pensions are often regarded as fully funded, although some PAYG elements remain, also in sectoral defined-benefit schemes, see e.g. Jansweijer (2003) and Bovenberg and Boon (2010). Mandatory participation is justified by the solidarity within the system.

11 For this paragraph and paragraph 4.5 we analyzed different pension schemes: ABP, PFWZ, PME, DSM pension fund, Shell pension fund, dentist's pension fund, KLM pension fund and Unilever pension fund. The comparison is available on request of the authors.

The majority of the industry-wide sectoral pension arrangements are defined-benefit (DB) schemes. Indexation is often conditional on the funds' performance. Single-company funds differ widely. Defined-benefit schemes are the majority, but combinations of DB with defined-contribution (DC) elements are not uncommon. The professional funds are often based on defined-contribution principles. Only DC schemes provide investment portfolio choices, but this is not widespread.

Premium

The premium required is the same percentage for all participants, irrespective of their age or other characteristics. Contribution levels for employers and employees are determined by collective bargaining. The precise balance between employer and employee contribution differs widely. If tax-side liability equivalence (in this case, actually premium-side liability equivalence) holds, the division is not so important. However, as we saw from a behavioral perspective the total net savings rate is important, because people are forced to save part of their incomes today (liquidity is constrained) to buy insurance for their old age. Moreover, there are all kinds of solidarity elements in pension funds to which people are forced to contribute.

Conditional on certain requirements (see below), pension premiums in the second (and third) pillar are tax-exempted. This means that employer contributions are tax-exempt, and employee contributions are not considered to be taxable income. Assets and investment returns are tax-exempt, while benefits paid out (generally as annuities) are subject to ordinary taxation ('EET').

Flexibility

In general, participants have more options for flexibility in the second pillar than in the first, even though participation is often mandatory. Options that often feature include:

- Starting date of the pension
- Flexibility between entitlements to widows and orphans benefits and personal old-age pension (fiscal rules require widow's pension not to exceed 70% of the old-age pension during the contribution phase)
- Flexibility in pension level during payout phase (tax law requires the lowest pension payout must be at least 75% of the highest payout)
- Portability when changing employers
- Temporary continuation (maximum ten years) when changing to self-employed status

As the second-pillar pension is regarded as part of the terms of employment, it is often the result of collective bargaining between social partners. The outcome has to fit within the fiscal framework determined by the state. This limits the degree of flexibility considerably. If the pension arrangement is not in line with the tax law requirements, premiums are no longer tax-exempted, which in practice means that such arrangements are not offered.

Tax rules

There are two types of pension tax rules, which mostly apply both to the second and third pillars. The first type relates to the contribution period. The tax law determines a three-dimensional space, enclosed by pension age, annual accumulation of pension

entitlement and franchise,[12] thereby in practice limiting the maximum level of ambition and thus limiting the level of tax exemption. The government obviously has a rationale for doing this. Subsidies for pension saving need to be weighted against other government expenditures and the costs of collecting taxes. Note that the government limits the pension entitlement that an individual may build up in a single year as a percentage of pensionable salary, and not as an absolute limit.

Within the tax law boundaries, social partners determine the specific second-pillar pension arrangement offered. Pension funds are often at or close to the boundary with regard to the maximum pension entitlements built up. One could argue that the tax law boundaries function as a reference point from which negotiations between employers and employees commence.

If an obligatory second-pillar pension does not fill up tax-exempted space, additional (third-pillar/individual) saving opportunities are offered (DC), with some possibilities to specify the desired investment mix, or structured DC, where investment mix is determined based on individual preferences with regard to ambition level, risk averseness and age. Default is no additional saving, and information is provided.

The third type of pension tax rules relate to the pension payout phase. These rules limit the flexibility with regard to the timing and pace of the payout phase. Payout by annuities is obligatory, with limited possibilities to differentiate the level of the pension during the payout phase. For an individual, the highest pension payout may stand in a 100:75 relation to the lowest pension, at

12 The 'franchise' features in the Dutch second-pillar system to account for the AOW. As old-age pension replaces the working life salary, fiscal stimulation of secondary pensions is aimed at replacing only the salary that is not yet replaced by the AOW.

most; one may switch only once and the second phase must start at age 75 at the latest.

Payout phase

Pension payout must start at seventy at the latest, and advancement or postponement of the starting date of (part of the) pension requires actuarially neutral adjustment of the pension level.

