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Participation and choice in funded pension plans

Guidance for the Netherlands from worldwide diversity

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DESIGN 55

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DESIGN PAPER 55

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PARTICIPATION AND CHOICE IN FUNDED PENSION PLANS

Abstract

This paper provides an in-depth comparison of funded pension savings plans around the world. The large variety in plan designs is a reflection of historical, cultural, and institutional diversity. We postulate a new classification consisting of four role models of funded pension plans, primarily based on choice architecture and type of regulation. We illustrate the features of each role model with twelve representative pension plan case studies from eleven countries. Valuable lessons can be learned from international best practices without making any normative comparison. The role models provide guidance in the Dutch orientation on pension plan redesign regarding participation and choice, linked to Dutch culture and practice.

1. Introduction

The Netherlands has witnessed a debate for years regarding the design of the funded second pillar pension plans. These plans stem from the 1950s, and their basic design still embodies features of traditional defined benefit plans, such as employment-based mandatory participation, lack of choice for individual participants, uniform accrual, and full annuitization. The primary orientation of this paper is to survey funded second pillar plans in other countries to situate the Dutch plan features in perspective. We postulate a framework to characterize the wide variety in funded plans worldwide, structured along key aspects of choice and participation regulation. This survey leads to a number of recommendations for plan redesign in the Netherlands regarding participation and choice, which are linked to Dutch culture and practices.

2. Pension system design

2.1 Worldwide diversity

Funded plans are usually an integral part of national pension systems, but their size, design and relation to other components of the pension system varies widely around the world. This diversity is remarkable as countries have comparable motives and aims in the design of national pension systems, among them poverty avoidance among the elderly, insurance of specific risks (such as inflation and longevity risk), and income redistribution (Barr and Diamond, 2008). Figure 2.1 lists potential explanations why, despite comparable aims, countries end up with diverse designs. Economic motives and objectives are helpful for explaining or rationalizing the initial establishment of pension plans, but they may fall short in accounting for the large differences across countries in the relevant features of these plans, such as their variation in size and in generosity and risk-sharing arrangements. The dissimilarities may also stem from specific historical events and cultural differences and how these differences have been imprinted over time in political institutions, democratic representation, and interest groups.[1]

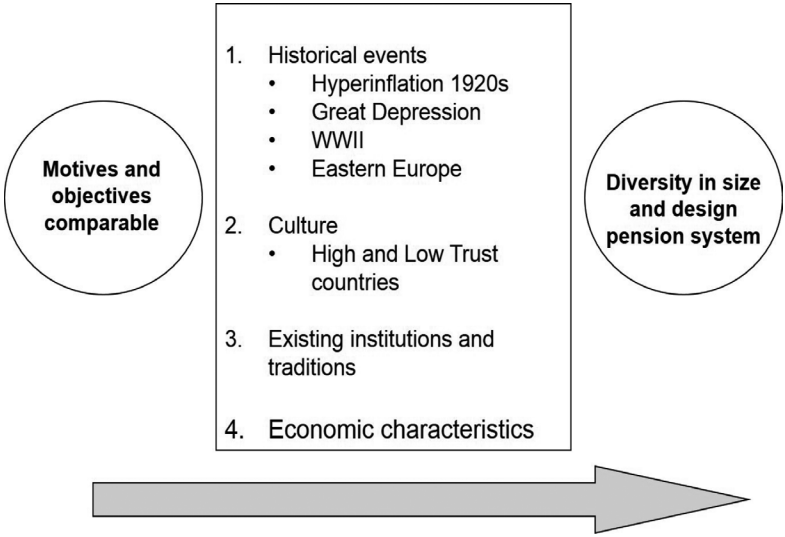
For Europe, an important explanation for diversity between countries may be found in the political preferences prevailing in the late 1930s and early 1950s, when most of the universal mandatory pensions in the developed countries were established (Perotti and Schwienbacher, 2009; Perotti and von Thadden, 2006). The severe economic shocks in the interbellum period may have had an effect on the political preferences prevailing

1 The literature on cultural determinants of pension design is limited. The reader is referred to Hofstede (1984), Aggarwal and Goodell (2013) and García-Huitrón et al. (2016).

at that time. Large inflationary shocks devastated middle class savings in a number of countries, among them the countries in Continental Europe which nowadays have large pay-as-you-go financing, such as Germany, France, Italy, and Belgium. The political majority shifted support away from pension savings and free markets to social insurance and a strong role for state intervention. First pillar pension plans are of the Bismarckian type, with the individual labor history as a main determinant of the pension benefit. Countries without severe war destruction and price shocks tended to rely more on savings, like Switzerland and the Netherlands, as well as the United Kingdom and its allies Canada, the United States, and Australia. These countries have a modest first pillar pension plan of the Beveridgean type, avoiding poverty for all residents in retirement. Workers build up supplementary pensions through the funded second pillar component. Scandinavian countries, with their extensive welfare programs, including pensions, are a totally different category (Hagen, 2013). With the pressure of population aging and the call for financial sustainability, the current trend is to move away from public unfunded plans with guarantees and social purposes towards private funded plans with more individual risk taking and accountability (Ebbinghaus and Whiteside, 2012).

In Asia and Latin America, historical events, culture and economic conditions all played a role in shaping the current pensions landscape to different degrees and at different times. Countries in these regions evolved from colonized to independent, carrying an institutional heritage that is still pervasive nowadays. This path dependency is apparent in the Provident Funds established in Asia. In Latin America, the European Bismarckian tradition exerted a significant influence in the first wave of reforms that started in the early 1920s. To a lesser extent, the Beveridgean

Figure 2.1: Worldwide diversity



approach did so in the 1950s and 1960s (Godoy and Valdes, 1994; Valdes, 2000; Ribe et al., 2012; Kaplan and Levy, 2015). Over time, distrust in the state's capacity to insulate the schemes against political manipulation, macroeconomic mismanagement, and the ensuing less than favorable economic conditions gave rise to a reform that became a focal point (i.e. the 1980 Chilean reform) not only for Latin America but also for other regions in the world (Orenstein, 2003). Nowadays the Bismarckian tradition is still dominant, but there is a renewed push towards a Beveridgean approach (Bosch et al., 2014; Kaplan and Levy, 2015).[2]

2 International organizations played a key role at different moments in Latin American pensions, but not so much in Asia (Orenstein, 2008).

Table 2.1: Four role models

Role model	Induced Choice	Regulated Choice	Delegated Choice	Centralized Choice
Case studies	New Zealand United Kingdom United States	Australia Chile Sweden (PPM)	Denmark Netherlands Sweden Switzerland	Singapore Malaysia
Individual choice	Maximal	Restricted	Delegated	Minimal
Participation	Voluntary	Mandatory	Quasi-mandatory	Mandatory
Government role	Design of behavioral architecture	Regulation of choice and competition	Enabling (discretionary) representation power	Enforcement of mandates

2.2 Characterizing funded pension schemes

In this paper we postulate a categorization of funded pension plans based on the choice architecture and the role of government in defining the reach of regulation across the lifecycle. Table 2.1 advances four role models and presents the cases in each model that we set to study in more detail in the rest of the paper.[3]

The rest of the paper describes each role model using a consistent framework. For each role model we delve into a list of choice dimensions during the accumulation and decumulation stages. This is preceded by a brief discussion of design aspects that we identify as unique to each role model, and we highlight design advantages and regulatory concerns identified by the specialized literature. The tables cited throughout the paper are in the appendix.

