

Mandatory Participation in
Occupational Pension Schemes
in the Netherlands and Other
Countries
An Update

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Mandatory Participation in Occupational Pension Schemes in the Netherlands and Other Countries: an Update*

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Abstract

This paper discusses mandatory participation in Dutch occupational pension schemes. While historically mandatory participation is a feature of most second-pillar pension arrangements, some recent developments may affect the case for mandatory participation. The main ones are the revision of the Dutch supplementary pension contract, changes in the prudential supervisory rules and developments in European regulations regarding supplementary pensions. We also compare mandatory participation in the Dutch occupational pension system with that in a number of foreign pension systems.

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1 Introduction

As we grow older, most of us are less capable and willing to work. Therefore, it is necessary to save resources for old age. Many countries have a public pension system to provide a basic income for retirees (OECD, 2013). On top of this standard pension, employed people can save in order to obtain a higher level of retirement income. In some countries, participation in such occupational pension schemes is mandatory. For example, in the Netherlands, more than 90% of the Dutch employees build up pension rights under a mandatory scheme, due to a specific type of obligation (Ministerie SZW, 2009).

Mandatory participation in a retirement scheme can be motivated by a number of reasons. First, many people are myopic in their planning, which may deter them from saving for retirement when they are young (Benartzi and Thaler, 1995). Second, mandatory participation may result in lower costs, because of economies-of-scale and there is no need to advertise to attract participants (Bikker and de Dreu, 2009). Third, when participation in a funded scheme is mandatory, it enhances the scope for risk-sharing among different cohorts. The idea of risk-sharing is that if a person or group is hit by a bad shock, the collective shares the burden of the shock. If we allow those who are not hit by the bad shock to walk away from the arrangement, then risks cannot be shared and from an ex-ante perspective no one would be prepared to take part in the arrangement. However, this implies that each individual would be fully exposed to the relevant risks and from an ex-ante perspective would be worse off than under the arrangement.

The Dutch pension system has proven to be one of the best in the world.¹ This paper describes the Dutch occupational pension system, its historical development, the revision of the system via a new contract and, in particular, the background and role of mandatory participation in the system. In doing so, the paper also draws a comparison with arrangements in other countries. Mandatory participation in Dutch collective pension arrangements has recently come under discussion again (Van der Lecq, 2012; NOPD, 2012; Pensioen Federatie, 2012b; and AVV, 2011). As a result of the economic and financial crisis and ongoing increases in life expectancy, many pension funds are now under financial distress, making an increasingly large group of young contributors sceptical that there will be sufficient resources left for their own retirement. Obviously, these worries by the young undermine their willingness to participate in collective pension arrangements with old generations. Furthermore, there seems to be resistance against mandatory participation as a result of increasing demand for freedom of choice and increasing labour market mobility and self employment. Other developments may also be relevant for the discussion about mandatory participation, such as the new pension contract and the development of

¹The Melbourne Mercer Global Pension Index ranked the Dutch pension system number one over the period 2009-2011, number two in 2012-2013 and number three in 2014. In 2012-2014, Denmark was ranked number one out of respectively eighteen, twenty and twenty-five countries. However, Denmark was not included in earlier versions of this Pension Index (Mercer, 2011, 2012, 2013, 2014).

a pan-European market for pension services.

Solidarity features are important for the Dutch occupational pension obligation to remain legally tenable. Those features manifest themselves in the collectivity of the pension contract and the system of uniform contribution and accrual rates. However, several elements in the forthcoming pension contract might weaken solidarity, such as a potentially-reduced degree of risk-sharing and the link between the retirement age and life expectancy (Degelink, 2012). Moreover, the EU aims at creating a more competitive and less-segmented market in pension services, which could further reduce the degree of solidarity. Hence, both the new pension contract and the development of a pan-European market for pension services might affect the legal justification of mandatory participation.

The remainder of this paper proceeds as follows. Section 2 provides a brief classification of different types of pension systems, while Section 3 describes the main features of the Dutch system, paying particular attention to the aspect of mandatory participation. The section also addresses relevant recent developments, in particular with regard to the new pension contract. In Section 4 we discuss the emergence of a pan-European market for pension services. This could provide interesting opportunities for firms operating in the Dutch pension sector, but it may also have legal consequences for mandatory participation, as discussed in Section 5. Section 6 tries to broaden the picture by describing foreign pension arrangements and the role of mandatory participation in those systems. Section 7 concludes this paper.