To avoid a situation in which participants are unduly affected by temporary market fluctuations, the pension law allows a so-called pension cut, meaning that at the pension age, one first buys an annuity for the upcoming five years, after which the remaining capital will be deployed for a life annuity (this only holds for DC pension schemes).

Obligatory annuities limit the possibilities for adverse selection, as does posing limits to high/low constructions and starting date. The rationale of setting a lower limit for the starting date may be more related to promoting labor participation and improving effectiveness of fiscal subsidies (to promote a sufficient level of income in old age). The same applies to the requirement of actuarial adjustment.

From an international perspective, very few people in the Netherlands do not annuitize their pensions, because of the severe tax consequences that this would have.

With regard to the payout phase, pension funds often allow for some flexibility within the fiscal limits. For some options, such as high/low pensions and the exchange between old age and orphan- and widows pension, participants are allowed to make use of the full flexibility offered within the fiscal rules. For other options, such as starting date and partial retirement, it appears that funds sometimes put up additional restrictions.

This may or may not be due to specific employer- or sector-wide considerations with regard to the employment situation (e.g. a tight or easy job market).

Only with respect to the level of partner pension can big differences be seen. ABP, for example, provides a 35% partner pension as default, while other pension funds provide 70% (Shell, KLM, Unilever). Moreover, funds differ in the flexibility they offer to change this percentage.

4.3 Third pillar[13]

The third pillar consists of individual pension arrangements. Fiscal subsidy applies under certain conditions, and to the extent that an individual second-pillar pension does not fully fill up the tax-exemption boundaries. The third pillar is particularly important for those that do not fall under a mandatory pension arrangement in the second pillar, such as the group of self-employed. There is ongoing policy debate on whether the self-employed should be enabled to join an existing second-pillar fund voluntarily, or whether a new second-pillar fund should be created for this group; see e.g. Van der Lecq and Oerlemans (2009)[14]. Given the redistributional features of most collective second-pillar funds,

13 Next to the third pillar, the government introduced in 2006 the 'life course account'. Before that date, early retirement was subsidized (sometimes with replacement rates of more than 100%), due to a PAYG-element in the early retirement system (Huynen and Fouarge, 2005). This system was reformed and became more actuarially fair. At the same time, the life course account was introduced. Savings are untaxed (up to a certain level) and tax credits are allocated for every year of participation. The goal of this arrangement was to spread time and money during the working life, but it turned out to be an attractive vehicle for early pension. Indeed, more than half of the participants use it as an early retirement mechanism (Ministerie van Sociale Zaken en Werkgelegenheid, 2011).

14 Note that individuals have the option to continue their participation in a second-pillar fund after turning self-employed for a period of ten years.

voluntary continuation and participation of self-employed individuals may lead to adverse selection.

Personal voluntary plans allow for a greater flexibility in terms of participation requirements and contributions, but at the cost of higher transaction costs, due to a loss of scale advantages compared to second-pillar schemes.

Private parties can use the behavioral instruments within products. And of course they use marketing practices, often embracing the insights of behavioral economics, to sell their products.

4.4 Pension crisis

A combination of factors led to a widely felt need to reform the pension system in the Netherlands. The crisis on the financial markets together with an unexpected increase in life expectancy has had a devastating impact on the coverage ratio of many pension funds. This led to a proposal for significant adjustments to both first- and second-pillar pension schemes. For a full description of the proposals, please see Pensioenakkoord (2011). Here, we focus on those elements that are of relevance for a discussion on the application of behavioral instruments.

In the first pillar, the starting date of AOW will be linked to life expectancy. That means that in 2020 the official state retirement age will be 66, and in 2025 it might further be increased to 67. Nonetheless, it will remain possible to start receiving AOW from 65, conditional on having sufficient funds. Moreover, it will be made possible to postpone the starting date of the AOW by up to five years. With each year of advancement or postponement, the AOW level would be actuarially neutrally adapted[15]. Additionally,

15 With possibly some exceptions for employees with long working careers or low income.

it is proposed to make it possible to have a partial AOW pension during the first years of retirement. Both options are voluntary and subject to application being made. Flexibility in the first pillar is brought in line with the flexibility that most second-pillar pension funds offer.