We aim to illustrate the features of each role model with twelve representative pension plan case studies from eleven countries.

3 A similar classification was also used by us in Lever et al. (2015).

We do not study their drivers but only note the observed correlation between the role models and their features. The selected case studies are representative of the four role models, but some overlaps and exceptions are unavoidable.[4] There is also some resemblance with previous categorization efforts by other authors. The closest is probably the classification in Bovenberg and van Ewijk (2012). These authors produced a general classification of earnings-related pension systems, capable of encompassing first, second and third pillars along several dimensions. Our classification is more specific, as it only focuses on *funded* pension plans and only looks at the *participation* and *choice* dimensions.[5]

4 With the advent of behavioral economics as a blueprint for economic policy and as more results from relatively young policy experiments (in New Zealand and the United Kingdom for example) become visible, it is to be expected that at least some elements of behavioral design will be introduced elsewhere.

5 In some settings, participation is also a matter of choice. In such cases it is useful to think of participation and individual choice as sequential aspects in a freedom-of-choice continuum. Our framework is consistent with this point.

3. The Centralized Choice Model

3.1 Institutional background

Among the four role models, the Centralized Choice Model exhibits the lowest degree of individual choice and the highest degree of direct government provision. Our sample includes Malaysia and Singapore, two pure examples of the Provident Fund approach.[6] Provident Funds (PFs) are typically structured on a fully funded individual defined contribution basis, whereby contributions are split into a number of sub-accounts and only a residual balance at a designated age serves to finance retirement.

PFs can be rationalized as an all-purpose savings platform, as they include savings for healthcare-related expenses, home ownership, precautionary protection, and tertiary education for children, aside from savings for retirement. This is a unique feature of this model. It endows participants with a one- stop-shop that is flexible enough to cater to different savings needs over the lifecycle. However, the available evidence points to a sober design that in most cases goes beyond pension savings (McCarthy et al., 2002; Koh et al., 2008). In terms of operation, central administration enables PFs to achieve low marketing and operating costs. Yet, their centralized and state-administered nature may also be their greatest weakness as they lack incentives to invest in financial innovation (Koh et al., 2008; Impavido et al., 2010) and are prone to political interference (Vittas and Skully, 1991; Valdes, 2000; Impavido et al., 2010).

6 Note that not all the countries that follow a Provident Fund approach would fall under the Centralized Choice Model. Hong Kong is a case in point, where the design resembles more that of the Regulated Choice Model. On the other hand, it is hard to find countries outside the Provident Fund tradition that would fall within our definition of the Centralized Choice Model.

3.2 Participation and choice during the accumulation stage

In the Centralized Choice Model, the state mandates participation in the pension scheme and monopolizes the provision of pension services. In Singapore the *Central Provident Fund* is the main administrator. Malaysia has more than one provident fund, but the *Employers Provident Fund* is the largest.[7] Participation is mandatory and coverage is relatively high at around 85 percent (Clements et al., 2013). Individual choice in the accumulation stage is scant in this role model (see Table A.1). Since 1996, CPF members can opt to invest some of their balances in approved equities directly or via unit trusts. About half of all participants make an active choice in this regard (Queisser and Whitehouse, 2003).

Liquidity options

PFs are flexible in one respect, namely in that tax-free withdrawals are allowed during the accumulation phase for a range of specific purposes. Given the similarities of the withdrawal schemes in both countries (see Table A.2), we only focus on the case of Singapore. For more details on Malaysia the reader is referred to Holzmann (2014). Singapore operates what is closest to a *feeder-fund model*, in which individuals contribute to an individual account savings product with liquidity options.[8] The two programs that attract the most withdrawals are housing and

7 The analysis is based on the Employers Provident Fund, which services around 85 percent of the covered population.

8 Beshears et al. (2015) classified the Singaporean pension scheme as one that bans liquidity options. This is only the case in the very specific context of the type of withdrawals these authors set to study, which in the case of Singapore does not exist. In the broader context of the options that do exist in Singapore, liquidity may be one of the main features of the scheme, as mentioned in the text. We thank John Beshears and co-authors for discussion and clarification of this issue.

healthcare.[9] In Singapore, most individuals withdraw money under these schemes before retirement and are left with a diminished balance for retirement purposes. According to data presented by Koh (2014), only one-sixth of the total contribution rate of 36 percent effectively ends up to finance retirement for the average participant.

Singapore has been criticized for creating an *asset-rich but cash-poor phenomenon* (McCarthy et al., 2002; Chia and Tsui, 2003; Asher, 2000, 2013).

3.3 Choice during the decumulation stage

Holzmann (2014) points out that most British expats return to the UK, so that it only makes sense for them to receive a full lump-sum to finance retirement in the UK (e.g. to purchase an annuity and/or a house). This practice is still prevalent in Commonwealth countries to different degrees. Lump-sums are for all practical purposes the only disbursement option in Malaysia (see Table A.3). Singapore has added more structure to its decumulation phase over the years. Currently, a combination of a lump-sum payment and a deferred annuity is compulsory.[10] Table A.3 also shows the levels of annuitization in these countries. It is not surprising that there is no annuitization in Malaysia. The low take-up in Singapore may seem puzzling but not so when considering two design elements:

1. *Retirement adequacy is not the only objective of the Singaporean social security system*. The system allows for a series of withdrawals during the accumulation stage, such as

9 For details see García-Huitrón (2014); Adriaansen (2014); Li (2014) and the online appendix in Beshears et al. (2015).

10 This scheme applies for members born after 1957 and is called CPF Life. Members that do not fall under CPF LIFE receive a phased withdrawal over about 20 years or until the balance is exhausted.

for death and disability insurance, catastrophic medical care, housing, and education.

2. *Only participants with a minimum required balance can access the decumulation product defined by regulation*. Indeed, the Central Provident Fund regulates how retirees can access their money via the Minimum Sum Scheme (MSS). Asher (2013) reports that in 2011 only 45 percent of active members were able to set aside the required MSS.

Partial lump-sum design

Retirees in Singapore have free access to their individual account balance in excess of the minimum amount designated for retirement options (i.e. the MSS), free of any tax.[11] In Malaysia only a lump sum is available at retirement. Specifically, participants can withdraw up to 30 percent of their pension savings upon reaching the age of 50, and everything else by the age of 55.

3.4 Behavioral architecture

To the best of our knowledge, behavioral design is absent from the case studies representing the Centralized Choice Model.

11 Individuals can withdraw up to a predefined amount (currently SGD 5,000) even if they are unable to set aside the full MSS.

