

**What Does Behavioral Economics Mean for Policy?
Challenges to Savings and Health Policies in the Netherlands**

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Abstract:

New insights from behavioral economics have profound implications for policymakers. A key finding in behavioral economics is that people often do not behave in their best interest even if they know what their best interest is. Another insight is that people are extremely sensitive to the way choices are presented to them. These effects are particularly pronounced in the areas of financial planning and health-related behavior.

This provides scope for a new type of policy interventions: libertarian, or soft, paternalism. Soft paternalism helps individuals to make choices that are in their best interest. It does not eliminate choice options, and is an inexpensive type of policy. This paper discusses the behavioral policy options in the fields of personal savings and health, with an emphasis on Dutch institutions.

We recommend a much more effective use of soft paternalism, in particular by setting smart defaults and by using unorthodox commitment mechanisms.

Samenvatting:

Beleidsmakers wereldwijd willen burgers in staat stellen verantwoorde keuzes te maken in een tijd waarin deregulering hoog in het vaandel staat. Dat geldt zeker voor het terrein van de persoonlijke financiële planning en de gezondheidszorg. Nederland is hierop geen uitzondering. De gevoerde beleidsstrategie bestaat uit twee elementen: het zorgen voor marktwerking (vandaar de instelling van mededingingsautoriteiten als de NMa, en waakhonden als de AFM en de Consumentenautoriteit), en het bevorderen van de mogelijkheden van de consument om weloverwogen keuzes te maken (vandaar de nadruk op transparantie, bijsluiters en financiële en gezondheidseducatie). Het gekozen beleid is gebaseerd op de veronderstelling dat de consument optimale keuzes maakt mits markten concurrerend zijn en individuen over alle relevante informatie kunnen beschikken. Deze veronderstelling gaat op meerdere punten mank: zelfs als mensen weten wat goed voor hen is, gedragen ze zich er lang niet altijd naar. Verder is de vereiste informatie voor het maken van optimale keuzes vaak veel te gespecialiseerd.

Deze studie gebruikt inzichten uit de gedragseconomie om duidelijk te maken dat het gekozen beleid niet afdoende, duur, inefficiënt en soms zelfs contraproductief is. De conclusie is dat beleidsmakers in het publieke en het private domein beleid kunnen ontwikkelen dat zowel goedkoper als effectiever is in het bereiken van het gestelde doel: de consument verantwoord laten kiezen wat hij zelf wil.

Uitgangspunt daarbij is de gedachte dat mensen, zelfs als ze zelf weten wat goed voor hen is, hulp nodig hebben bij het maken van de juiste keuzes, en die hulp ook graag accepteren. Het beoogde beleid is uitdrukkelijk niet gericht op het belemmeren van de keuzevrijheid, maar op het helpen kiezen zonder noodzakelijkerwijs de keuzevrijheid te beperken of in te grijpen in de markt door middel van belastingen en subsidies. Deze aanpak kan dan ook omarmd worden ongeacht de politieke oriëntatie.

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1. Introduction

“God must love those common folk that behavioral science economists write about, because She made so many of them” (Paul Samuelson, 2006).

Policymakers in the Netherlands and elsewhere feel the responsibility for helping individuals make good choices in an era of deregulation. In the domains of both personal finance and healthcare, their approach traditionally consists of two elements: Make markets work (hence the establishment of antitrust and market conduct watchdogs), and ensure that individuals are well-informed (hence, the programs for educating consumers and the new rules for transparency with regard to the quality of services and products).

These policy strategies are based on the assumption that if individuals have all relevant information to make choices, and if markets are competitive, individual autonomy (consumer sovereignty) is optimal.

This paper uses the insights of behavioral economics to argue that these policies are insufficient, inefficient and sometimes counter-effective, partly because of systematic psychological mechanisms in individual behavior. Policymakers — in both public and private institutions — could do a much better job in designing policies, at a lower costs, without distorting markets, and without limiting individual choice.

The most important policy message of behavioral economics is that in some areas of decision-making, people need help to act in their own best interest *even if they know what their best interest is*. Many people recognize their weaknesses and are therefore prepared to accept this help. The new approach to policy making is thus directed at helping people make choices that are in their (self-declared) long-term interest. It is therefore called libertarian, or soft, paternalism.

The findings of behavioral economics are extremely important for policymakers because they challenge current policy choices, and because they offer an alternative that is usually effective, inexpensive, and non-intrusive. These policies should therefore have an appeal irrespective of one’s political orientation. Most behavioral policies, if carefully designed, do not harm that rare species

that is the fully rational man. Individual freedom of choice is not limited, although the relative (non-monetary) costs of choice options might change.

We recommend the following:

Offer commitment mechanisms

- To people who want to save more. Offer them, for example, a contract in which they promise to gradually increase monthly savings (cf. Thaler and Bernartzi (2004)).
- To people who want to take better care of their health. Have them, for example, agree in advance to pay a fine if they show up at their health club fewer times than they originally planned and agreed to. As a compensation, their first visit(s) will be free of charge.

Develop optimal standard choices (defaults)

- For saving and investment. An example for saving is automatic enrollment in pension schemes, possibly with a default savings rate that depends on the type of job within a company or sector. Another example would be a product guaranteeing future consumption, such as the tuition money for a university.
- For health. Use a form of ‘presumed-consent’ default in organ donation. Eliminate underutilization of preventive healthcare by offering effective preventive interventions by default.

Provide meaningful (not necessarily detailed) information

- In retirement savings: financial products for retirement should offer information on the expected standards of living at retirement and its price in terms of foregone current consumption. Citizens do not need to (and cannot) become financial experts.

- In healthcare: healthcare providers should offer information on the expected gain in life expectancy and quality of life of healthy behavior. Citizens do not need to (and cannot) become health experts.

The policy philosophy underlying these policies is that of behavioral paternalism. This differs from old-style paternalism in a number of important respects (see Box 1). First, behavioral economics does *not* necessarily assume that institutions know better what is good for individuals than do the individuals themselves.¹ Rather, it is assumed that even if individuals know what is good for them, they may find it difficult to act accordingly. Second, externalities are *not* the primary motivation for policy intervention. Instead, the focus is on improving the welfare of the individual by mitigating what Herrnstein *et al.* (1993) label “negative internalities”: the private costs due to self-control problems and procrastination. Third, libertarian paternalism does *not* necessarily affect freedom of choice, nor does it require traditional authoritarian paternalistic instruments, like prohibition, and (to some extent) taxes and subsidies. Instead of these traditional instruments, behavioral economics advocates using commitment mechanisms, carefully designed opt-in and opt-out standards, the use of labels (earmarking of income components), changing the timing of paying income components, as well as deliberate changing framing to affect individual choice. The new policy approach has at least two distinct advantages over old-style paternalism: it does not distort markets, and it is inexpensive. Therefore, it can be welcomed irrespective of ones political preferences.²

Note that behavioral economics does *not* aim at making people always behave in a way that would be in line with expected utility theory. Rather, it aims at helping people make decisions that they actually prefer to make in the face of their long-term interest, but are unable to because of a variety of psychological reasons. An example — which will be discussed in section 3 below — may serve to illustrate this. Empirical evidence indicates that investors hold on too long to their losing stocks. One of the reasons is that they rationally may think that selling is better, but are afraid they will feel sorry-after-the-fact if the stock price goes up again (Merton and Bodie, 2005). The result is that

¹ Historically, paternalistic interventions were motivated by skepticism about the ability of some groups of individuals to judge what is best for themselves. Minors and married women fell into this category (Camerer *et al.*, 2003).

² However, these policies might change the relative (non-monetary) costs of choice options. For example, option out of a default choice takes time and effort.

they suffer larger losses in the end, and that markets are inefficient. Rather than eliminating this *regret aversion*, which may be a human trait that is useful in other domains of decision-making, financial markets could deal with this issue by supplying *regret insurance*. In fact, financial markets already offer a product which may serve as regret insurance: the floating strike look-back option (Merton, 2006; Merton and Bodie, 2005). A look-back option gives the investor the right to buy (call) or sell (put) the underlying stock at the lowest price at which it traded during the option term. This derivative product was designed way before behavioural economics and regret aversion was heard of (Goldman, Sosin and Gatto, 1979; Garmann(1989) and Conze and Viswanathan (1991). Lookback stock options are traded, but the market for them is thin and they are expensive. They have always been regarded as a speculative device rather than insurance. However, they might serve the purpose of regret insurance and in fact Merton and Bodie (2005) suggest to use them for this purpose, and to use the terminology of regret insurance as a marketing tool. Regret insurance would make markets more efficient while giving investors a good night’s sleep.