2 Classification of pension arrangements

Pension schemes can be classified along various dimensions. The first dimension concerns the way retirement benefits are financed. The extreme cases are the *pay-as-you-go* (PAYG) and *funded* pension schemes. A PAYG scheme uses the contributions from the current workers to finance the benefits of the current retirees. By contrast, in a funded scheme contributions are invested and benefits are paid out of the accumulated capital. A funded scheme tends to provide a higher return on contributions made by workers and its sustainability is less vulnerable to demographic shocks, in particular an increase in the life expectancy of its participants. However, in a funded scheme participants face more investment risk (Schwarz, 2006).

A second dimension to classify pension arrangements is based on the question who bears the consequences of the unforeseen developments. We distinguish between *defined contribution* (DC) and *defined benefit* (DB). A DC pension plan fixes the contribution rate, while the benefit level absorbs the risk associated with the plan. There may be various sources of risk, such as demographic risk and investment risk. In a DB pension plan, the risks are absorbed by changes in the contribution rate, which in the case of a shock is adjusted to

meet the target benefit level. Obviously, in practice many pension arrangements contain features of both DC and DB schemes.

DB pension schemes can be divided further into schemes that provide a guarantees in real terms, i.e. in terms of purchasing power, guarantees in nominal terms, i.e. in terms of euros, or guarantees as a fraction of the wage rate. To an economist the only “true” DB arrangement might be one in which the benefit is guaranteed in real terms. However, such schemes are not very common in reality² and legal terminology sometimes uses DB for schemes that provide nominal guarantees. For example, at the moment the Dutch *Pension Law* (“Pensioenwet”) distinguishes three types of pension contracts. First, a *benefit contract* (“uitkeringsovereenkomst”) is a contract in which retirement benefits are defined in nominal terms based on the average career wage or the final wage. Second, a *capital contract* (“kapitaalovereenkomst”) presumes an insured amount of capital that, upon reaching the retirement age, is converted into a life annuity providing a regular series of payments until death. One might consider this type of contract a hybrid between DB and DC. The third type of contract is a *contribution contract* (“premieovereenkomst”), which fixes the contribution rate, while benefits depend on the investment performance of the contributions (Ministerie SZW, 2006a). In the following we shall use the term DB for schemes that provide some type of guarantee and the term DC for schemes that do not provide any guarantees.

Figure 1 presents a simple illustration of pension schemes in the Netherlands, in which the pure DC and the “pure real wage-indexed” DB schemes are the extreme cases. In a *final-salary* DB scheme, retirement benefits are defined in terms of one’s final wage and, therefore, the pension rights are corrected for wage inflation incurred during one’s career. In case wage inflation is about equal to price inflation, the guarantees under this scheme can be considered as guarantees in real terms. Under an *average-wage* DB scheme, retirement benefits are defined in terms of the average career wage of the participant and, hence, these benefits are only partially protected against wage inflation. Moving from the right to the left in Figure 1, there are two major types of contracts in which guarantees are absent and the contribution rate is stabilized. First, there is the *collective DC* scheme, in which the pension assets are pooled. While there are no guaranteed retirement benefits, individual risks are shared with other participants in the scheme. Second, in an *individual DC* scheme each participant has his own pension account and does not share any of his individual risks with the other participants. This is the pure DC scheme.

A third division of pension schemes concerns the degree of actuarial fairness, which refers to the link between the present value of the pension contributions and the present value of the benefits of an individual (Lindbeck and Persson, 2003). For funded schemes the classification of actuarial fairness relates to the classification into DB and DC. Ex ante, both DB

²An exception is the pension scheme in the U.K., where indexation is mandatory in DB pension plans. However, these schemes tend to be badly funded (Mann, 2013).

and DC schemes can be actuarially fair. Ex-post actuarial fairness requires a plan without risk-sharing, i.e. individual DC, while the absence of ex-post actuarial fairness implies possibilities for risk-sharing. Examples are a funded collective DC or a DB scheme.

A fourth way of classifying pension schemes concerns the question who manages the scheme (Hassler and Lindbeck, 2005). Is this the government or a private entity? It is also possible that both parties are involved. An example is a pension scheme of which the government manages the retirement savings account, while private entities manage the investment portfolio.

3 The Dutch mandatory pension scheme

This section describes current Dutch pension arrangements including the pension obligation, its historical development and its expected future development, paying special attention to the new pension contract.