4. The Delegated Choice Model

4.1 Institutional background

The occupational second pillar pension plans in Denmark, the Netherlands, Sweden, and Switzerland are our examples of the Delegated Choice Model. In these countries, individual decisions are subsumed at an institutional level by trade unions and employers, also known as the "social partners." The social partners are enabled to act on behalf of individual workers and retirees based on legal rules set by government.[12] It can be said that these *agents* "aggregate the preferences" of their *principal* constituents and, in turn, negotiate a "pension contract" that reflects such preferences.[13] Therefore, in principle, individual choice can be part of the pension contract agreed by the social partners. In practice, most decisions are *delegated* to a pension fund owned by these representatives or to a procured asset manager or insurance company that is under the fiduciary duty to act in the best interests of participants. These schemes are not exempt from agency issues. Therefore, a robust governance framework is essential for the proper functioning of the system (Sharpe, 1981; Van Binsbergen et al., 2008; Stewart and Yermo, 2008).[14]

12 A high level of trust among these partners plays a key role for the functioning of the system (Hofstede, 1984; García-Huitrón et al., 2016).

13 The social partners are not only responsible of negotiating a pension contract. They are also entrusted with the task of ensuring the proper execution of such a contract, and, when circumstances change, to review and re-negotiate the agreement. This renegotiation process can have profound consequences on the quality of pensions and the welfare of different generations, even those that had not born yet, and must therefore be conducted in a diligent and highly professional manner.

14 We could track the concept of "demand aggregation" to Valdes (2002), where the author used it, to the best of our knowledge, for the first time, to describe pension decision making.

Because of this preference aggregation process, tackling heterogeneity is increasingly perceived as a challenge (Bovenberg and Nijman, 2009; Nijman, 2014). This is clear in recent discussions in the Netherlands.[15] However, the cases of Denmark, Sweden, and Switzerland have over time made room for individual choice, although even in these cases the guidance role of the social partners is still strong. Bovenberg and Nijman (2009) argue that the social partners facilitate sound lifecycle planning on behalf of individuals, who are prone to behavioral bias and cognitive constraints in the face of very complex intertemporal financial decisions under uncertainty. The mandatory or quasi-mandatory nature of participation and the enforcement at industrial, occupational or professional level reduces marketing costs, which in turn leads to low operating costs.

There are at least three specific characteristics of pension providers relative to counterparts in the other three role models. First, pension plans are mostly (though not exclusively) not-for-profit. Second, they provide services during the entire lifecycle of participants, from savings for retirement to benefit payments upon retirement. Third, these pension plans are increasingly hybrids, mixing elements of defined benefit and defined contribution risk-sharing arrangements. According to Bovenberg and Nijman (2009), these design features facilitate advanced risk management, enable the completion of financial markets by allowing participants to internally trade their human capital value, and allow participants to reap the benefits of risk sharing (Cui et al., 2011; Gollier, 2008).

15 The Goudswaard Committee in 2010 advocated the search for possibilities to match heterogeneous preferences, within the boundaries of collective plans and reasonable execution costs. See also Bovenberg and Nijman (2015).

4.2 Participation and choice during the accumulation stage

Participation is mainly enforced through collective labor agreements, hence the term "quasi-mandatory" (Queisser and Whitehouse, 2003). This has led to very high levels of employee coverage. Yet, the increasing number of self-employed workers and the parallel decrease in the number of unionized workers pose a challenge to this outcome (Boeri et al., 2006). Indeed, a main weakness of the Delegated Choice Model is the low coverage outside the domain of the social partners. For instance, the coverage of Dutch workers is around 90 percent, which has been very stable over the years. This implies that around 10 percent of workers have no pension plan.[16] In Denmark that figure is around 15 percent.

A glance at Table A.1 may indicate that the extent of freedom of choice embodied in the pension contracts is limited in the four case studies. Indeed, besides choosing the pension provider on behalf of participants, the social partners agree on contribution rates, indexation, and investment strategies. Table A.1 shows that occupational plans in Sweden give members relatively more degrees of freedom in that they can transfer their accumulated pension rights to a provider different from the initial choice made by their employer and can also choose among a family of investment options offered by these providers. It works as follows (Bovenberg et al., 2015): the social partners establish central agencies in charge of selecting and negotiating with potential

16 A significant trend in the Netherlands is the growth of the self-employed sector. Many self-employed persons have inadequate pension savings. This is because of behavioral failure but also because of the fierce competition in the labor market, where self-employed persons without pension contributions are able to expel employees who participate in industry-wide pension plans (IBO report, 2015). This is an important issue in the Dutch debate on pension reform.

providers the conditions for services to be provided. These agencies organize the collection and redistribution of contributions to the chosen providers. Participants are allowed to change provider, although some pension contracts establish transfer rules. Each year, around 15 percent of participants change providers (Rocha et al., 2011).[17]

Liquidity options

The Netherlands and Sweden do not allow withdrawals before retirement, while Denmark and Switzerland allow them under different rules. Denmark follows the *permanent withdrawal model*, with no repayment facilities. This is consistent with very narrow valid grounds to apply for funds and with heavy taxation (60 percent). Switzerland runs a *loan and repayment* model strictly for housing loans. It is also possible to use second (and third) pillar savings as collateral for loans.[18]

4.3 Choice during the decumulation stage

Table A.3 shows that the Netherlands is alone in mandating full annuitization at retirement. Furthermore, the mandate to purchase a life annuity in the Netherlands applies to the three pillars of the pension system. In Sweden it is also mandatory to acquire an annuity but only for a minimum period of five years, after which a full lump-sum can be obtained. Denmark and Switzerland are more facilitating, allowing full withdrawal of pension capital at retirement. Table A.3 also provides information on the take-up rate of retirees who fully annuitize their pension

17 Bovenberg et al. (2015) describe the case of ITP1 for the interested reader.

18 For a detailed account of these options in Switzerland see García-Huitrón (2014); Adriaansen (2014); Li (2014).

savings.[19] In Sweden, participants can withdraw pension savings five years after retirement. The periods chosen most range from 10 to 20 years (Bovenberg et al., 2015; Rocha et al., 2011). Denmark is again a middle table case with about half of workers annuitizing at retirement.[20] In this country a wide array of decumulation products is allowed by regulation: life annuities, term annuities, unit-linked annuities, phased withdrawals, and lump-sum payments. Some plans offer different combinations of these products.

Switzerland exhibits a high level of annuitization, in spite of the availability of a range of options including lump sums (Bütler, 2014). This contrasts with the lower take-up rate in Denmark and Sweden.[21] This is surprising considering that the first pillar pension in Switzerland provides for one of the highest percentages of pension wealth in the sample (OECD, 2013). The high annuitization rate has been related to the cultural attitudes of Swiss workers, who are financially conservative and prefer guaranteed incomes for life (Bütler and Teppa, 2007).[22]

Partial lump-sum design

Denmark, Sweden, and Switzerland allow for PLS in the menu of decumulation options, while a decumulation option is precluded in the Netherlands by regulation. Denmark has no mandated design for PLS other than that it is not possible to take the full

19 An aspect that is important to bear in mind when comparing these countries is the design of the first pillar benefit. Denmark, Sweden and Switzerland means test it, whereas the Netherlands does not.