Box 1: Old- and new-style paternalism

	<u>Old Paternalism</u>	<u>New Paternalism</u>
Assumptions	Institutions know best what is good for citizens	Citizens know what is good for them, but do not act upon it;
Purpose	To reduce negative externalities and promote positive externalies	To reduce negative “internalities”
Instruments	Taxes, subsidies, regulation	Defaults, commitment mechanisms, labels, timing, regulation
Characteristics	Choice is limited; deliberate market distortion	Freedom of choice; choice is guided

The views set forth in this paper is that policymakers *can* and indeed *should* use behavioral biases to improve *individual* welfare, which in its turn may be conducive to *social* welfare. As we will show in the remainder of this paper, optimal policy may differ according to the type of bias, and

according to individual characteristics. As to the latter, O'Donoghue and Rabin (2005), following Herrnstein *et al* (1993), distinguish between *sophisticates* and *naives*. Sophisticates are by assumption aware of their biases and take precautions, if available to them, to prevent (future) behavior that is not in their own best interest (see section 2 below). Naives, on the other hand, believe that they will behave optimally in the future (or do not think much about the future at all), and therefore do not see the point of committing themselves to strategies that limit future choice. The challenge to policymakers is to guide choices of both naives and sophisticates, but in different ways. Of course, designers of policy are themselves humans and are thus also likely to suffer from biases. In fact, experts may suffer to a larger degree from certain psychological biases, notably overconfidence. More disturbingly, policymakers and experts might even be tempted to exploit the vioral biases of others in their own interests. In our view, this only stresses the importance of academic research in this field to help develop policies that improve individual and, most likely, social welfare. It is also clear that any policy change should be accompanied by a cost-benefit analysis with an eye on the welfare of all citizens, whether sophisticated, naive, or even rational.

This is certainly not a plea for eliminating the emotional drivers of behavior. Neither do we argue that policy should aim at educating people to act according to the prescriptions of rational expected-utility theory. In fact, we should be well aware of the statement of Merton and Bodie (2005) that

“...it might be better not to tinker with the behavior of individuals.....by eliminating a person's optimism and overconfidence in general, we may do more harm than good.”

Although we agree that emotional biases serve a purpose in some domains, the behavioral evidence indicates that policymakers can help people to make choices that are in line with their personal preferences (be they “rational” or not), and hence ultimately with their emotional wellbeing.

There are pressing policy questions, both in the Netherlands and in other developed countries, for which behavioral economics may have far-reaching implications. The ageing of the population has important implications for first- and second-pillar pension arrangements, and may result in a move from defined-benefit to defined-contribution schemes. Behavioral economics maintains that people

can generally not be expected to make optimal choices in terms of savings for retirement and the withdrawal of retirement income. Most people need help and are willing to accept commitment mechanisms. In healthcare, too, it is increasingly clear that people do not make choices that are optimal for their long-run health, and that external mechanisms can help them to make choices in lifestyle that are in their own best interest. Helping people to prevent obesity, for example, improves individuals' well-being, as well as the efficiency of the healthcare system at large.³

The outline of this paper is as follows. The next section summarizes the behavioral evidence and discusses the behavioral concepts that play a role in the areas of savings, investment and health. It also presents motivations for interventions and explains the possible types of intervention. Section 3 focuses on the potential implications for the Netherlands in the areas of saving and investment, describes current policy and regulation, and presents policy recommendations. Section 4 does the same for the area of healthcare. Section 5 summarizes.

2. Insights from behavioral economics and implications for interventions

2.1 Evidence on deviations from rationality

Rational individual choice usually requires that decision makers have complete information, unlimited cognitive abilities, consistent preferences, and will-power. Both real-world and experimental evidence indicates that these conditions are rarely satisfied. This section reviews the evidence.

Incomplete information, limited cognitive abilities, and choice paralysis

Not all individuals may have the access to information, the ability to process information, and the sophistication to be able to make decisions that are optimal, given their (short and long term) preferences. Financial illiteracy is widespread. Even in the United States, a country traditionally committed to self-reliance and individual responsibility, basic financial knowledge is limited. Financial literacy studies for the US by Bernheim (1995, 1998), Hogarth *et al.* (2003), and Moore

³ Good prevention improves the efficiency of the healthcare system - i.e. it reduces the cost per Quality Adjusted Life Year (QALY) gained - but it does not necessarily reduce total long-term healthcare costs.

(2003), reveal that most respondents do not understand basic financial concepts, particularly those relating to bonds, stocks and mutual funds. They also find that people often fail to understand loans and, particularly, mortgages — a finding that is confirmed by Miles (2005) for UK borrowers. Lusardi and Mitchell (2005) questioned Americans of the age 50+ and conclude that only half of these respondents could correctly answer two simple questions regarding interest and inflation. Christelis, Jappelli, and Padula (2006) showed for 11 European countries that respondents have low financial numeracy and literacy scores. Van Rooij, Kool and Prast (2007) asked Dutch employees to rank themselves on a scale from 1 (financially very incompetent) to 7 (very competent). They find that 50 percent of Dutch employees put themselves in categories 1 or 2. A minority of 20 percent placed themselves in one of the three highest categories and regarded themselves as knowledgeable. But there is more evidence for the Netherlands than self-assessed financial expertise alone. A 2005 survey measuring financial literacy in the Netherlands revealed that only 40 percent of respondents provided correct answers to five very simple questions on basic knowledge regarding inflation and interest (see box 2).

Box 2: Five questions on interest and inflation

- 1) Suppose you have €100 in a savings account yielding 2% annual interest. How high do you think the balance in your savings account will be after five years, assuming you make no withdrawals from it: more than €102, exactly €102 or less than €102?
- 2) Suppose you have €100 in a savings account yielding 20% annual interest, and you never withdraw any of the money or the interest. How large will the balance in your savings account be after five years? More than €200, exactly €200 or less than €200?
- 3) Suppose the interest rate on your savings account is 1% per annum and inflation runs at 2% per annum. Would your savings, after one year, buy more, exactly the same or less than today?
- 4) Suppose a friend inherits €10,000 today and your friend's brother will inherit €10,000 three years from now. Who will be made richer by his inheritance? Your friend, his brother or will there be no difference?
- 5) Suppose your income in the year 2010 will be double your present income, while the prices of everything will also have doubled. Will your income, in 2010, buy more, the same or less than today?

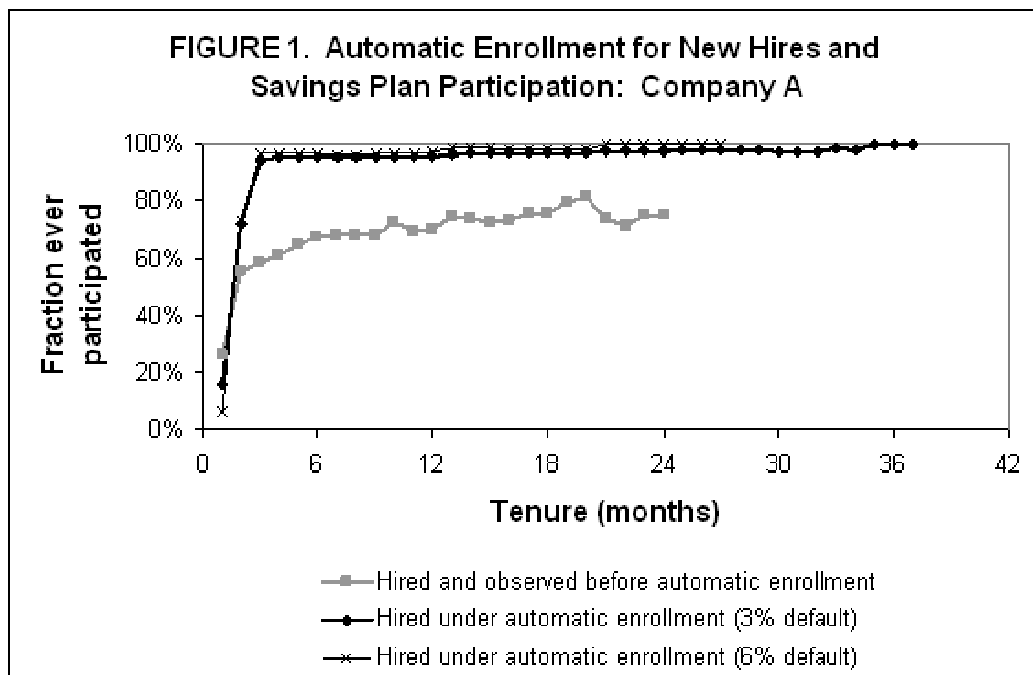
Scores on investment questions were also poor, with four out of five respondents missing at least two questions (DNB, 2006). The knowledge of Dutch employees about pension schemes is also limited (Van Rooij, Kool and Prast, 2007).

Economists have traditionally assumed that more choice is better. This view is now challenged, as several studies indicate that when there is “too much” choice, people are discouraged from choosing anything. Iyengar and Lepper (2000) found that if consumers can choose between 26 types of jam, 60 percent will take part in tasting, compared with 40 percent if only 6 types are offered. But, while in the 6-options group 30 percent actually decide to buy, only 3 percent in the 26-options group decide to buy. If this “choice paralysis” already applies to products that do not require much expert knowledge, such as jam, it is not difficult to imagine the role it plays in the choice between complicated products, such as financial ones.

Inconsistent preferences: default effects

Evidence shows that people often “choose not to choose”. As a result, defaults or standards (what you choose if you do not take action, silent consent) affect behavior. The default effect exists for a wide range of domains. Evidence includes car insurance plan choices (Johnson *et al.*, 1993), organ donation decisions (Johnson and Goldstein 2003; Abadie and Gay 2004), and pizza consumption (Levin *et al.*, 2002), and it is especially prominent in retirement saving. Defaults play a role in pension plan participation, in the retirement savings rate, in pension portfolio choice and in the withdrawal of pension wealth.