Care has been taken so as to ensure that individual voluntary choices would not increase the appeal for social security. Before, we argued that the limited use of behavioral instruments in the AOW could be explained by the purpose to provide a minimum income level at old age to those insured. The proposed flexibility in the retirement age is implemented such that it will not jeopardize this. A minimum structural income is required to obtain permission for advancement.

Moreover, it is proposed to increase the AOW benefits with the wage inflation instead of price inflation. This way it can be argued that people can still retire at age 65 without losing (too much) money. However, CPB (2011) argued that due to the income restrictions that apply (people without sufficient income are not entitled to use the flexibility) and the fact that workers already have the ability to retire earlier in the second pillar, flexibility in the public pension hardly provides extra options. The flexibility will, on the other hand, raise administration costs (which are now quite low because of the simple system) and may induce some adverse selection.

The adjustments to the second pillar are as yet unsure. In line with the increase in the starting date of the AOW, tax-exemption levels in the second pillar were adjusted to account for the increase in life expectancy. The sector response is, however, uncertain. Much has been said about offering less certainty in the pension contract, in order to pursue the same ambition with regard to pension level (but a lower ambition with regard

to pension certainty) without the need to increase pension premiums. More risks are borne explicitly by the participants. Hence, a (slow) move towards more (explicit) DC elements (a move induced also by the new IRFS rules).

The Goudswaard Committee (2010) advocated searching for possibilities to increase individual choices to match heterogeneous preferences and increase public support for the Dutch pension system as a whole, within the boundaries of collectivity and reasonable execution costs. The pension agreement by social partners and the Dutch government (2011, p. 4) proposed 'sufficient possibilities for individual flexibility with regard to the retirement decision and additional pension savings through which participants can influence their pension level'.

4.5 From a behavioral point of view: Assessing the Dutch pension system

This section relates the previous discussions and the assessment framework to the Dutch pension system. The combination of a transfer of risks to participants and increasing choice possibilities for participants in pension contracts makes BE-considerations highly relevant in the pension domain.

From a general point of view, the Dutch system scores quite well on the behavioral criteria. There is a PAYG basic public pension (still) without choice opportunities and an obligatory second pillar, which almost leaves no choice with respect to savings rates but does provide choice around the retirement phase.
There is a well-developed obligatory and funded second pillar, generally without freedom of choice with respect to premiums and investment decisions. People face so many problems with these decisions that this may be regarding as a blessing by some. However, we feel there are arguments that can be made with

respect to preference matching for introducing some flexibility in the build-up phase, with some limited options to take more (or less) risk and/or save somewhat less during people's working life – potentially above a certain threshold pension level. Flexibility during the build-up phase could come at the cost of less solidarity and an insufficient pension level, or may put some pressure on perverse solidarities.

When people get older they have more freedom to decide about their specific pension parameters related to the payout phase. They may decide on their retirement age, can choose between benefit regimes, et cetera. From a behavioral perspective, it can be argued that people should have more to say if they face the impact of their decisions soon, because time-inconsistency then plays a smaller role – as does uncertainty. At 62 years of age, we have much more (and better) information about the impact of our retirement choice on pension level and preferences for money over time, than at age 32.

Flexibility in the retirement phase can be more related to individual preferences. The major option missing is a choice between a secure but lower, nominal (or inflation-linked) pension, or a higher but more risky pension. These options can and should be provided.

However, what is striking is the large differences between pension funds with regard to pension scheme (DB, DC and CDC) and saving rates, franchise and maximum pension wage. Employees have very little to say about these parameters. One might argue that social partners target the specific preferences of different pension populations, but as far as we know, the literature does not support such significant differences due to different populations.

4.5.1 Self-employed

Self-employed individuals have a special position in the Dutch pension system. Apart from the public pension, they are entirely free to choose whether they want to save for a pension and how much. They enjoy – as employees – tax exemptions to stimulate pension saving.[16] Depending on one's political view, behavioral economics provides a toolkit of instruments that may – and to our opinion, should – be used. On the liberal hand, one may argue that the self-employed have chosen to be self-employed. One of the reasons to choose for self-employment is that it offers 'more freedom' and less government obligations (SER, 2010). Being their own employer, it is also their responsibility to take care of their pension.

On the other hand, one may argue that the self-employed person is the same person – with the same behavioral fallacies – as the former employee. About 70% of self-employed individuals start from an employee status (SER, 2010). Is the choice for self-employment enough reason to move from one end of the scale of paternalism (mandatory pension savings) to the opposite end (freedom of choice, albeit with some tax exemptions to stimulate saving)?