20 The annuity take-up rate in Denmark is 50 percent, with 35 percent being devoted to phased withdrawals and 15 percent to lump-sums.

21 The annuity uptake in Switzerland is on average 80 percent and, although there is a lot of variation by plan, minimally 40 percent (Bütler, 2014).

22 The choice architecture in Switzerland may also be part of the rationale, as explained in section 4.4.

pension capital as cash (Rocha et al., 2011). In Sweden, pension assets must be converted into an annuity, with a minimum payment term of merely five years, in order to enjoy the fiscal benefits attached to contributions during the accumulation stage, after which the member can take out his or her pension assets (Bovenberg et al., 2015). In Switzerland, pension funds are required by law to allow at least 25 percent of pension savings to be taken as a lump sum; some plans, however, establish a maximum of 50 percent (Bütler, 2014).

In the Netherlands, within the compulsory annuity rule, recent reforms have introduced some flexibility through the *high–low options*, which allow individuals to select a preferred payout profile (Nijman and Brown, 2012; García-Huitrón, 2014; Peeters, 2014). Individuals are also allowed to retire earlier than the formal retirement age. When aiming at a flat payout profile during their retirement, then the high-low facility of the pension fund can be used. The benefits in the period before the formal retirement age will then stem from the pension fund, while the benefits after retirement stem from the public plan (AOW) and the pension fund. The high-low profile must meet the requirement that the ratio of high/low benefit payments does not exceed 100/75.

4.4 Behavioral architecture

Table A.5 conveys two messages regarding behavioral architecture in the Delegated Choice Model. First, the Netherlands is the only country with no clear behavioral design.[23] Second, behavioral design is found either in the accumulation or the decumulation stage, but not in both. In Sweden, the social partners via the central agencies (described in section 4.1) select a default asset

23 This is consistent with the analysis in Bodie and Prast (2012) and Nijboer and Boon (2012).

allocation and a provider for inactive participants. Around two thirds of participants are in the default (Bovenberg et al., 2015). Switzerland has three salient behavioral design features (Bütler and Teppa, 2007):

1. *Defaults*: although Swiss workers can choose from a menu of products (a fixed nominal (joint-survivor) life annuity or a lump sum) to combinations of these two options, the default option is an annuity in most pension plans.
2. *Framing*: annuities are marketed under a consumption frame rather than an investment frame.[24]
3. *Timing of the decision*: In case a lump sum is taken, workers have to give notice three years in advance of their decision to the fund.[25]

Two of these behavioral design elements are also present in Denmark, but the difference with Switzer- land is that the decision to annuitize is made much earlier in the accumulation process. It is possible subsequently to change a lump sum or programmed withdrawal choice into a life annuity, but the reverse is not allowed.

24 If annuities are framed as investments, they are considered a risky asset whose payoff depend on the uncertain lifespan length (Brown, 2008). For a clear exposition of these concepts see Holzmann (2015a).

25 Early decision regulations help long-term preferences to prevail by allowing consumers to partially commit to their long-term goals, making it harder for a momentary impulse to reverse past decisions (Beshears et al., 2006).

5. The Regulated Choice Model

5.1 Institutional background

Our sample for the Regulated Choice Model comprises the second pillar plans of Australia and Chile, as well as the funded defined contribution component of the first pillar in Sweden, originally called Premium Pensions Model (PPM). These schemes mandate participation and rely on market competition as well as freedom of choice, but only within certain boundaries defined by regulation. The administration is typically decentralized to private sector providers which are mostly, but not exclusively, for-profit.

The Superannuation Guarantee, as the second pillar is called in Australia, is a fully-funded, defined contribution individual accounts system with mandatory participation.[26] Contrary to the Chilean and Swedish PPM, however, enforcement works at multiple levels: (i) corporate; (ii) occupational; (iii) public sector; (iv) retail; (v) small Australian Prudential Regulatory Authority (APRA) funds; and (vi) self-managed. All superannuation funds are set up as trusts with the sole purpose of providing retirement income (Reserve Bank of Australia, 2014). The provision of pension services in Chile is also conducted by sole-purpose private sector providers, but they operate on a national basis. Participants are mandated to purchase services from a variety of providers in competition with one another. Chile has two unique features regarding providers (García-Huitrón and Lundbergh, 2014) (i) Chilean legislation requires pension funds to be registered as joint stock companies, which precludes a not-for-profit motive, and (ii) there is a strict separation between companies that own a bank or an insurance company and pension funds.

26 More than 90 percent of schemes operates under DC principles.

The combination of choice and market competition has raised industrial organization concerns from policymakers, particularly in Australia and Chile (Cooper, 2010; Impavido et al., 2010). The Swedish PPM has become an international reference, in part because it has overcome these pitfalls, achieving competition at low fees for participants (Impavido et al., 2010; Diamond, 2011). The Swedish PPM configuration separates the provision function with its high fixed costs and economies of scale, such as the administrative, operative, and collection functions, from the investment management function (Impavido et al., 2010). The former functions are centralized and managed by the Swedish Pension Agency –which in turn relies on the Swedish tax administration authority to collect contributions – while the latter function is open to private competition. The only responsibility of pension fund providers in Sweden is to invest the funds during the accumulation phase, so that they do not incur marketing expenses. Indeed, the Swedish Pensions Agency is their only client. Low costs are transferred to participants through price ceilings, negotiated fee discounts, and a competitive tendering process administered by the Swedish Pensions Agency. This industrial configuration contrasts with that of Australia and Chile, where these functions, which involve different degrees of economies of scale, are integrated, and where providers are not account blind and individuals lack a representative body to collectively negotiate with providers. Yet, "too much choice" has been problematic in the Swedish PPM case (Cronqvist and Thaler, 2004; Thaler and Sunstein, 2009).

5.2 Participation and choice during the accumulation stage

Participation is typically mandatory, but coverage levels vary from very high levels (over 90 percent of the labor force) in Australia

and Sweden to around 60 percent in Chile. The occupational enforcement of the mandate, as well as an integral approach to increase participation by the self-employed in Australia[27] and the first-pillar nature in Sweden's PPM, may explain the former, while structural factors such as weak enforcement, informality, and the dynamics of the labor market may explain the lower percentage in Chile (Bosch et al., 2014; Frolich et al., 2015; Ribe et al., 2012). The extent of individual choice is broader in Australia and Sweden than in Chile. Chileans are free to transfer to another pension fund administrator at any time.[28] Also, participants have limited portfolio choice among a family of five investment funds, within the same provider.[29] Workers may freely choose up to two funds to allocate their pension savings and can switch to riskier funds; an exception applies to participants close to retirement, who cannot select the most aggressive fund. Participants in the superannuation system have potentially greater freedom than in Chile. They can choose from near 600 superannuation entities. The figure is even higher in the Swedish PPM. At the end of 2014, 805 funds were offered by 104 managers (Swedish Pensions Agency, 2014). Individual choice is restricted to up to five funds with unfet-

27 In Australia, participation by the self-employed has been facilitated by a holistic approach involving the Internal Revenue Service and a special tax regime for such workers. More specifically, the concept of a "self-managed superannuation fund" (SMSF) was created to facilitate enrollment by the self-employed. These funds are directly regulated by the Australian Taxation Office, as opposed for instance to corporate or occupational plans, which are regulated by the Australian Prudential Regulation Authority. SMSFs are the fastest-growing segment of the Australian superannuation industry, accounting for almost one-third of total assets under management in the Australian superannuation industry, up from 9 per cent in 1995; this is equivalent to a little over 30 percent relative to GDP. In June 2014, the total number of SMFSs was over one million, or about 8 percent of participants in the system.