The study by Beshears *et al.* (1996) provides an example. In the case of automatic enrollment in a pension plan, over 90 percent of employees immediately participates. If instead the default is non-enrollment, employees hesitate to enroll. This is illustrated by Figure 1, taken from Beshears *et al.* (2006). Company A changed its enrollment policy for new employees, from automatic non-enrollment (opt-in) to automatic enrollment (opt-out). As Figure 1 shows, with automatic non-enrollment participation starts below 60 percent of employees and increases to about 80 percent in two years. With automatic enrollment, participation is almost 100 percent within three months.

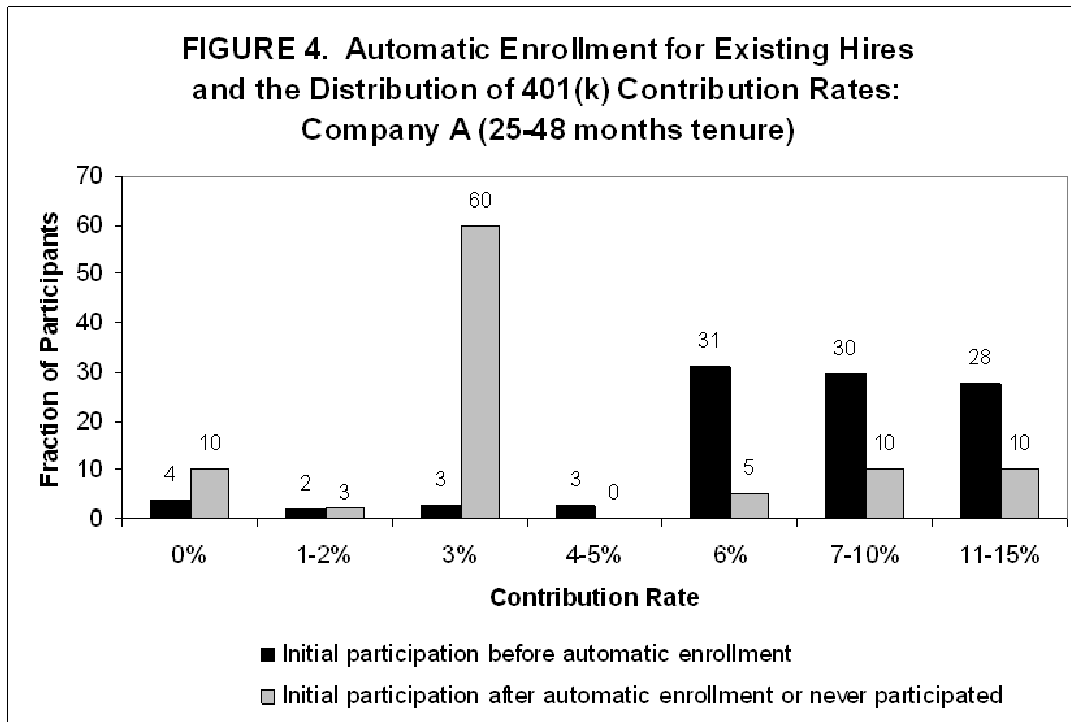


Source: Beshears et al (2006)

Figure 1 also illustrates the powerful effect of the default savings rate. Company A doubled its default savings rate for new hires, from 3 percent to 6 percent. As Figure 1 shows, participation was the same under the 3 percent and the 6 percent default rate.

The effect of default savings rates on retirement savings is not unambiguous, however. Whereas more employees do participate in case of automatic enrollment, there may be employees who would have chosen a higher savings rate than the default if no automatic enrollment and rate had been offered. This is shown in the authors' figure 4, which compares the distribution of the retirement savings rate in Company A before and after default enrollment was introduced. The picture shows that the savings rate before automatic enrollment was 6 percent or higher for about 90 percent of the plan participants. After automatic enrollment was introduced, 60 percent of participants chose the default rate of 3 percent, and only 25 percent of new participants saved 6 percent or more. Thus, where automatic enrollment speeds up participation and increases the participation rate, it does not necessarily increase total retirement savings.

These examples underscore the powerful effects of defaults. But they also make clear that default rates should be chosen very carefully. Obviously, defaults are even more difficult to design if savings preferences differ across employees



Source: Beshears et al (2006)

Default effects in retirement saving are not limited to participation and to the contribution rate. The asset allocation of the retirement savings portfolio is also default-sensitive (Beshears et al, 2006; Cronquist and Thaler, 2004; Choi et al 2005). Between one-third and 50 percent of employees hold some of their balances in the default portfolio offered by the employer, and between 25 and 40 percent hold all their balances in this fund. This is a somewhat mixed message. On the one hand, employees can be directed in choosing the portfolio selected by the employer or the pension fund. To the extent that an appropriate default portfolio can be designed, this may help people plan their financial future. However, if circumstances and preferences among employees are heterogeneous, or if the firm or fund do not know how to design a default, it is much more difficult to make welfare-promoting use of the default portfolio sensitivity in the interest of the employee. Moreover,

suppliers of defaults could use the default sensitivity in their own, rather than in the client's, interest.

With regard to health, the dominant culture in most societies is to avoid doctors unless some immediate health problem emerges. The attitudes of healthcare providers and citizens can be best characterized as disease management, not health management. Strong evidence suggests, however, that preventive healthcare is underutilized; see Hollander *et al.* (2006). This implies that welfare may be increased by changing the default of not-going to a doctor to going to a doctor on a regular basis for screening and other preventive interventions. Another area in health in which defaults play an important role is organ donation. See section 3 for an elaboration.

Inconsistent preferences: framing effects

Another preference inconsistency is that people are sensitive to the *framing*, or formulation, of the decision problem. There are several types of framing effects that may be relevant in the context of life cycle saving and investing and/or health:

- A long-standing literature has discussed the possibility that people might suffer from *money illusion*, i.e. their preferences and behavior may depend on irrelevant currency units. The currency unit in which a decision problem is expressed is obviously part of its framing. Using a variety of empirical approaches, researchers have found strong indications of money illusion. Examples are Shafir *et al.* (1997) using stated preference data, Fehr and Tyran (2001) using laboratory experiments, and Kooreman *et al.* (2004) using a quasi-experimental approach. The latter paper found that after the introduction of the euro people donated substantially more in real terms to a charity than they did before.

- If a choice is framed in terms of gains, people avoid risk. If it instead is framed in terms of losses, they choose risk — hoping to avoid losses. This effect displays an asymmetric risk appetite: people are risk-averse in the domain of winning, but risk-seeking in the domain of losing (Kahneman and Tversky, 1984; McKean, 1985; see also Bernstein, 1996). The risk-seeking behavior in the domain of losses runs counter to the standard assumption in pre-behavioral microeconomic theory.

- People avoid extremes. Benartzi and Thaler (2001, 2002) asked respondents to rate the attractiveness of portfolios that varied in terms of risk and return due to different percentages allocated to equities. They found that participants in defined-contribution schemes tended to avoid extremes, either by choosing the middle portfolio when offered three, or by allocating their savings over all of the portfolios they were offered. Moreover, respondents were inconsistent in the sense that when asked to rate portfolios, many preferred the median portfolio to their own. Van Rooij, Kool and Prast (2007) found similar results for employees in the Netherlands. These findings imply that the choice between portfolios can be guided (or manipulated) by the framing.

- Framing effects can also occur because of biases in the perception of risk (probabilities). Evidence includes insurance and health prevention. Johnson, Meszaros, and Kunreuther (1993) reported the results of an experiment with three groups of individuals who had to decide how much they would pay for a flight insurance policy that would provide life insurance of 100,000 dollar in case they should die during a flight to London. Each group was offered different conditions for the coverage: death on the airplane due to *any act of terrorism*, due to *any mechanical failure*, or due to *any reason*. Whatever the risk attitudes of the participants, it would be rational if the mean premium offered would be highest for the any-reason-policy. Instead, the mean premiums did not differ significantly. The authors explain this with the concept of vividness or salience: the mere word terrorism induces people to be willing to pay a premium that is not lower than that for an omnibus policy which insures all risks including terrorism. Apparently, the risk perception is affected by framing through the ease with which people can imagine “disasters” to happen. Similar results are found in the area of health insurance, and in real-world insurance markets. Persuasive effects of framing can also be found in health campaigns. Campaigns stressing reductions in mortality (e.g. from 6 percent to 4 percent) are more effective than campaigns stressing increases in survival (e.g. from 94 percent to 96 percent). Presenting absolute risks is more effective than informing about relative risks, and presenting the positive effects of a breast-screening decision over the woman's lifetime is more effective than presenting the health effects in the next few years. Although the framing sensitivity can thus be used to help people make choices that are best for them, it can also be abused, with the supplier of products manipulating choice to maximize his own welfare rather than that of the client.

Lack of willpower

One special case of preference inconsistency involves the time dimension of preferences. Ever since Paul Samuelson wrote his famous article on utility, the conventional assumption in microeconomic theory has been that when choosing between current and future consumption the individual applies exponential discounting. However, as Samuelson himself stated, this assumption of time-consistent preferences is ‘completely arbitrary’ (Samuelson, 1937). In fact, Samuelson sees the very existence of compulsory savings as an indication that people do not always behave as the *homo economicus*. Be that as it may, exponential discounting, which implies that the ratio between consumption preferences in two periods is *independent of t*, has been the key assumption in microeconomic models. Empirical evidence, however, shows that humans typically make short-term choices that can harm their welfare across their planning horizon. Thaler and Shefrin (1981) ascribe this to an internal principal-agent problem between a planner and a doer. The planner has a long time horizon and acts according to conventional economic theory, whereas the doer lives for the moment. The problem of self-control is formally described by assuming that people discount future utility hyperbolically (Ainslie, 2005).