3.1 Current pension arrangements

The pension system in the Netherlands is composed of three pillars. The *first pillar* is formed by the state pension (“AOW”). It is a PAYG scheme to which all Dutch residents are eligible, depending on how long they have been living in the Netherlands. A full pension is obtained after 50 years of residence before the eligible retirement age. The retirement age used to be the age of 65, but it is increasing gradually towards 67 during the years 2014-2021. From 2022 onward, the retirement age is linked to the average life expectancy. At the moment, by law the contribution rate to this pillar is maximised at 17.9% of salary earnings up to a certain income threshold (Rijksoverheid, 2012). In case the contribution payments are not sufficient to cover the pension expenses, the first-pillar revenues are topped up by general funds, which currently account for approximately 30% of the total expenses. The *second pillar* consists of occupational pension plans agreed between the social partners, i.e. the employer(s) or their representatives and the trade unions, which

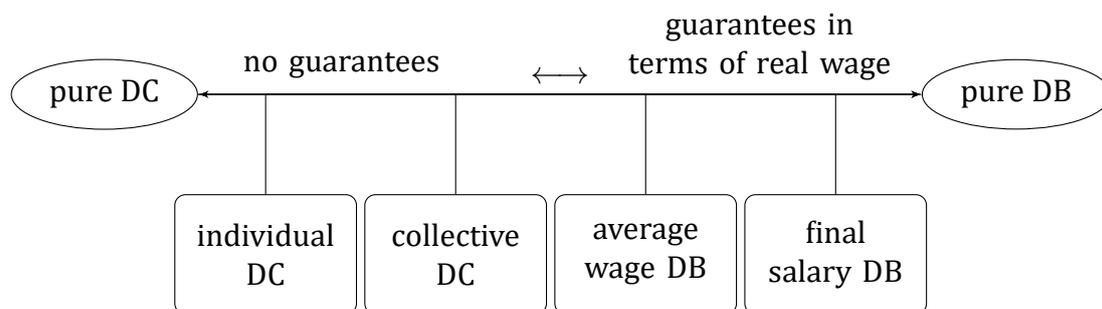


Figure 1: Simple illustration of types of pension schemes in the Netherlands

represent the employees. Employees accrue pension rights within a funded scheme operated by a pension fund. The resulting benefits supplement the state pension. Finally, the *third pillar* consists of individual pension contracts, usually with insurance companies or banks. These contracts usually take the form of individual DC arrangements.

The financial health of a pension fund is measured by its funding ratio, the ratio of the fund's assets over its liabilities. Liabilities are computed by discounting the future cash flows associated with the current stock of accumulated pension rights against a risk-free market interest rate.³ When this interest rate falls, liabilities increase. While legally most occupational pension contracts are DB, an economist might consider them a hybrid between DB and DC: the contract provides nominal guarantees, but the degree to which these benefits are indexed depends on the funding ratio, while contribution rates are capped. Hence, the pension benefits are generally subject to the fund's investment performance (Ponds & Van Riel, 2007). The remainder of this section focuses on this type of contract as it covers about 95% of Dutch pension assets (Towers Watson, 2015). Henceforth, we refer to it as DB.

The contribution and accrual rates are a fraction of the so-called pension wage base, which is obtained by deducting the franchise from gross income. This franchise is the level of income over which no pension entitlements are accrued, because this part of total income is considered to be covered by the state pension (AOW). The franchise, the contribution rate and accrual rate are fund specific, although they can only be set under certain legal restrictions. In the case of a high funding ratio or a funding deficit, the contribution rate may be reduced, respectively raised (CPB, 2012). In 2015, the franchise was in the range of 12,642 euros – 28,610 euros, depending on the marital status and whether the pension arrangement was a final-salary or average-wage plan (Centraal Aanspreekpunt Pensioenen, 2015). In 2014, the average contribution rate was 17.6% of total income, of which the main part (11.2%) is paid by the employer and the remainder by the employees. From 2015 onwards, the fiscally allowed maximum accrual rate of an average-wage scheme is reduced from 2.25% to 1.875% (Bovenberg and Gradus, 2015). Accrual rates are typically higher for average-wage schemes than for final-salary schemes. Because the final wage is substantially higher than the average wage for most career paths, the accrual rate in an average-wage scheme needs to be higher to reach a comparable pension income.

Through their contributions workers build up rights to a future nominal pension. Rights take the form of an annual amount of euros to be received as of retirement age. For example, consider a participant with a pensionable income of 50,000 euros who participates in an arrangement in which the accrual rate is 2% a year. By working an additional year he builds up rights to receive an additional 2% of 50,000, which is 1,000 euros of addi-

³No market interest rate is literally risk free. Liabilities of up to twenty years are discounted using a market swap curve, while for liabilities extending beyond twenty years the discount rate is a construct that gradually grows towards the so-called ultimate forward rate, currently equal to 3.3% DNB (2015d,a).

tional benefit each year as of retirement date. Most pension arrangements aim at indexing (once a year) accumulated rights against price inflation, in order to protect the purchasing power of the pension, or wage inflation, so that pension benefits track the general increase in welfare. However, unless the pension contract states that it is unconditional, indexation is not required by law in the Netherlands and the board of the pension fund may index by less than full or not even at all if this is deemed necessary to maintain the financial health of the fund. Hence, Dutch pension funds provide *nominal guarantees*, but most of them have *real ambitions*.