28 The only exception are participants who are winners of an auction run biannually by the government (Berstein et al., 2009).

29 Each fund has its own quantitative limits in asset classes, following a life-cycle structure. See Berstein (2010).

tered switches, and undecided individuals are assigned a default option that is designed to replicate the average asset allocation observed before being allowed to select their own portfolios.

Liquidity options

Only in Australia are savings accessible before retirement. Chile and Sweden are inflexible in this dimension, as shown in Table A.2. Australia offers two possibilities. First the *permanent withdrawal model* for all types of superfunds and all participants and, second a *loan and repay* that is only available for self-managed funds. Regarding the first one, although retirement savings are required to be "preserved"– that is, not used by the worker until a "preservation age" currently set at 55 years – withdrawals are allowed on "compassionate grounds." The amount that the individual can withdraw is discretionary and limited to what is "reasonably needed." Only a terminal medical condition is reason for a tax waiver; otherwise the withdrawal is taxed at the marginal income tax rate. Since 2007 there is also a *loan and repay* scheme, which allows self-managed fund members to borrow from pension savings to purchase an asset under limited recourse conditions.[30] According to the Reserve Bank of Australia (2014), this is one of the main drivers of the increasing share of self-managed funds in total pension assets.

5.3 Choice during the decumulation stage

As shown in Table A.3, Australia, Chile and Sweden differ in the design and outcomes of the decumulation phase. In Sweden, annuities are the only option. This is to be expected as the PPM

30 There are also business tax concessions that may influence small business owners to transfer business property into self-managed funds. For more details see Reserve Bank of Australia (2014).

is part of the first pillar. Participants can choose between single and joint life and between fixed and variable rate annuities. In turn there are two types of products: conventional insurance (life annuities) and fund insurance (unit-linked annuities).[31]

Australian retirees may choose between a lump sum and an annuity. Lump-sum payments are the most chosen payout, reaching a little more than 50 percent of total benefits paid. Clements et al. (2013) relate this to historical grounds, strong preferences for flexibility among the population, and remaining mortgage and other debt at retirement. Disney (2009) and Bateman et al. (2014) add that there are strong behavioral interactions between the design of the first pillar benefit and the taxation of pension benefits.[32] There is also some variation by type of fund. For instance, for self-managed funds the uptake of income streams is as high as 70 percent (Reserve Bank of Australia, 2014). Contrary to Australia, the annuity market in Chile is notably developed. At least half of Chileans annuitize at normal retirement age, and the figure reaches almost 100 percent for early retirees. Rocha et al. (2011) and Holzmann (2015a) attribute this to a competitive, efficient, and transparent design.

Partial lump-sum design

Partial lump sums (PLS) are freely allowed in Australia and with some restrictions in Chile. PLS are not on the menu in Sweden's PPM scheme.[33] In Australia there is no legal guidance on PLS other than that individuals are free to choose any percentage of

31 For a description of these products see Swedish Pensions Agency (2014) and Bovenberg et al. (2015).

32 Indeed, the first-pillar means test discourages the use of second pillar savings as a stream of resources over retirement while incentivizing early spending, sometimes on means-test-exempt owner-occupied housing.

33 PLS are only offered in third pillar schemes in Sweden. For details see Rocha et al. (2011).

the pension pot, from zero to 100 percent, in cash. Lump sums are subject to tax only when originating from untaxed savings. Chilean retirees can get a PLS only if the remaining balance in the individual account is sufficient to finance a pension equal to at least 70 percent of the average real wage of the worker in the ten years preceding retirement and to at least 80 percent of a non-contributory pension level of reference called "maximum pension with solidarity support." This design is called *free-surplus disposal* (Valdes, 1998). The partial lump sum is tax -free up to a limit. Every year around 15,000 participants get a free-surplus withdrawal.

5.4 Behavioral architecture

Australia, Chile and Sweden have recently added default options for inactive participants. In the case of Chile, workers who do not make an active portfolio decision are assigned since 2002 to a default fund that follows a lifecycle structure geared at de-risking savings, using step-wise deterministic rules towards the retirement age. At inception around 90 percent of participants were assigned to the default fund. This figure has receded recently to around 60 percent (Superintendence of Pensions, 2014). Automatic enrollment was introduced for a limited period of time (three years) for self-employed workers in a certain tax category. In the case of Sweden's PPM, the default fund, called Seventh National Pension Fund, AP7 Safa, is based on a lifecycle structure. Currently more than 90 percent of all new entrants to the PPM end up in the default fund.

Australia recently introduced MySuper, a regulatory platform that replaced all previous default investment products. MySuper is not a centralized national default scheme but a set of principles to regulate and homogenize existing defaults in the superannuation

industry, plus a package of incentives to promote the supply of such default product solutions (Cooper, 2010). Since 2003, Australia also has a targeted matching contribution scheme called the Superannuation Co-contribution Scheme (OECD, 2012). It provides dollar-for-dollar matching contributions from the government for low-income earners who make additional contributions to their superannuation fund, up to a maximum. The target population for co-contributions is individuals who, during the previous financial year, lodged an income tax return, were under 71 years of age, whose total income was below the maximum threshold, and whose eligible income was at least 10 percent of total income.

6. The Induced Choice Model

6.1 Institutional background

New Zealand's KiwiSaver, the UK's second pillar pension plans (of which the National Employment Savings Trust (NEST) is a salient reference), and the United States' 401(k) plans are our selected examples of the Induced Choice Model. In these pension schemes, freedom of choice is at its maximum, but there is a clear implicit preferred option which is not imposed but rather steered through a background behavioral architecture consisting of defaults, framing, commitment devices, early-timing decision frameworks, etc. The design is typically supplemented by traditional "carrots, sticks and sermons" policy tools (Bemelmans-Videc et al., 1998), such as taxes, subsidies (matching contributions), and the provision of information and financial education (Holzmann, 2015b).