An example may illustrate this. When faced with the decision to delay current consumption with a year, people experience a large utility loss because an immediate reward is very attractive. However, when faced with the choice between consumption at ten year’s time or delaying it until 11 years, the sacrifice does not seem that big. Hence discounting is not constant, but is a decreasing function of time. As a result, in the present it looks easy to start saving (dieting, quit smoking) at some point in the future. But by the time the future has become the present, it will be as difficult as it is today. A classic example is that of church father Saint Augustine. He thought that celibacy was good for him, but continued delaying it until “tomorrow”. He preyed for God’s help while at the same time hoping for some delay: “*God give me chastity and continence but not yet.*”

Box 3 gives a contemporary, quantitative illustration of the difference between exponential and hyperbolic discounting.

Consumers who are sophisticated — that is, that they are aware of their preference inconsistency and their lack of willpower — realize that they benefit from constraining their own future choices.

Box 3: Exponential versus hyperbolic discounting

V = present value of consumption, A is consumption, δ = discount rate

Exponential discounting:

$$V(t) = Ae^{-\delta t}$$

$$V(t+1)/V(t) = e^{-\delta} \rightarrow \text{independent of } t$$

Hyperbolic discounting

$$V(t) = A(1 + \delta t)^{-1}$$

$$V(t+1)/V(t) = (1+\delta t)/(1+\delta t+\delta) \rightarrow \text{depends on } t:$$

Numerical example:

Pair of shoes costs 400 dollar; customer's δ is 0.5. Apply hyperbolic discounting:

Choice between consuming at $t = 0$ or saving until $t = 1$:

Buy at $t = 0$: $V(A) = 400$

Delay until $t = 1$: $V(A) = 267$

$$\rightarrow V(1)/V(0) = 267/400 = 0.67$$

Choice between consuming at $t = 10$ or $t = 11$:

Buy at $t = 10$: $V(A) = 67$

Buy at $t = 11$: $V(A) = 62$

$$\rightarrow V(11)/V(10) = 62/67 = 0.93$$

\rightarrow At $t = 0$ it seems easy to postpone consumption (to start saving) at $t = 10$

The self-control model and the hyperbolic discounting approach explain the empirical evidence that people delay saving for the distant future for much longer than their long-term preferences would suggest (Frederick, Loewenstein and O'Donoghue, 2002). Herrnstein *et al* (1993) use the term “negative internalities” to describe the effect of the behavior of the present doer on the future selves

of the individual.⁴ Neuroeconomics provides support for the planner-doer model. FMRI (Functional Magnetic Resonance Imaging) scans show that different – and conflicting – parts of the brain kick into action depending on the time frame. Short-term gratification is the domain of the limbic system, the impulsive part of the brain, whereas the neocortex – the part of the brain in charge of planning – wins on matters involving a long-term horizon (Ainslie and Monterosso, 2004; McClure *et al.*, 2004; Glimcher and Rustichini, 2004).⁵

Strong evidence of lack of willpower is also found in the health domain. Della Vigna and Malmendier (2006) found that members of a health club who chose a flat monthly fee contract of \$70 paid 70 percent more than they would have if they had chosen to pay per visit. They also found that people delay canceling their subscription, possibly due to overconfidence about future attendance.

Other indications of a lack of willpower are the large amounts of money spent on dietary and smoking-cessation programs. In the Netherlands, only 14 percent of smokers are satisfied with their habit, and do not consider stopping. One quarter of smokers would like to stop within a year, while 14 percents would like to stop, but not within a year (another indication of procrastination). Forty percent of the Dutch population is currently overweight (BMI between 25 and 30), 10 percent is obese (BMI over 30), while more than 50 percent of the Dutch population wants to lose weight.⁶ Again, these are strong indications of the wide prevalence of self-control problems.

2.2 Motivations for Interventions

⁴ Incidentally, as early as 1956 Strotz identified potential self-control issues in intertemporal choice behavior and suggested precommitment as a possible solution (Strotz, 1956).

⁵ How does this fit in with the fact that elderly people tend to oversave? It has been argued that this apparent oversaving might be rational and due to a bequest motive (Venti and Wise, 2000), but leaving a bequest to heirs at a date and of an amount that are unknown in advance is unlikely to be optimal (Caplin, 2000, Merton, 2006). A more likely explanation is that markets have lacked financial instruments for life cycle planning for the elderly. Reverse mortgages would be a financial instrument to help optimal planning for those who are house-rich but cash-poor (Eschtruth and Tran, 2001). In the US, the market for reverse mortgages is small but growing. In the Netherlands reverse mortgages are still looked down upon, witness the Dutch expression “huis opeten” (*eating your house*). Suppliers are reluctant to offer these products as a net debt does not pass on to heirs.

⁶ See www.stoppenmetroken.nl and www.tipsbijafvallen.nl

The evidence from behavioral economics research shows that people do not always behave in their best interest, do not always behave as planned, and do not always have rational expectations.⁷ People under-save for retirement, do not make financial planning choices with an eye on their future interest, view choice in the area of personal finance and health as a mixed blessing, and prefer expert advice. Current policies in the areas of personal finance and health expect welfare improvements from deregulation and increased individual autonomy. Hence the focus on making markets work, on creating a level playing field and on making sure that individuals can take well-informed decisions.

These policies, however, are based on conditions that are rarely satisfied in practice. As the evidence in the previous section has shown, public policymakers and other institutions can improve individual welfare by guiding citizens in making decisions that are complex and/or require more restraint than many people are capable of. Behavioral economics thus provides a new type of policy challenge. Rather than going to great length to create conditions that enable people to use their consumer sovereignty, policymakers should accept that consumer autonomy is worth much less than they have always assumed. This will not be an easy process, as policymakers are likely to suffer from a “confirmation bias”. Note that guiding people to make good choices for themselves may also promote social welfare. Thus, if people are helped with their retirement planning, they are less likely to depend on social insurance when old. If people are helped in choosing a healthy lifestyle, they may be more productive workers, and require fewer medical resources.

The good news of behavioral economics research is, first, that people are prepared to accept help because they know their limitations and weaknesses. Second, these policies are inexpensive and do not create market distortions. Note, that the types of interventions can to some extent be regarded as re-institutionalization: less reliance on consumer and investor discipline, and more responsibility for institutions to offer useful information and choice.

Depending on their degree of sophistication or naiveté, people may need different types of interventions. Some people may be rational enough to make all decisions themselves in a

⁷ The behavioral evidence also shows that people do not only care about themselves. Relevant as this may be for policy in a social welfare state, this behavioral element is outside the scope of this paper.

discretionary manner. Note, however, that even people who are aware that they under-save (should go on a diet, etc) might not be able to change their behavior due to lack of will power and a naïve view of their future preferences and behavior.

Interventions directed at helping people make choices will become more important as more choice becomes available because of technological innovation in finance. Moreover, with an aging population, both financial planning and healthcare decisions will increase in importance. It is in these domains that the assumptions of rational choice theory are most violated, and behavioral biases most evident.

2.3 Types of interventions

Taxes and subsidies are traditional methods used to promote behavior that prevent loss of well-being due to “bad” decisions. Regulations may serve the same purpose. Think of prohibitions regarding alcohol for youths, of mandatory insurance for car drivers, and of the obligation for motor drivers to wear a helmet. In the area of personal finance, mandatory pensions might be a regulatory response to the self-control problem. In fact, many countries that are setting up pension schemes – notably, the European Accession countries – are making pension schemes mandatory.

The outstanding feature of behavioral policy, however, is that it focuses on promoting individual wellbeing while it does *not* necessarily limit individual choice, may *not* require market distortions in the form of taxes and subsidies, and may be inexpensive, because no financial incentives (e.g. tax exemptions) are needed. As stated in the introduction to this paper, there are three major differences between this approach and old-fashioned paternalism. New paternalism does not necessarily assume that institutions know better what is good for individuals, externalities are not the motivation for policy intervention, and the ability to choose is not necessarily affected, or it is the individual who chooses not to choose. Instead, the focus is on improving the welfare of the individual by mitigating what Herrnstein et al label “negative externalities”. Behavioral economics advocates using, in addition to or as a substitute for traditional instruments, a variety of policy instruments: mechanisms to which the individual chooses to commit, defaults, labels and deliberate framing to affect individual choice are important examples. Both private and public institutions can

play a role in this respect. The following subsections discuss methods for intervention and will show that behavioral economics insights provide new scope for traditional types of intervention (taxes and subsidies, laws and regulation) as well as a challenge to apply new types of intervention (new paternalism).