Self-employed persons seem to have the same problems with myopia and time inconsistency as employees. About 50% of the self-employed save for pension, but also 50% (potentially overlapping with the first group) suspect that they save too little – or far too little – for their pension (SER, 2010).

Bonenkamp et al. (2011) made a plea for a national obligation for all people, including the self-employed, to save for their pension. Van der Lecq and Oerlemans (2009) argued that the

16 SER (2010) provides a description.

government should consider whether the government should set a minimum pension savings level for self-employed individuals.

Depending on one's view on the paternalistic role of the government with respect to the self-employed, we see the following possibilities:

1. Choose for no intervention. Self-employment is a choice and comes with responsibilities. Self-employed persons can use the existing tax exemptions if they want to save additionally to the public pension.
2. Extend possibilities for the self-employed who were previously employees to stay with their pension fund. Currently, this is already possible for ten years after such a switch from being an employee to being self-employed, but it could be extended. A stronger form could involve the self-employed staying as a default with their pension fund, with an opt-out possibility. This may put further pressure on the solidarity (or income redistribution) of the pension scheme.
3. Impose mandatory choice. This can be implemented by requiring individuals to tick a box labeled 'I choose not to make use of tax benefits for pension saving' on the tax form.
4. Impose a state default percentage of income that the self-employed have to save for their pension (e.g. 10 or 15% of their taxable income), with a possibility to opt out.
5. An obligation for the self-employed to save for their pension (as is the case for most employees).

4.5.2 Preferences

As participation in a second-pillar pension fund is mandatory for most employees, we have limited information from revealed pension preferences in the Netherlands. One way to find out what

people want is to ask them. There is some discussion about the extent to which stated preferences can be expected to be in line with normative preferences. Nonetheless, they may provide some insights and information about people's preferences with respect to their pension decisions.

From the DNB household survey (2010) the following picture arises:

- People prefer higher premiums over uncertainty. People prefer postponing retirement, and prefer higher premiums over lower pension benefits.
- People value risk sharing (solidarity of chance) where reciprocity is an important element. Solidarity in the form of ex ante redistribution is less popular.
- Obligatory pension savings is not considered a problem. 41% would not want to make decisions themselves with respect to pension savings, and a further 28% is afraid not to save enough if deciding themselves.
- People particularly like to have more to say about their savings rate. If people bear the risks of investments, they also want to have a say in the investment portfolio.

Another approach to look at the preferences of people is a macroeconomic point of view. Pensions provide income for old age. First, people obviously have different preferences for consumption over their lives: They have different discount rates. This may be due to character, but also due to circumstances. People with young children may be both time-constrained as well as money constrained – so they may have 'too much' money when children leave their house, while the Dutch pension system forces them to save when their budget is constrained. Second, people have different assets when the pension age starts

(Bovenberg et al., 2011). From a theoretical perspective it seems logical that people that have substantial alternative assets have preferences (or need) for lower pension benefits than *ceteris paribus* people without assets. Housing wealth is, for example, one of the most important assets that may be relevant in people's need to finance. Third, in the end (subsidized) pensions are a subsidy to leave the labor market. And, as every economist knows, subsidizing leisure is not the best policy advice (indeed, to not disturb economic decisions unduly it is sometimes argued that we should tax activities related to leisure).

5. The 'ideal' pension plan; discussion and conclusions

5.1 Additional considerations

In designing a pension plan, many other factors play a role apart from arguments to do with behavioral economics. Many more considerations (should) come into play, such as the extent of inter- and intra-generational risk sharing, redistributive preferences and the available budget for tax exemptions. As discussed above, it also depends on one's view of the role of the government and social partners in society, an on whether one adheres to a libertarian or a more utilitarian perspective. This has direct consequences for the individual flexibility that can be built into the system and how strongly one steers individual choice. It goes beyond the purpose of this paper to discuss all of these factors in detail. Nonetheless, we mention some of them.