There is a growing stream of literature showing the importance of insights from behavioral economics for pensions.[34] The upshot is that pension decision-making is prone to behavioral biases, such as anchoring, loss aversion, myopia, overweighting of unlikely events, procrastination, status-quo bias, and time inconsistency (Beshears et al., 2012; Bodie and Prast, 2012; Nijboer and Boon, 2012), that can be mitigated or even taken advantage of in a welfare-enhancing fashion through the behavioral toolkit, while preserving choice (Thaler and Sunstein, 2009; Karlan, 2010; Impavido et al., 2010). Thaler and Sunstein (2009) call these type

34 See for instance Barberis and Thaler (2002); Camerer et al. (2004); Blake (2006); Mitchell and Utkus (2006); Benartzi and Thaler (2007); Tapia and Yermo (2007); Barr and Diamond (2008); Thaler and Sunstein (2009); Karlan (2010); Beshears et al. (2012); Bodie and Prast (2012); Nijboer and Boon (2012); Madrian (2014); Holzmann (2015b) and the references therein.

of interventions "libertarian paternalism."[35] According to OECD research, a behavioral design not only has the potential of being effective in assisting pension decision-making, but outcomes may be achieved at low cost (OECD, 2012, 2014).

6.2 Participation and choice during the accumulation stage

Table A.1 corroborates the fact that participants are able to take control of every lever in their pension plans, should they be willing to do so. In contrast to the three previous role models, even participation is a matter of choice. In spite of low coverage rates, there is a growing body of literature documenting the positive effect of automatic enrollment on participation rates at company level in the 401(k) plans, as well as increasing evidence of an upward tendency in enrollment in New Zealand and the United Kingdom (OECD, 2012, 2013).[36]

The 401(k) plans exhibit the most flexible design, which typically includes a target replacement rate. Freedom of choice in the KiwiSaver is reflected in three dimensions. Fist, members can choose their own provider, be nominated for one by their employer, or be allocated to a default scheme by Inland Revenue. The proportion of those choosing their own scheme has gradually increased, from 49 percent in 2008 to 67 percent in 2013 (OECD, 2014). Second, members can choose to contribute 3, 4 or 8 percent of wages. The default rate is 3 percent and corresponds to the minimum an employee should contribute. Third, there is a range of investment funds to choose from, or again, a default is

35 More broadly, it is called "soft" paternalism, to distinguish it from "strong paternalism" that is associated more with the type of intervention reviewed in the Regulated Choice Model.

36 For New Zealand and the United Kingdom it is also important to bear in mind that the automatic enrollment reforms are either very recent or being introduced only gradually.

followed. The same degree of freedom is observed in the United Kingdom.[37]

Liquidity options

The New Zealand and United States second pillar plans are flexible in terms of liquidity. KiwiSaver runs a *permanent withdrawal model*, while the 401(k) plans allow withdrawals under a *loan and repay model*. Early access to pension savings was recently rejected in a public consultation in the UK on the grounds of lack of firm evidence on its effects on total savings (H. M. Treasury, 2010).

KiwiSaver allows for withdrawals to face contingencies before retirement age in three circumstances: at first-home purchase, provided that there is at least a three-year contribution history[38]; when emigrating to any country but Australia; and in case of financial hardship. In the United States, the specific design of the withdrawal schemes is the prerogative of the 401(k) plan sponsor (Lu et al., 2014). 401(k) loans are typically available for primary home purchase, higher-education costs, prevention of eviction or home repossession, severe financial hardship, and medical expenses.[39]

6.3 Choice during the decumulation stage

None of the three case studies mandate full or even partial annuitization. Participants in the three jurisdictions covered are allowed to fully withdraw their pension savings at retirement. In

37 Although there are no apparent differences compared to the KiwiSaver in Table A.5, these schemes actually differ in their fine-print. For a full comparison see Pensions Policy Institute (2012) and OECD (2014).

38 Withdrawals are limited to current value of the premiums, net of government incentive payments.

39 For more details on the design see Slemrod and Bakija (2008) and Beshears et al. (2014).

the KiwiSaver, the only alternative to a full lump sum is a simplified drawdown. Table A.3 reports a very low annuity take-up in New Zealand. The first KiwiSavers retired in 2012, but even if participants wanted to acquire an annuity, there is barely a private annuity market in New Zealand (St. John, 2009).

The United States institutional setting is that the first pillar has low relative importance as a percentage of the total pension benefit, and second pillar savings are not mandatory. There is no *compulsory* decumulation arrangement in 401(k) plans. According to Gale (2008), less than 2 percent of savings are taken in the form of annuities. The United Kingdom recently enacted a package of reforms that revamps the design of the decumulation phase. Among other measures, the reform completely liberalizes the decumulation phase by allowing individuals to take up their pension savings at once at retirement at no tax surcharge. This is a radical move because the UK is one of, if not the most developed annuity market in the world. There is thus a tension between the recent reforms and the historically outstanding 80 percent annuity take-up rates reported in Table A.3.

Partial lump-sum design

In New Zealand, partial lump sums are not allowed. Individuals must take a full lump sum at retirement if they want to take up their pension savings. PLS can be taken in the United States, with potential tax facilities if coming from a tax-deferred source. In the case of the UK, from April 2015 onwards, all restrictions on accessing *private DC savings* are being phased out, so that anyone aged 55 or older can access their savings as a lump sum without facing any additional tax charge at the marginal rate.

6.4 Behavioral architecture

The KiwiSaver, the 401(k) plans, and the recently introduced NEST scheme in the UK are widely cited as case studies on how to use behavioral economics to encourage participation and savings in a voluntary pension plan. The behavioral design in KiwiSaver, the 401(k) plans, and more recently in NEST applies only to the accumulation stage. These case studies probably being the par-excellence examples of behavioral architecture in the pensions domain, this lack of consistency is notable. Probably the most salient aspect in the design related to behavioral economics is the use of defaults.

Participation in these plans is voluntary but is encouraged through automatic enrollment with an opt-out option. A set of further behavioral features is put in place to encourage individuals to stay in instead of dropping from the scheme. KiwiSaver spotlights five other elements besides automatic enrollment:

> (i) automatic enrollment is not the only way to join the KiwiSaver; (ii) the opting-out decision is revocable; (iii) premiums to KiwiSaver represent liquid savings (see section 6.2); (iv) after 12 months of membership, participants may take a "contribution holiday"; and (v) participation is subsidized (OECD, 2012, 2013).

The NEST in the United Kingdom offers target date funds to its members as a default. It has also adopted a life-cycle strategy involving an innovative "foundation" phase in which limited risk is taken to avoid early losses, precluding individuals from giving up on savings too soon because of loss aversion. The behavioral design in the 401(k) plans beyond automatic enrollment and the ancillary matching contributions is more scattered than the KiwiSaver or NEST. This is because in the latter case the architec-

ture is set by government at a centralized national level, while in the former, it is employers who set it up. Nevertheless, our reading of the specialized literature is that a growing number of plans are introducing the "Save More Tomorrow" type of design: lifecycle asset allocation defaults as well as "nudges" in the workplace to facilitate financial planning (Poterba, 2014).