Market-based solutions: financial instruments and institutions

Rather than being educated to understand complicated products – a hopeless endeavor given the complexity of financial technology-, financial customers should be educated in understanding their preference for income guarantees, and then be supplied “paternalistically” with products matching these preferences. Bodie, Treussard and Willen (2006) argue that the typical consumer regards finance like medicine: he finds it unpleasant, relies on experts for help, and views choice as a mixed blessing. Given the tendency to postpone unpleasant activities and the complicated financial technology, knowledge of the science is of little importance to the typical consumer. Producers, advisors, and regulators should be educated to develop, explain and regulate useful financial products. Individuals planning their financial future are not, as the finance textbooks assume, interested in their portfolio (input), but in their future standard of living (output). Rather than educating financial consumers to choose between inputs, they should be guided in understanding choice between future outputs and its price in terms of current foregone consumption.

Some behavioral authors suggest, in the context of hyperbolic discounting and self-control problems, that financial innovation may have reduced welfare in the context of behavioral biases, because it has increased liquidity and reduced the opportunities for commitment strategies by sophisticates. In fact Laibson (1997) argues that this may have been responsible for the decline in U.S. savings rates. Recent developments underscoring this view are the possibilities for Internet banking and internet luxury consumption. The shoe leather costs for using credit lines and making large credit card purchases are now close to zero, and the commitment possibilities for preventing the latter are reduced.

A solution to this problem would be to offer financial products that ensure a future standard of living. This would enable financial consumers to commit themselves, providing long-run certainty.

In this respect Bodie (2002) recommends the issuance of inflation-indexed bonds to provide a long-run inflation hedge for households saving for retirement. With their financial future guaranteed by an insurance contract, the problem of self-control in consumption and saving is mitigated. The number of countries issuing such bonds is increasing (UK, Canada, US Treasury, France, Germany). Merton and Bodie (2005) make a plea in favour of so-called structured products, also known as individual defined benefit plans. These products would combine insurance of a retirement standard of living with upward potential in case asset markets are performing better-than-expected. These products might reduce the problem of choice paralysis as consumers merely need to choose their future desired standard of living. Using the purchase of a car as an analogy, Merton (2006) states that useful information to the consumer is gallons per mile (output), not the complicated technology that is under the hood of the car (input). With their future standard of living guaranteed, people suffer less from their self-control problem in the area of personal finance.

Taxes and subsidies

Traditionally, taxes and subsidies have been designed primarily to promote behavior that is in the best interest of society as a whole, as viewed by the policymaker. Goals include the level of education, creation of infrastructure, demotivation of behavior involving negative externalities and promotion of behavior involving positive externalities. O' Donoghue and Rabin (2005) show that because of the self-control problem facing individuals, these instruments may be used also for promoting behavior that is in the best interest of the individual, according to the individual himself. They take as a starting point that 'new' paternalism should carefully weigh the costs and benefits of intervention. For example, taxes benefiting impulsive and naïve consumers (because the taxes help them acting in their best interest), while at the same time punishing consumers with will-power, would be undesirable. The main conclusions of O' Donoghue and Rabin are the following. Lump-sum transfers and sin taxes can improve social welfare because on the one hand over-consumers are demotivated, which is in their best interest, while on the other hand people with will-power receive net income from the sin taxes. Moreover, sin licenses may be useful for sophisticates with self-control problems (see below under commitment mechanism). Pro-savings government interventions like capital-income subsidies and penalties for early withdrawal from retirement accounts may mitigate the effects of self-control problems for retirement saving ((Camerer et al, 2003).

Laws and regulation

Some existing regulations have already been in place for a long time out of the fear “that even people of sound mind might not act in their long-term self-interest in certain predictable situations” (Camerer et al, 2003). Some regulations may have been developed with an eye to social welfare, but may also be in the best interest of the individual. For example, disaster myopia may induce banks to be too generous in their mortgage policy, and homeowners too optimistic about the future value of their home (Guttentag and Herring, 1986). Limits to the loan-to-value ratio developed to promote stability of the financial system may thus protect homeowners from taking on mortgage obligations that they are unlikely to meet, which is not only in the interest of financial stability, but also in that of the individual homeowner. Mandatory participation in retirement schemes would be another example of regulation designed for the best interest of individuals.

Information and educational campaigns

Financial illiteracy is a widespread phenomenon both in the US and in Europe. The Netherlands is no exception. As Dutch employees usually enroll automatically in the (mandatory) pension scheme of their employer, illiteracy has not been a major issue in our country thus far, but this may change in the future. The US evidence indicates that employees, especially the lower incomes and lower educated, may benefit from financial education. Lusardi, (2004) and Lusardi and Mitchell (2006) find a positive correlation between financial literacy and planning for retirement. However, the causality is not unambiguous: it might be that people attend financial education seminars because they are inclined to pay more attention to retirement planning. And even if the conclusion is justified that financial education seminars have some role to play when it comes to people helping to plan how much they should save for retirement, it is unlikely that improved financial literacy enables the typical individual to make optimal investment choices, in terms of portfolio decisions, for retirement. Thus, financial education may serve at speeding up pension plan participation and may lead to higher savings rates, but it cannot be expected to lead to optimal use of financial products. Framing effects give scope for policymakers and private sector institutions to affect behavior in an inexpensive manner. This may be in a way that is in the best interest of the citizen/customer (soft paternalism). It can also be used in the interest of the policymaker of private

institution, in which case it comes close to manipulation. Some authors argue that therefore information should always be unbiased by being presented in two ways.

Framing

Framing is an inexpensive and effective method to influence choice. Merely by using a wording that exploits sensitivity to framing, policymakers can guide the majority of people in the direction that is in their best interest.

To illustrate the persuasive power of framing effects and to show the potential effect on policymakers, take the *dilemma of combating disease* (Bernstein, 1996). Assume that a Minister of Healthcare needs to take a decision on how to fight a rare and highly contagious disease, which if no precautions are taken is expected to kill 600 people. He is presented with the following choice:

There are two ways of combating this disease. If we choose approach A, 200 lives out of the 600 will be saved. Method B offers a one-third chance that all 600 will be saved and a two-third chance that no-one will survive. Which method would you prefer?

In terms of human lives both methods offer the same expected outcomes: A has 200 lives saved at a probability of one. The only difference between A and B is that A offers certainty while B presents risk: one doesn't know how many people will be saved. Experimental evidence indicates that over seventy per cent of the people go for certainty and pick A.

However, the decision problem facing the Minister could also be formulated as follows.

There are two ways of combating this disease. If we choose approach A, 400 out of 600 people will die. Method B offers a one-third chance that no-one dies and a two-third chance that all will die. Which method would you prefer?

When framed this way, more than 70 percent choose method B. The only difference between the decision problems is their wording. The first is presented in terms of gains (lives saved), the second in terms of loss (people dying).

Now assume that the government is advised by someone who has an interest in promoting method B – for example because he is the owner of stock in the company that produces medicine B. The advisor may deliberately influence policy decisions for his self-interest. As long as the effectiveness of the methods is identical, there is no practical problem. However, even if method B is a little less effective than method A, the policymaker will tend to choose B over A if the framing is in terms of losses. The examples illustrate that whereas policymakers may use the framing effect in the best interests of citizens, they can themselves be manipulated too. Knowledge about framing is therefore useful for the policy making process itself.

Defaults and active decisions

Perhaps the most powerful behavioral policy instrument is the use of defaults. The empirical evidence indicates that default effects in the domain of saving and investment are large (Cronquist and Thaler 2004, Choi, Laibson, Madrian and Metrick 2004, Hübner and Teppa, 2002). The majority of people tend to “choose not to choose” and automatically opt for the default. This implies that the design of defaults warrant careful attention. Precisely because defaults are a powerful instrument, they have drawbacks. People are heterogeneous in their preferences and circumstances, so a one size fits all default is unlikely to work for everyone. There is also a principal agent problem: the institution offering the default may design it so as to serve its own, not the customer/citizen’s, interest.

A “soft” alternative to defaults is to make use of forced active decisions. by eliminating the possibility to automatically opt in or opt out. Choi, Laibson, Madrian and Metrick (2005) show, that an active decision “default” increases participation in pension schemes with 25 percent as compared to automatic non-enrolment.

The empirical evidence suggests that when it comes to pension plan participation, most employees with non-automatic enrollment will enroll in the end, indicating that they prefer to participate. But they postpone their action (Choi et al, 2005). Still, active decision-making is easier to accept for those who oppose paternalism, as it requires people to think and make a decision themselves. Opposition to opt-out mechanisms may also be ascribed to the irrational omission/commission bias

mentioned earlier. Some authors argue that the effect of defaults could and should be used in an even less paternalistic manner, making use indeed of active decision-making. Assuming that optimal defaults are heterogeneous, these authors believe that developing a default that fits everybody is a very complicated and virtually impossible task. A default that is so unattractive that most if not all will opt out will compel people to think about their preferences and to make an active choice. Given the insights from behavioral economics, however, it may be over-optimistic to assume that people would make good choices. Cronquist and Thaler (2004) study choices made in Sweden in the privatization of social insurance. Swedes were encouraged to make an active decision, although a default was available. Cronqvist and Thaler find that Swedish employees who did not choose the default – they were indeed actively encouraged to opt-out through an expensive campaign – did on average worse than those who had chosen the default portfolio for retirement savings.