- Costs – It is generally thought that flexibility comes at an administrative cost. Based on a cross-country comparison Bikker et al. (2010) showed that both complexity and service quality significantly increase costs. Offering only one pension plan substantially decreases costs.[17]
- 'Solidarity' – Discussions on the optimal pension plan are often clouded with discussions on the desired level of solidarity. It is not always clear what exactly is meant; see e.g. Vos and Pikaart (2007). For the purpose of this paper, we distinguish between solidarity of chance, income and risk solidarity, see also the box below. Solidarity of chance refers to insurance features of collective pension plans. These features relate to sharing mortality risks (through annuities one shares the risk

17 Note, however, that they indicate that DB plans are more complicated than DC schemes, which would suggest that there is some room to go from collective DB plans towards more individual DC schemes without increasing administrative costs.

of long life with other participants in the fund), investment risks (low returns may be pooled intergenerationally). For all these risks, one stands behind the 'veil of ignorance' at the moment the pension contract is signed. Beforehand, one does not know whether one lives longer or shorter, or whether one will be lucky on the stock market. In contrast, the other kinds of solidarity relate to one-sided solidarity of which one knows beforehand who benefits and who does not. This is the case with the average pension premium featuring in many DB schemes in the Netherlands. Some groups of participants pay a premium that is higher than an actuarially fair premium, while other groups of participants are subsidized. Increasing freedom of choice with respect to the savings rate can reduce some of the perverse solidarities in the current pension system.

– Normative considerations – In this paper we assume that the government and the social partners try to maximize social welfare. With the obligation to save for pensions the government tries to minimize the time inconsistency of the people. However, several authors mention that there are serious problems with paternalistic interventions of governments. Some morally object to paternalistic interventions, because the individual right to make decisions is absolut. Others object because interventions reduce learning and innovation (Whitman, 2006).[18] When you are not responsible for the consequences of your decisions, you have no incentive to do what is in your best interest. Moreover, it is difficult to define what the real preferences of people are when they are time-inconsistent (Hill, 2007). What indicates what people really

18 Carlin et al. (2010) formalized the incentives that defaults provide for acquiring and disclosing information in society, and showed the trade-off between setting the standard and stimulating individuals to get information and decide by themselves.

want: Stated or revealed preferences (Smith and Goldstein, 2007)? Moreover, it can be questioned why politicians or experts do not suffer the same problems as individuals – and there is the risk that politicians act in their own instead of public interest (Benjamin and Laibson, 2003). Do we not replace private failing in decision-making by public failing? Last, more specific to soft paternalism, Whitman and Rizzo (2007) warn of a slippery slope. Soft paternalistic interventions can stimulate hard paternalism afterwards: It is a slippery slope.

Box: Different kinds of solidarity

In pension insurance, many different forms of solidarity play a role. Goudswaard (2005) distinguished three kinds of solidarity in social insurance. The first is based on reciprocity. People pay an actuarially fair amount to insure them against some potentially hazardous event. Redistribution happens ex post from people who did not have to deal with the event to people who did. This is solidarity of chance. Solidarity of chance happens when people with the same ex ante mortality perspectives insure themselves.

In other forms of solidarity some redistribution occurs before the event has happened. This can come about in two ways. The first occurs when the risks of an event happening are unequally spread among people, while these risks are not completely accounted for in the premiums. This is called risk solidarity. This is e.g. the case with mortality rates. We know that men live shorter lives than women, while the premiums are the same. Another example is between high and low incomes. The solidarity contributions of this category can be quite high. Bonenkamp (2007) estimates that 9% of

men's premiums are redistributed to women, while women get 16% more than can be justified by the premiums they paid. Low educated people pay 16% more premiums than justified based on the benefits they receive. In total, low educated men lose 3.3% of their life income due to the second pillar.

A second form is income solidarity: premiums are based on the income that people earn: irrespective of the expected risks, people with higher incomes pay higher premiums than people with lower incomes. Because of the 'doorsneepremie' (the same premium percentage for everyone delivers the same pension rights) young people subsidize old ones. This contribution is about 25% of the premium for a worker of age 20 (CPB, 2006). The 'doorsneepremie' also implies that people with a flat wage profile subsidize people with a steeper wage profile (Goudswaard Committee, 2010).
Some of these solidarities (low educated people subsidize high educated, flat wage profiles subsidize steep wage profiles) are sometimes mentioned as examples of perverse solidarities in the Dutch pension system.

5.2 The 'ideal' pension scheme for the Netherlands

There are convincing arguments for a pension system that consists of at least two pillars. A mix of a PAYG and a funded system is optimal to diversify macroeconomic risks (wage and price inflation, premium on equity). The first pillar provides a minimum income for all elderly individuals and functions generally quite well.