7. Final remarks and recommendations

7.1 Role model classification

There is considerable diversity in pension savings plans around the world. This mirrors historical, cultural and institutional diversity. Across this variety, we propose a new classification to study the extent of individual choice in funded pension systems, plus the background role of government in shaping the different choice options, each with prominent features:

1. The *Centralized Choice Model*, characterized by mandatory participation and state-monopolized provision. The case studies show examples of flexibility to cater for needs over the lifecycle, but also of the importance of incorporating adequacy in the design. Central administration ensures low marketing and operating costs, but incentives to innovate are low and there is potential for undue political interference.
2. The *Induced Choice Model*, exhibiting the highest degree of freedom of participation, pension savings, and decumulation. Reliance on individual choice in pension plans has resulted in low participation rates and insufficient savings. This is being addressed through the use of a marked behavioral architecture that tackles individual heterogeneity without neglecting freedom of choice. The results of these efforts are encouraging so far, but also too recent to claim hard lessons.
3. The *Regulated Choice Model*, based on compulsory periodical savings and competition among private sector providers. This model offers an example of well-structured choice options, with partial tackling of the heterogeneity of participants. Yet, choice has proved complex for individuals, and the competitive dynamics of pension administrators have turned out to be hard

to tame, leading to less-than-desired outcomes for the final customer.

4. The *Delegated Choice Model*, where the government empowers individuals to delegate plan design responsibilities to representative agents. Pension plans are characterized by high replacement ratios, high coverage ratios and low marketing costs, but addressing heterogeneity and agency issues are key challenges.

We are deliberately reluctant to make normative comparisons between the four role models. A universal conclusion as to the ideal balance between choice and participation, applicable to all countries at all times, is not realistic as countries differ in terms of culture, history and existing institutions.[40] Nevertheless, we believe that there are valuable lessons to be learned from the international experience. We develop some of them in the next section, in the context of main themes in the Dutch discussion on redesign of funded pension plans in the second pillar, that we have alluded to throughout the paper: lack of choice in existing pension fund contracts, homogeneity in pension solutions, and lack of pension coverage and adequacy outside the domain of the social partners.

7.2 Recommendations for the Netherlands on choice and participation

All in all, countries that operate with the Delegated Choice Model fare well in international comparisons regarding adequacy and cost-effectiveness, and (except for the Netherlands) they all achieve a fine balance in choice and pre-designed product

40 Barr and Diamond (2008) have forcefully argued that in pension design there is no one size that fits all. Therefore any search for an optimal pension system is deemed to be a futile exercise, a maxim that we adhere to.

profile.[41] The Netherlands is at the eve of a substantial reform that most probably will lead to individual plans. In this context we make two recommendations based on our international survey regarding participation and choice: (i) upgrade the governance design based on features from the Delegated and Induced Choice Models; (ii) re-invent the role of quasi-mandatory participation in the Dutch Delegated Choice Model.[42]

7.2.1 Individual choice and governance

From our international review we learn that the governance mechanisms surrounding the choice architecture are of utmost importance to ensure a desirable outcome. We focus on two aspects of freedom of choice: choice of provider and choice of products.

Choice of provider

Provider choice is a central component of the Regulated Choice Model. It will inevitably lead to some form of competitive dynamics in the pensions sector, but this has proved problematic in the international experience of, for example, Australia and Chile. It is apparent from our survey that the governance design pursued by jurisdictions in the Regulated Choice Model may not work as expected, as consumers do not have enough clout when interacting in the marketplace with sophisticated, typically profit-

41 Countries in the Delegated Choice Model also do not face the problem of lack of integration between the accumulation and decumulation stages that is seen in all other models.

42 See also Ponds (2015) and García-Huitrón and van Leuvensteijn (2015).

driven, pension providers[43]. It is also apparent that this imbalance has been avoided in some jurisdictions of the Delegated Choice Model by inserting a fiduciary intermediary (i.e. the social partners) that negotiates collectively with providers, sets transfer rules and offers guidance, among other fundamental responsibilities. This evidence suggests that the role of a fiduciary intermediary should be preserved when moving to individual plans, and should be improved along the lines of, for example, the Danish and Swedish cases.

Choice of products

In spite of its inherent complexity, individuals value freedom of choice in pensions, particularly the sense of control that it provides. As pension contracts enfold from a collective into a more individual set-up in the Netherlands, our review leads us to the Induced Choice Model for guidance when it comes to product choice. As a matter of fact, a recent experiment (van Dalen and Henkens, 2015) revealed that Dutch plan participants would actually prefer a combination of individual freedom of choice and strong involvement by pension professionals via automatic enrollment rules for setting the key pension parameters (amount of pension savings, asset allocation strategy, and pension payout profiles). This two-faced preference may at first sight appear contradictory, but it can be reconciled by interpreting it as a preference for strong defaults structured by professionals, with flexible opt-outs as to individual savings, asset mix, and payout profiles.

43 On the other hand, the "social partners" institution might well be the missing piece in the Regulated Choice Model countries such as Chile. In the absence of such intermediaries there may be a role for the government in mimicking what the social partners do in other jurisdictions. This is actually our interpretation of the "auctions" currently being conducted in Chile.

Also in the product domain, we can learn from countries that adhere to the Centralized Choice Model, in particular Singapore with its CPF. Employees need to allocate part of their wages in an individual savings pot, which can be used for different purposes. Apart from income during retirement, this concerns schooling and covers lifetime risks such as sickness and unemployment. A recent proposal by the social partners in the Netherlands actually embodies the basic idea of the lifetime integral product approach of the Centralized Choice Model (cf. Het Financieele Dagblad, March 15, 2016).

7.2.2 Individual plans and quasi-mandatory participation

The trend towards individual plans within the frame of the Delegated Choice Model, matching Dutch culture and traditions, leads to a number of critical questions. Which role should the representative agent play? What should be the basis for quasi-mandatory participation? A possibility might be to allow individual plans to be grouped within specific *solidarity circles*, with each circle deciding on its foundational shared grounds and selecting a representing agent (not-for-profit) who operates in the interests of the participating individuals. The government ought to play a key role in forming such solidarity circles. The government must provide the legal backing to form the circle, and it must define and monitor the roles and responsibilities of the representing agent.

Solidarity circles can still be formed in a traditional way for an industry (government, health, construction), company or occupational group. The social partners can naturally perform the role of representing agent in industry-based and company-based circles. Alternatively, solidarity circles can also be based on new grounds, such as economic position (self-employed). As to the latter, the

role of the social partners may be less compelling, but a representing agent must still be designated. Whatever its foundational grounds, participation preferably should be mandatory (or quasi-mandatory via the representative agent) and consistent with the recommendations above. Furthermore, there should be room for individual choice and for the default choice menu set by the representative agent, as in Denmark and Sweden.

When individuals are not covered by one of the circles, they should be picked up by a nationwide plan, providing simple, effective and cost-efficient individual pension savings plans such as in the UK (Nest) and New Zealand (KiwiSaver). An opt-out option may only be given to individuals with proven adequacy regarding the build-up of pension wealth.