Commitment mechanisms

Defaults are instruments that guide people in making effortless choices. Sophisticated consumers who are (by definition) aware of their will-power problem may also be helped by commitment mechanisms. The Save More and Retire Tomorrow (SMaRT) commitment system developed by Thaler and Benartzi (2004) is a case in point in retirement planning. SMaRT involved a contract in which employees committed to gradually contributing more to their pension schemes, starting two years after signing. The two-year delay was chosen to circumvent the hyperbolic preferences. Employees were free to choose whether they would take the contract. They also could opt-out any time, but were not allowed to withdraw retirement savings. The agreement was signed by many employees and prompted a gradual increase in average pension contributions from about 3 to about 13 percent. Note, that naives overestimate their future capability of consumption restraint. As a result they will undervalue commitment mechanisms. Hence naives benefit more from carefully designed defaults than from commitment mechanisms, whereas sophisticates are likely to be helped by both policy instruments.

Box 4: Types of (behavioral) interventions

<i>Intervention type</i>	<i>Instrument(s)</i>	<i>Examples</i>	<i>Helps solving</i>
Market based	Behavioral products	Regret insurance Structured products Targeted savings plans	Inactivity Undersaving Choice paralysis
Legal	Laws and regulation	Mandatory pensions Mandatory annuitization	Procrastination Longevity risk
Soft paternalism	Defaults	Automatic enrollment Default savings rate Default annuitization	Procrastination, self control problem
	Labels	Life-course contribution	Procrastination
	Framing	Middle portfolio	Choice paralysis
	Active choice	Pension enrollment	Procrastination
	Commitment mechanisms	Savings contract	Self-control prob
Financial education (end-users)	Planning help	Work floor planning course	Lack of expertise, self-control
Financial education (professionals)	New paradigm approach	Handful useful choices	Choice paralysis lack of expertise

3. Rethinking Savings and Investment Policies in the Netherlands

Many international experts regard the Dutch retirement system as one of the best, if not the best, worldwide. Yet, the reduced values of the portfolios backing pension fund liabilities triggered a policy debate about whether the risk of price movements in financial markets should be run by the company and its pension fund, or by individual employees. Several corporate pension funds have

made it clear that it is their intention to shift this risk toward the employees by a changeover from a defined benefit to a defined contribution pension scheme. The rapid population aging in the Netherlands as a result of people living longer and having many fewer children is one of the developments that pose a challenge to the current retirement system. A defined contribution system has the potential of facilitating individual decision-making, of creating individually tailored pension plans, and of introducing market-discipline.

As established in the previous sections, however, individual autonomy may not promote and indeed reduce individual welfare for many employees, due to behavioral biases and insufficient cognitive abilities. Benartzi and Thaler (2002) conclude that autonomy with regard to the investment of retirement savings has very little value because agents typically have difficulties in choosing their portfolio in a consistent manner. Many individual defined contribution pension funds in the US have expressed doubts about the quality of the investment choices made by their participants (Benartzi and Thaler, 2001; Mitchell and Zeldes, 1996).⁸ Thaler and Benartzi (2004) find that if left to choose, people save less than their optimal life cycle savings rate would predict. This evidence underscores the relevance of the behavioral biases discussed in section 2.

For the Netherlands, similar evidence on actual behavior is not available simply because the current system leaves very little choice to individuals. However, we have seen that Dutch employees are financially illiterate, and we know something about their stated preferences and potential biases. Research by Van Rooij, Kool and Prast (2007) shows that the vast majority of respondents is in favour of compulsory saving for retirement and of a defined benefit pension system. If offered a combined defined benefit/defined contribution system, the majority of the respondents would like to have a guaranteed pension income of 70 percent or more of their net labour income. Self-assessed risk tolerance and financial expertise are important explanatory variables of pension system attitude. Respondents are on average conservative in their investment policy. If given investor autonomy, they are willing to change the composition of their retirement savings portfolio in response to their personal financial situation, general economic conditions, and expectations of

⁸ Note, however, that Huberman and Jiang (2004) find that participants divide their investment evenly over a small number (3 to 4) of funds, irrespective of the number of funds offered to them by the pension plan. This suggests investors do have some ability to choose.

financial markets. Respondents who have chosen a relatively safe portfolio (less stock, more bonds) appear to prefer the retirement income streams of the median investment portfolio to their own portfolio choice. Finally, the average respondent considers himself financially unsophisticated, but is not very eager to take control of retirement savings investment when offered the possibility to increase expertise.

Box 5: Policy paradigms

	<u>Old paradigm</u>	<u>New paradigm</u>
Choice	The more choice the better	Choice is a mixed blessing
Autonomy	People want autonomy	People want expert advice
Planning behaviour	Informed people plan rationally	People hate planning
Policy aim	Make sure that people: - are well informed, educated and interested - play an active role in the financial markets - can confidently make well-considered financial decisions	Give people a handful of useful choices Focus on output, not input choice Provide real guarantee
Policy instruments	Create transparency Provide financial education to end-users	Make sure that advice is unbiased Educate professionals Introduce guarantee products
Welfare measure	Wealth	Lifetime consumption
Financial products	Cash, stock, mutual funds, insurance	Standard of living contracts Targeted accounts
Risk management	Diversification	Diversification, insurance, hedging

Source: Constructed by the authors and based on Bodie (2006)

The New Pension Law

In the Netherlands a new Pension Act was adopted on January 1, 2007. According to the Ministry of Social Affairs and Employment (SZW) the aim of the new law is to give more transparency and guarantees to employees, to give employees and retirees a legal right to information about their pension, and to provide a guarantee that the solvency of pension funds is adequate to pay out future pensions. Moreover, in light of the Act on Financial Services (WFD), pension plans have a “care-duty” (*zorgplicht*): they are to protect their clients’ interests.

The new Pension Act distinguishes pension schemes according to the types of guarantees offered to the employees. The aim is to provide clarity about the employees future claims to the scheme.

Moreover, plan participants should receive an annual leaflet with their pension claims. This leaflet has to be uniform among all pension plans. A national register is set up with the aim of informing employees about all his pension rights accrued while participating in various plans during various jobs. In case of an individual defined contribution plan, the fund is responsible for creating a default portfolio. Should the employee opt out, then he has the right to invest his pension contributions within the limits set by the employer and the pension plan. The pension plan has to advise him in accordance with the know-your-customer (kyc) principle, with portfolio risk falling as the retirement date draws closer. The kyc principle, as laid down in the law on the financial Services Act, implies that the participant's financial position, knowledge, expertise, goals and risk tolerance should all be taken into account. The pension plan has the duty to provide a yearly overview of results, comparing them to the results that would have been obtained if the employee had followed the advice.

As is clear from the above description, the Pension Act is largely largely on the old paradigm, although it contains some elements of the new one. The focus is on information and transparency for end users, on wealth rather than life time consumption, no standard of living contracts are offered, and the focus is on portfolio choice (input). Moreover, the implied recommendation to reduce risk is by diversification, whereas insurance and hedging are not mentioned. Moreover, the condition that risk should depend on the time-to-retirement is subject to what Paul Samuelson (1997) has called the Dogma of the Day: invest for the long term, and the risk lessens. Recent research shows that where the probability of having a higher return on stocks increases with the time horizon, a longer time horizon brings bigger losses when an inevitable loss does occur. This may be a risk worth taking for someone very rich, it is not advisable when it comes to retirement planning, especially if we take loss aversion into account.

The mandatory default option in individual DC plans as well as the limits to investment possibilities for the DC participant in the new Pension Act reflect an awareness among policymakers of the potential of standard options and guiding choices. When it comes to the tailor-made advice, the guiding lines are old-fashioned, however. For example, rather than focusing on risk tolerance, the default and the pension advice should take the correlation between a person's human capital and asset markets into account.

The Life-course Arrangement

One way to promote life cycle planning at the individual level is to create facilities to smooth income and leisure over time. The life-course savings arrangement (*levensloopregeling*) introduced in 2006 in the Netherlands did originally have precisely this aim. Workers can save in for when their personal circumstances make it attractive to have more leisure time. Tax facilities to promote life-course saving include tax deferral (*omkeerregeling*), subsidies for parents who use the life-course to staying at home with young children, and tax exemptions for subsidies by employers. When developing this facility, policymakers made no use of knowledge about behavioral incentives such as defaults. Thus, workers need to actively opt-out of the previous savings arrangement (*spaarloon*), and opt in in the life-course system. Although there may be many reasons why the life-course arrangement has thus far not been very successful, the existing behavioral evidence on participation in savings arrangements suggests that automatic enrolment in the life-course arrangement would have speeded up and/or increased participation.⁹ Whatever one may think of the arrangement, a government that wants to promote it should use the most efficient and least costly way to do so. Fiscal stimuli are more expensive than automatic enrollments, and although some would see the latter as an infringement of their civic liberties, it should be stressed that nobody is forced to enroll (see also Prast and Kooreman, 2006).

Financial Literacy

As mentioned in section 2, financial illiteracy is widespread. Therefore, financial education campaigns are “hot”. In the UK, the FSA has carried out a survey to measure financial literacy and has concluded that people are illiterate. To deal with the problem, it has launched a financial

⁹ A compromise involving employers and employee associations has made sure that the life-course arrangement can be used for the purpose of early retirement. This is the more ironical as, absent measures to actively promote labour market participation, ageing leads to a tighter labor market, increases costs for pension funds and the government, and makes the economy more vulnerable to shocks. Bovenberg and Knaap (2005) show that the single most important determinant of the net burden of ageing is the eventual size of the increase in labour market participation of older workers, which would call for measures with respect to the retirement age.

education campaign in 2006 (see www.fsa.gov). The US Treasury has launched its National Strategy for Financial Literacy in Autumn 2006. In November 2006, the Dutch Ministry of Finance established CentIQ, which aims to help financial consumers to become *well informed, educated, and interested to play an active role in financial markets, and to be able to confidently make well-considered financial decisions.* (www.minfin.nl).