The current Dutch second-pillar system is inconsistent, as employees have little or no choice with regard to participation

and the amount of pension savings, while the self-employed, on the other hand, have complete freedom of choice. It is hardly conceivable that decision-making skills change drastically the moment employees become self-employed.

Therefore, libertarian paternalistic adjustments are appropriate. The extent of these adjustments depends on one's view of the role of the government and social partners in society, and on whether one adheres to a fully libertarian or a more utilitarian perspective. This has direct consequences for the individual flexibility that can be built into the system and how strongly one steers individual choices.

5.2.1 Contribution phase

Generally speaking, arguments from behavioral economics are especially relevant during the contribution phase, when dynamic inconsistency can occur. There are strong arguments that can be made, irrespective of one's view on society, in favor of stimulating (or obliging) pension saving and suggesting or determining a minimum savings level.

Therefore, offering (intertemporal) flexibility with regard to pension premiums is a difficult subject. This is further complicated by the elements of ex ante redistribution currently incorporated in many second-pillar schemes. These elements enable gaming of the scheme. If someone is a net contributor to the scheme during a certain life phase, this provides an incentive to limit one's participation in the scheme during that period, and to increase the premium during other phases. Therefore, to fully exploit the benefits of individual freedom, the ex ante redistribution in collective pension schemes must be limited.

The behavioral economics literature points out that investment decisions are often too complicated. Decisions do not reflect

normative preferences and may be (time-) inconsistent. Nonetheless, it may be argued that some flexibility is warranted in order to better match individual (risk) preferences, especially over a certain threshold ambition level. The Goudswaard Committee (2010), as well as Tang and Van Wijnbergen (2011), argued that making people (partly) responsible may also be good for public support of the system. Tang and Van Wijnbergen proposed offering a moment to individuals halfway along their working life to decide whether to save additionally for retirement or not. If investment flexibility is offered, it is sensible to limit the options people can choose from – also from the perspective of limiting operational costs.

5.2.2 Payout phase

Actuarially fair adjustment of pension benefits to the actual retirement age appears appropriate. Given that dynamic inconsistency plays a smaller role due to the shorter period between decision and impact, less nudging is required.

Allowing too much flexibility during the payout phase – for example, with regard to high-low constructions – can induce gaming the scheme by adverse selection. If one knows that one will die very soon, one will take the money at once, so the insurance part of living longer is reduced. Moreover, there may be an argument for the government, because people otherwise get income-tested social benefits like renting or health care benefits.[19] Whether the limits should be set at 100-75 or 100-70 or 100-60 remains an open question.

Obviously, adverse selection also plays a role in the discussion on obligatory annuitization. Restricting pension benefits to annuities may further be a sensible way of overcoming dynamic

19 See Butler and Teppa (2007) for evidence that in Switzerland people do take more annuities when they have lower pension for this reason.

inconsistency in the pension phase. Certainly at higher pension levels, some flexibility with regard to lump-sum payments may be appropriate.

Especially in the third pillar it can be argued that solidarities are much smaller: People invest their own money (which is fully DC, so no 'solidarity' streams), where the major insurance is the mortality insurance. Moreover, from a welfare economic point of view there are arguments (liquidity, preferences for bequests and precautionary motives) to provide the possibility, especially in pension contracts that have few solidarity elements, to get some part of the pension savings at once. On the one hand such a lump sum payment can also be seen as pension (income after retirement); on the other hand, it remains questionable why the government should subsidize money at once, while there is a reason to subsidize people to help them build up a good income stream for their old age. Moreover, the behavioral arguments about time-inconsistency (having money at once), the effect of money illusion (underestimation of the effect of inflation on real pension benefits in the future) and the enormous effect on framing the annuities as consumption insurance or investment option make us somewhat skeptical about whether it is reasonable to leave this entirely free.

Following the behavioral assessment framework, the argument can be made that a system in which part of the savings should be annuitized (e.g. at least 50 or 70%) and part may be gotten at once at the pension date in the third pillar may be optimal. The default should be set at annuitization, and when providing people the choice to get some money at once, the choice should be framed in a consumption decision. In our opinion, this would be a pragmatic way to use welfare economic considerations and the insights from behavioral economics.