A. Tables appendix

Table A.1: Individual choice dimensions

Case study	Participation	Choice of plan features: Provider	Contri-butions	Asset mix	Replace-ment rate*	Liquidity options
Centralized Choice Model						
Malaysia	Mandatory	No	No	No	No	Yes
Singapore	Mandatory	No	No	Yes	No	Yes
Delegated Choice Model						
Denmark	Quasi-mandatory	No	No	No	No	Yes
Netherlands	Quasi-mandatory	No	No	No	No	No
Sweden	Quasi-mandatory	Yes	No	Yes	No	No
Switzerland	Mandatory	No	No	No	No	Yes
Regulated Choice Model						
Australia	Mandatory	Yes	No	Yes	No	Yes
Chile	Mandatory	Yes	No	Limited	No	No
Sweden (PPM)	Mandatory	Yes	No	Yes	No	No
Induced Choice Model						
New Zealand	Voluntary	Yes	Yes	Yes	No	Yes
United Kingdom	Voluntary	Yes	Yes	Yes	Yes	No
United States	Voluntary	Yes	Yes	Yes	Yes	Yes

Definitions: "Liquidity" refers to the possibility to withdraw funds for specific purposes before retirement, like in an emergency or for down payment on a first home or to pay for a mortgage in case of imminent eviction.
Note: (*) This is a feature of an increasing number of plans, including target date funds.
Source: Authors. The "Choice of plan features" entries are inspired by Table 2.3 (page 39) in Modigliani and Muralidhar (2005). These authors considered these levers as desirable properties of the ideal pension system.

Table A.2: Specific Purpose Withdrawals (SPW)

Case study	SPWs	Taxed	Withdrawal purpose			Withdrawal model			
			Housing	Health	Other	Loan & repay	Perma-nent	Feeder-fund	Pension pledging
Centralized Choice Model									
Malaysia	Yes	No	Yes	Yes	Yes	No	No	Yes	No
Singapore	Yes	No	Yes	Yes	Yes	No	No	Yes	No
Delegated Choice Model									
Denmark	Yes	Yes	No	No	Yes	No	Yes	No	No
Netherlands	No	N/A	No	No	No	No	No	No	No
Sweden	No	N/A	No	No	No	No	No	No	No
Switzerland	Yes	Yes	Yes	No	No	Yes	No	No	Yes
Regulated Choice Model									
Australia	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
Chile	No	N/A	No	No	No	No	No	No	No
Sweden (PPM)	No	N/A	No	No	No	No	No	No	No
Induced Choice Model									
New Zealand	Yes	No	Yes	Yes	Yes	No	Yes	No	No
United Kingdom	No	No	No	No	No	No	No	No	No
United States	Yes	Yes*	Yes	Yes	Yes	Yes	No	No	No

Definitions: SPW stands for special purpose withdrawal from pension savings before retirement, like in an emergency or for down payment on a first home or to pay for a mortgage in case of imminent eviction. Under the *loan and repayment model* individuals borrow directly from their pension fund. Under the *permanent withdrawal model*, access to funds without repayment obligations is allowed in limited circumstances, such as hardship cases. The *feeder-fund model* consists of a savings product that links liquid savings products and pension savings together into a single account. *Pension pledging* refers to the possibility of using the accrued pension rights as collateral.
Note: (*) Only withdrawals before age 591/2 are treated as income and command a penalty rate of 10 percent.
Sources: The classification and definitions of withdrawals models is from H. M. Treasury (2010).

Table A.3: Annuitization and lump sums

Case study	Mandatory annuity	Full lump sum	Partial lump sum	Combi-nations	Full annuity take-up rate
Centralized Choice Model					
Malaysia	No	Yes	Yes	No	0
Singapore	No	No	No	Yes	36**
Delegated Choice Model					
Denmark	No	Yes	Yes	Yes	50
Netherlands	Yes	No	No	No	100
Sweden	Yes*	Yes*	Yes	Yes	30
Switzerland	No	Yes	Yes	Yes	80
Regulated Choice Model					
Australia	No	Yes	Yes	Yes	2 to 10
Chile	No	No	Yes	Yes	60
Sweden (PPM)	Yes	No	No	No	100
Induced Choice Model					
New Zealand	No	Yes	No	No	< 10
United Kingdom	No	Yes	Yes	Yes	~80
United States	No	Yes	Yes	Yes	< 2

Definitions: "Mandatory annuity" refers to mandatory full annuitization; "Combinations" refers to the possibility or mandate to combine different types of annuities with a lump sum, or other products such as programmed or temporary withdrawals.

Notes: (*) In Sweden it is only mandatory to acquire an annuity for a minimum period of 5 years, after which a lump sum can be withdrawn.

(**) The figure for Singapore is as of year-end 2006, as reported by Koh et al. (2008).

Sources: Official government sites, OECD (2013), Rocha et al. (2011) and the references therein.

Table A.4: Partial lump sum (PLS) design

Case study	PLS	Design criteria	Taxed	Tax rate
Centralized Choice Model				
Malaysia	Yes	No	No	N/A
Singapore	Yes	Free-surplus disposal	No	N/A
Delegated Choice Model				
Denmark	Yes	No	Yes	40
Netherlands	No	N/A	N/A	N/A
Sweden	Yes	No	Yes	MITR
Switzerland	Yes	Min/Max limits	Yes	Reduced rate (varies by canton)
Regulated Choice Model				
Australia	Yes	No	Yes	MITR if coming from untaxed source
Chile	Yes	Free-surplus	Yes	MITR only after the tax-free threshold
Sweden (PPM)	No	N/A	N/A	N/A
Induced Choice Model				
New Zealand	No	No	No	N/A
United Kingdom	Yes	No	Yes	MITR for 55-plus age
United States	Yes	No	Yes	MITR if tax deferred source

Notes: "MITR" stands for marginal income tax rate.
Sources: Official government sites, Rocha et al. (2011), OECD (2013) and the references therein.

Table A.5: Behavioral design

Case study	Accumulation stage	Decumulation stage	Behavioral design features				Matching contributions
			Opt-out	Framing	Early-timing	Other	
Centralized Choice Model							
Malaysia	No	No	No	No	No	No	No
Singapore	No	No	No	No	No	No	No
Delegated Choice Model							
Denmark	No	Yes	No	Yes	Yes	No	No
Netherlands	No	No	No	No	No	No	No
Sweden	Yes	No	No	No	No	Yes	No
Switzerland	No	Yes	No	Yes	Yes	Yes	No
Regulated Choice Model							
Australia	Yes	No	No	No	No	Yes	Yes
Chile	Yes	No	No	No	No	Yes	No
Sweden (PPM)	Yes	No	No	No	No	Yes	No
Induced Choice Model							
New Zealand	Yes	No	Yes	No	No	Yes	Yes
United Kingdom	Yes	No	Yes	No	No	Yes	Yes
United States	Yes	No	Yes	No	No	Yes	Yes

Sources: Official government sites.
Notes: For definitions of these behavioral design features see Cartwright (2015).

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Participation and choice in funded pension plans

This paper by Manuel García-Huitrón (APG) and Eduard Ponds (APG & TiU) provides an in-depth comparison of funded pension savings plans around the world. The large variety in plan designs is a reflection of historical, cultural, and institutional diversity. We postulate a new classification consisting of four role models of funded pension plans, primarily based on choice architecture and type of regulation. The role models provide guidance in the Dutch orientation on pension plan redesign regarding participation and choice, linked to Dutch culture and practice.

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