Careful attempts at useful education are welcome. However, the ambition to educate citizens to play an active role in financial markets is unrealistic, given the theoretical and empirical evidence outlined in the previous sections. As we have seen, even with full information, most individuals would not be able to make decisions that are optimal, given their (short and long term) preferences. This is the more important as over the past decades new technologies have created a wider array of financial products to choose from, and deregulation policies have shifted more responsibilities and risk towards the individual. Employees in the Netherlands are not motivated to increase their financial sophistication even if they are offered education at no cost (Van Rooij, Kool and Prast, 2007). And they may be right, because new generation financial choices are much too complex to be made even for educated individuals.

Financial education will often not help

Financial education is often not a solution to the problem of financial decision-making. Robert C. Merton argues that new technology and deregulation have

“left households with the responsibility for making important and technically complex micro financial decisions involving risks that they had not had to make in the past, are not trained to make in the present, and are unlikely to execute efficiently in the future, even with attempts at education” (Merton, 2003).

As Merton suggests, institutions – public and/or private – should develop products that simplify decision-making for individuals. In fact, financial illiteracy is not the only, and indeed not the main issue. Psychological biases affect decision-making in a systematic manner, resulting in choices that are suboptimal from the point of view of individual welfare and/or are sensitive to the formulation

of the decision problem. Most likely, illiteracy increases the sensitivity to these biases. Still, the financial education campaign of the Dutch Finance Ministry is in line with the old paradigm of lifecycle savings and investment, and is based on the pre-behavioral philosophy of making markets work: Create a level playing field, and make sure that individuals are well-informed.

More competition in financial markets is not a solution

More competition in financial markets is often not a solution to the problem of (financial) decision-making either. As Laibson and Gabaix (2006) show, competition can make things only worse, as more suppliers and more products to choose from may only increase consumer confusion.

All the evidence indicates that people put a high value on protection against the financial consequences of old-age, illness, and disability. This is no different in the Netherlands (Van Rooij, Kool and Prast, 2007). Any financial instruments that can help in offering guarantees can contribute to promoting individual and most likely social welfare in this respect. As we have seen, the new Pension Act is based on the old paradigm of life cycle planning. In our view, this approach should be replaced by the new paradigm, which would imply financial product innovation focusing on output rather than input. Current pension products are easy to design, but difficult to understand. We advocate product innovation focusing on targeted and guaranteed products. Although these products are difficult to design, end users find them easier to understand. These products, moreover, may be used both in DC schemes with collective characteristics and in individual DC schemes. They should offer output in terms of real standard of living.

Tax and subsidy incentives need support from defaults, labeling, timing.

We have seen that the government in the Netherlands is trying to promote lifecycle planning by facilitating and indeed subsidizing the life-course arrangement. The arrangement is both more expensive and less effective than was envisaged. We recommend a much more effective use of (and careful design of) of defaults, labeling, and timing in the design and the implementation of the life-course scheme.

- An example of using *defaults*: set participation in the *levensloopregeling* as the default choice rather than nonparticipation (which is the current default option for a large majority of employees).
- An example of using *labeling*: re-label “vacation allowance” into “savings allowance” or “contribution to life-course account”. This is likely to boost the contributions to the life-course scheme; see Kooreman (2000).

- An example of using *timing of salary components*: pay components of income with a lower-than-monthly frequency. Current examples are vacation allowance (paid annually) and child benefits (paid quarterly).

Vacation allowance – roughly 8 percent of annual net income – is paid in May. As of 2007 some employers have changed to paying the vacation as a monthly supplement to regular income. Results in Kooreman and Prast (2007) and Kooreman (2000) indicate that this change is likely to reduce contributions to the life-course scheme, especially for households that are liquidity constrained.

Commitment mechanisms

While many citizens (such as civil servants) have limited or no freedom to make financial provisions for retirement, others (including freelancers and independent professionals (*vrije beroepen*)) are completely in this respect. Policymakers should also offer commitment mechanisms to help them save enough for retirement despite their self-control and will-power problems.

Thaler and Benartzi (2004) report the results of the implementation of SMarT, a prescriptive program for retirement savings. Their goal was to ascertain whether implementing a commitment strategy for non-compulsory retirement savings would encourage workers to save more. The program consists of four elements. First, employees could commit to a savings plan where the sign-up date would lay far ahead of the actual start-up date. The purpose of the delay was to overcome the hyperbolic discounting problem. Second, workers committed to saving more after each pay rise. Third, contributions would rise slowly until a maximum savings rate was reached. Finally, workers could opt out any time, but not lower their savings rate. Benartzi and Thaler find that the plan was

extremely popular with participants, whose savings rate on average increased gradually from 3.5 to 13.6 percent.

Similar commitment mechanisms can be straightforwardly applied in the Netherlands.

4. Rethinking Health Policies in the Netherlands

4.1 Limited consumer sovereignty

If there is any domain of choice in which consumer sovereignty is severely limited, it is in healthcare. One obvious example is the case of emergencies, when consumer is often physically and/or mentally unable to make a decision of any kind. The same is true for mentally disabled persons and for young children. In life-threatening and other unsettling situations, decisions on healthcare are dictated by external factors, such as the location of a traffic accident and the decisions of third-party representatives. Although individuals could in principle choose in advance what they prefer if several contingencies materialize, optimal choices are difficult or impossible to make even for individuals who otherwise act in a fully rational manner. In these cases strong paternalism is both desirable and unavoidable.¹⁰

Secondly, even in a non-emergency situation, making appropriate decisions in health requires knowledge that takes health specialists many years of training to acquire. This asymmetry in information between principles (consumers) and agents (doctors) renders the former vulnerable (see Dulleck and Kerschbamer, 2006). Moreover, a negative health shock of a given type is often a once-in-a-lifetime event, and therefore offers little opportunity for learning (for example: Who is the best cardiologist to treat a myocardial infarction?).

A number of studies (including Craick and Salthouse, 2000), have shown that – apart from dementia and other illnesses – cognitive abilities (strongly) decrease in age after the age of 50.¹¹ The older population is thus even more vulnerable with respect to healthcare and other choices than are other groups in society.

¹⁰ For preventive and elective care, healthcare demand elasticities with respect to prices (including travel time and costs) and quality are higher than for emergency care (see Ringel *et al.*, 2002), suggesting more consumer sovereignty in those areas of healthcare.

¹¹ Agarwal *et al.* (2007) find evidence that financial mistakes follow a U-shape over the life cycle.

The insights of Gabaix and Laibson (2006, 2007) discussed in previous sections also have far-reaching policy implications for healthcare markets. Given the asymmetry in information between consumers and providers that is inherent in healthcare, more competition and more alternatives are likely only to increase consumer confusion. Policymakers would be naive to think that competition solves the problems of individual decision-making in healthcare.

Moreover, the primary problem behind today's most pressing health problems, like obesity, is not a lack of information on what one should do, but the lack of willpower to do what one knows one should do.

What are the implications of these behavioral insights for public health policy?

4.2 Minimizing informational failures

Suboptimal choices often result from informational failures and misperceptions of risks. Either there is ignorance or suppression (underestimation), or risks are exaggerated, in particular right after the realization of a fatality risk. For example, public perception of the risk of lung cancer for a lifetime smoker is about 0.45, whereas actual risk is estimated to be about 0.10; see Kwhaja et. al (2006), and Kip Viscusi (2007).

This misperception is partly due to the fact that government information on the detrimental effects of unhealthy behaviors is almost exclusively qualitative in nature. Government regulations in the Netherlands, for example, require that cigarette packs display the announcement "Roken is dodelijk" (*smoking is lethal*) in large bold print. It would be more informative to mention the approximate reduction in expected lifetime as a result of smoking one pack of cigarettes.

For many health conditions, the best treatment is prevention. To this end, many countries and insurers around the world encourage individuals to participate in preventive care. In the Netherlands, the government provides several preventive healthcare interventions free of charge to certain groups in the population. These include flu shots (population aged 65+, every year), cervical cancer tests (women 30-60 years old, every 5 years), and breast cancer tests ("mammograms"; women aged 50+, every 2 years). Public information on these preventive healthcare interventions is

generally characterized by a similar lack of quantitative information.¹² A more advanced way to disseminate information would be a website that provides a personalized estimate of (the distribution of) an individual's remaining lifetime, as a function of basic demographic, health condition, and health-related behavior.

Similar to other future investments, there are many reasons why people may not participate in these programs. While for some people non-participation is likely to be rational, many individuals who should rationally participate actually do not. Forward-looking individuals with a sufficiently low discount rate will rationally choose to participate in these programs. Those with a particularly high discount rate and those with an excellent general health status will rationally choose not to participate. However, myopia, cognitive biases and lack of information or understanding about the costs and benefits of these programs may lead others to choose, irrationally, not to participate.