One choice that is not always available around the retirement phase is that between a secure, but lower, nominal (or inflation-linked) pension or a higher, but more risky, pension. Providing this choice can address different risk attitudes.

Last of all, the self-employed have a special position in the Dutch pension system. Apart from the public pension they are entirely free to choose whether they want to build up a pension and how much. Depending on one's political view, behavioral economics provides a toolkit of instruments that may — and in our opinion, should — be used.

5.3 Normative policy suggestions

More specifically, given the current Dutch pension system and mixing the pure scientific perspective with our normative preferences, we offer the following policy suggestions:

- Offer no flexibility in the first pillar. The first pillar provides the basic minimum income level when old. Flexibility also increases administrative costs.[20]
- Continue obligatory savings in (second-pillar) pension funds for employees.[21]
- Provide some flexibility both with regard to pension ambition and investment choice to account for private wealth and individual risk preferences:
  - Bounded flexibility with respect to the premium (with a minimum premium stated in pension contracts; and from a government budget position also a maximum tax

20 From a government objective of stimulating participation, allowing postponement of the first-pillar pension could be considered.

21 The level of obligatory savings is somewhat arbitrary. Bonenkamp et al. (2011) pledge for 90% of the current fiscal maximum for every person (including self-employed). For a discussion of the income position of future pensioners, see Knoef (2011).

exemption), with a default set by the pension fund and the possibility to save e.g. 2 or 4 percentage points more or less.
  - Flexibility with respect to the investment portfolio (see also Bonenkamp et al., 2011). Pension funds set a default, with a minimum of three options from which to choose: a low-risk option, a high-risk one and one that automatically adjusts the risk profile based on an individual's age. Hence, there is a choice between a fairly secure nominal (or partly indexed) benefit when pensioning; a less secure but higher pension ambition and one that combines these two.
- In order to limit the potential for adverse selection and gaming the system when introducing flexibility, reduce ex ante redistribution in collective second-pillar pension schemes.
- Consider the option of offering even more flexibility from a certain threshold pension value, both with respect to the decision to save and the risk profile. Paternalistic arguments become less important, and individuals with higher incomes are more able in financial planning.[22] Moreover, it limits income redistribution from poor to rich ('perverse solidarity').[23]
- Compel the self-employed to make an active choice with regard to pension saving. E.g. the requirement to answer the

22 Moreover, the question may be raised to what level the government should stimulate pension savings, i.e. is it reasonable to tax exempt pension benefits of 100,000 Euros and more? Research of GFK (2011) shows that if the pension system is reformed one of the measures that has the most support of employees and employers is reducing the fiscal benefits for pension savings above a threshold level (of around 50,000 Euro). Abolishing the obligation to save above a certain threshold could be combined with abolishing the tax exemptions above that threshold.

23 Tang and Van Wijnbergen (2011) note that about half of the industry-wide funds have a maximum threshold. This threshold reduces perverse solidarities within generations. However, the authors remark that the biggest pension funds do not have a threshold. We think that it is a task for the government – and not of social partners – to determine which kind of solidarities are beneficial to society.

question, 'I save for my pension', with a 'yes' or 'no' when registering with the Chamber of Commerce. Depending on an individual's social welfare function, the level of steering can be increased: An obligation for the self-employed to save for their pension or a state-set default pension developed for the self-employed with an opt-out possibility.

- Allow personal choice with respect to pension age, part-time pensioning, partner pensions and high-low benefits, with actuarially adjusted pension benefits.[24]
- Set in place strict rules for third-pillar products: provision of objective information, no use of frames that steer people in the 'wrong' direction, development of a default third-pillar product, et cetera.

24 'Actuarially fair' can be seen with respect to pension funds, but also the broader actuarial fairness with respect to government finances and income-related government benefits should be considered.

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Pension contract design and free choice: Theory and practice

This paper by Henk Nijboer (Ministry of Finance and Leiden University) and Bart Boon (Ministry of Finance) discusses the insights from the field of behavioral economics with a focus on the implications for the design of pension schemes. The first part of the paper provides an international overview of the most important results from behavioral economics literature. Next, it introduces a systematic approach to think about how to take account of these deviations from the standard framework of fully rational consumers maximizing utility. The second part of the report discusses the use of behavioral instruments in the Dutch pension system. In particular, the possibilities and rationale to increase the use of behavioral instruments is discussed.