Other policies to minimize informational failures include nutrition education (in schools and elsewhere) and improved nutrition labeling. Regulations in the Netherlands do not require nutrition labels to be in languages other than Dutch. However, as health risks are particularly prevalent in ethnic minorities with limited knowledge of Dutch, it is important that nutrition labels contain information in a number of minority languages as well; see Variyam and Cawley (2006).

While providing more information seems to be a noncontroversial policy recommendation, there is some (anecdotal) evidence that people overreact to information on their health status, which might have adverse effects (see NYT, 2007). This once again stresses the need for guidance regarding health behavior.

4.3 Guiding choices

Whether public policies that intervene by guiding such choices in one way or another are desirable from a social policy perspective is a complicated question. It depends on political

¹² An exception is the website on mammograms (www.borstfoto.nl). The site also mentions that the screening has a large chance of a Type I error (test outcome is “negative” for a person who actually has the disease) and a Type II error (test outcome is “positive” for a person who actually does not have the disease). Thus, if the test turns out positive, a person is likely to be concerned, but this will be followed by relief in 6 out of 10 cases. This information is obviously highly relevant for deciding whether or not to take the test.

preferences (for example: Should we refuse treatments to individuals who failed to insure themselves for healthcare costs?), as well as on social cost-benefit analyses.¹³

The insights from behavioral economics in the health domain point to underutilization of defaults as a policy instrument to guide choices (in addition to improved information).

We briefly discuss three specific examples of how “behavioral policies” might be used more effectively in healthcare policies.

Example 1: Organ donations

Contrary to many other countries, organ donation laws and regulations in The Netherlands are based on the principle of “informed consent”: individuals are assumed to be unwilling to donate organs after death, unless they have explicitly indicated otherwise. Recent studies suggest that organ donation rates are likely to increase if the system is changed into “presumed consent”: a person is assumed to be willing to donate organs, unless he or she explicitly indicated otherwise (see, for example, Johnson and Goldstein, 2003, and Abadie and Gay, 2006).¹⁴

Example 2. Automatic enrollment and premium payment in basic health insurance

The Netherlands recently moved to a system with mandatory basic health insurance for all citizens. Citizens have to select a health insurance company, and health insurers cannot refuse basic insurance to anyone. Selecting an insurance company and paying the premium thus requires active decisions on the part of individuals. Low-income households receive a healthcare benefit (*zorgtoeslag*) as a compensation of the health insurance premium to be paid.

¹³ To avoid arbitrariness and inconsistencies, policymakers in healthcare should not shy away from using concepts such as QALYs (Quality Adjusted Life Years) and VSLs (Value of a Statistical Life); see, for example, KipViscusi (2007) and Ashenfelter and Greenstone (2004). While these concepts should be applied cautiously, they contribute to transparency that will reduce information asymmetries and help to boost value creation. We also recommend a much more widespread use of pre-testing policy interventions using field experiments

¹⁴ The effect is not as large as might be suggested by comparison of donation rates in presumed consent versus informed consent countries (see the figure in the Appendix). This is because the type of regulation is not chosen randomly. Presumed consent might primarily reflect (and be the result of) a more positive attitude of a country's population towards organ donations in general.

In December 2005, at the time the first healthcare benefits were paid, marketing research bureau Q&A reported on the basis of a survey among 1200 individuals that a large fraction of the recipients of the healthcare benefit (*zorgtoeslag*) spent the benefit on New Year's fireworks. Early 2007 it was estimated that about 250,000 Dutch citizens had not or had only partially paid health insurance premiums since January 2006.

These events strongly suggest that other defaults should be used, specifically a direct routing of the *zorgtoeslag* to the selected health insurer.

Example 3. *Commitment device for attending a health club.*

The evidence reported in DellaVigna and Malmendier (2006) shows that many members of health clubs sincerely intend to visit their club with a certain frequency, but fail to act accordingly. We therefore recommend the introduction of the following self-enforcement device:

The consumer signs a contract with his/her health club in which he/she agrees to visit the health club (say) once a week. The contract also specifies that the consumer will be fined (say 200 percent of the price per visit) for each week skipped. He/she agrees that fines will be automatically and immediately charged from his/her bank account. As a reward for signing this contract, the first visit(s) will be free of charge.

People attend less than they intended because they underestimate the (non-monetary) costs of the weekly visits to the health club. As the fine increases the costs of *not* going to the health club, individuals who lack willpower will be induced to go.

The scheme will be appealing to sophisticated hyperbolic discounters, who are aware of their tendency to behave inconsistently. The naive hyperbolic discounters will claim that they do not need the fine clause in their contract, but will be tempted to agree because of the free first visit(s). Another possibility is to attempt to educate naive hyperbolic discounters so that they will become sophisticated hyperbolic discounters, by confronting them with inconsistent behavior in the past.

In case the proposed incentive system generates positive net revenues, these can be used for some general (but not individual) health purpose .

5. Discussion

Behavioral economics convincingly shows that individuals' decisions regarding personal finance and health lack the rationality that has long been assumed in mainstream economics. This is especially true for the low educated, the elderly, and people in poor health. Recent research on the intersection of behavioral economics and industrial organization shows, moreover, that the associated loss of personal and social welfare cannot always be reduced by fostering competition in financial and healthcare markets. More competition, in fact, might imply greater consumer confusion, and therefore only exacerbate problems.

We recommend a much more effective use of soft paternalism, in particular by setting smart defaults and by using unorthodox commitment mechanisms, as described in sections 3 and 4. Moreover, any policy change in the areas of personal finance and health should be evaluated both *ex ante* and *ex post* on the basis of a coherent analysis of social costs and benefits.

Behavioral economics has corroded the long-standing hostility in the economics profession toward paternalism. For economists, soft paternalism seems particularly attractive as a device to affect behavior as it does not affect the individual's choice options (although it does affect the relative costs of the various options). While embracing (soft) paternalism is probably a step too far, the attitude of most economists might best be described by 'anti-anti-paternalism'. Nonetheless, some scholars, notably Glaeser (2006), believe that soft paternalism may make things worse. One concern is that soft paternalism is less easy to observe than hard paternalism (such as excise taxes), and therefore less easy to control democratically. Another argument is that soft paternalism imposes an emotional tax on behavior, which generates no government revenues. The latter argument rightly reflects the view that soft-paternalism (and in fact any government intervention) should be applied only after a careful analysis of costs and benefits, should be based on a design that recognizes consumer heterogeneity, and should preferably be preceded by (small-scale) experiments.

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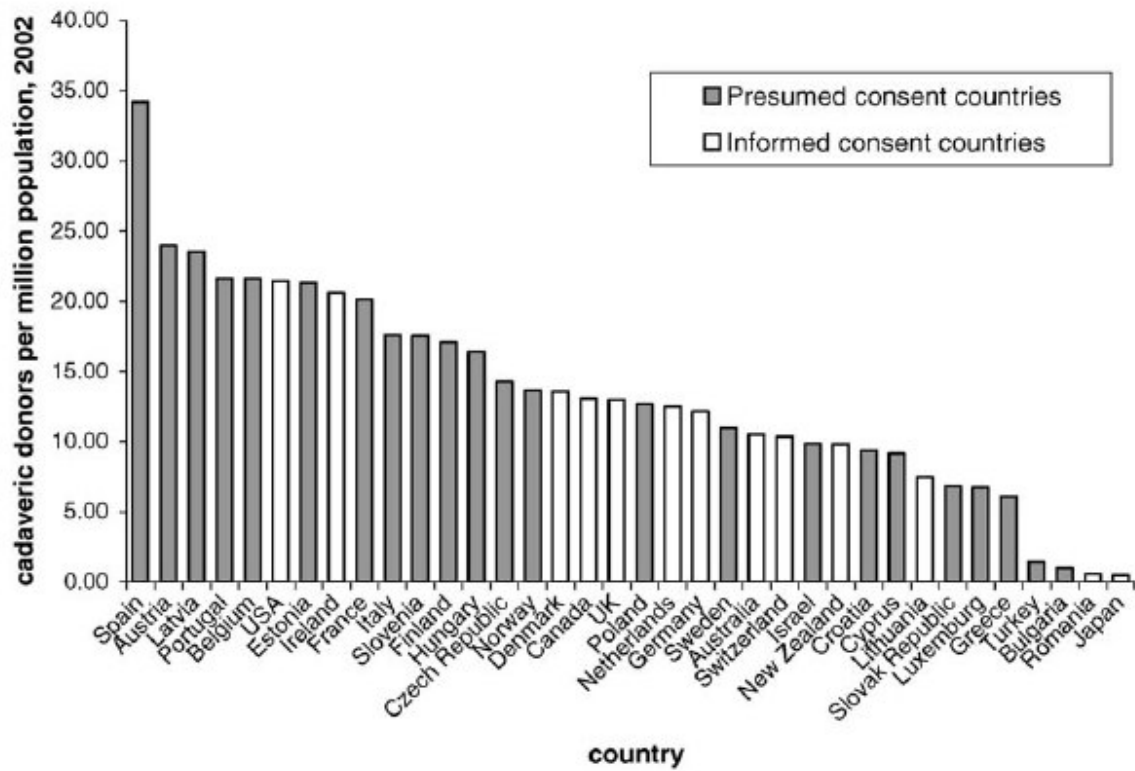


Figure 1App.: Cadaveric organ donation rates in 2002. Source: Abadie and Gay (2006)