Each pension fund levies a contribution rate that is the same for all its participants, regardless of age, gender, health or income. This is referred to as the *uniform premium*. In addition, the rate at which pension rights are accrued is the same for all the participants in a pension fund.⁴ As a result, there is intergenerational solidarity in the following sense: young participants annually contribute the same fraction of their pensionable income as old participants and accrue pension rights at the same rate. However, the elderly obtain their benefits sooner and, hence, the same accrual is achieved with a shorter period over which their contribution can be invested. Because at the fund level contributions need to be sufficient to finance the aggregate accrual in a year, young participants subsidize the older workers. People who are healthier, more highly educated or female have a higher life expectancy and for this reason also benefit from the uniform premium. This is often referred to as *perverse solidarity* (Sutrisna, 2010a).

Through the use of their policy instruments, pension funds can achieve substantial *intergenerational risk-sharing* (IRS). When a fund is hit by an adverse shock, the consequences can be absorbed by the working cohorts through an increase in the contribution rate and by all the participants through reduced indexation of their pension rights. The latter hits the older participants more, because they have typically accumulated more pension rights. When an employee switches jobs accumulated pension rights can be treated in various ways depending on the specific situation that arises. If the employee switches jobs within the same sector, he usually remains with the same pension fund and, hence, continues accumulating pension rights in the same way as he did before. If his new employer does not participate in the employee's original fund, the latter can choose between (i) keeping his existing pension rights in the old fund and accruing new rights within the new fund,⁵ or (ii) transferring the existing rights to the new fund. This latter option is not available if the assets do not fully cover the liabilities. Only once the funding ratio has recovered, participants are allowed to have their pension rights transferred (Ministerie SZW, 2006a).

⁴However, the fund may differentiate the indexation of the rights of the workers and retirees. For example, the rights of the latter group may be indexed to price inflation and the rights of the former group to wage inflation.

⁵These participants are referred to as the "sleepers" of the old fund. Typically, their rights are indexed at the same rate as the rights of the retirees.

Specific legislation for the governance and supervision of pension funds is provided by the *Pension Law* (“Pensioenwet”) (Ministerie SZW, 2006a). The financial assessment framework is known as the FTK (the “Financieel Toetsingskader”). In particular, the pension contributions must cover the liabilities as well as a minimum buffer. Moreover, the funding ratio should be at least as high as a minimum that for most funds is around 105%. If the funding ratio falls below this minimum, it should devise a restoration plan that expects to restore the funding ratio to the minimum within three or five years.

There are two supervisory authorities for pension funds: the Dutch Central Bank (“DNB”, which is the abbreviation of De Nederlandsche Bank) monitors whether pension funds are financially sound and the Authority for the Financial Markets (“AFM”) monitors the proper provision of information to the pension fund’s participants.

The International Financial Reporting Standards (IFRS) rules require employers across the EU to report all types of employee benefits. This includes post-employment benefits that are classified as DC or DB. Under a DC plan, the risks associated with the post-employment benefits are borne by the employee and, therefore, the employer only needs to report the contributions payable. Under a pure DB plan, however, the employer provides guarantees and, hence, the employer bears a risk associated with the plan. In this case, the employer has to calculate the actuarially-fair value of the benefit obligations and the assets of the pension plan to determine the total actuarial gains or losses, which need to be reported on the company’s balance sheet. Many pension plans provided by employers are a hybrid between DB and DC, which complicates the accounting associated with the plan and in which case the company does not need to make up for a shortage in the fund (IFRS, 2012, 2011).

3.2 Historical development of occupational pensions

In 1845 the first company pension fund was established in the Netherlands. This was the fund of the railway employees (“Hollandse IJzeren Spoorwegmaatschappij”) (Van Dijk, 2007). Subsequently more occupational funds were established based on collective participation and risk-sharing. In particular the establishment of the pension fund for the agricultural sector after WWII, which had a potential for more than half a million participants, motivated the Dutch government to structure the legislation for occupational pension schemes. The agricultural sector mainly consisted of low-income workers and small companies, for whom it was cumbersome to arrange an industry-wide pension scheme voluntarily (Omtzigt, 2006). As a result, for specific industries participation in the industry-wide occupational pension fund became mandatory in 1949, while this law was adapted in 2000 (Hoogervorst, 2012; Lutjens, 1999; Ministerie SZW, 2000a).

To stimulate enterprises to participate in or set up a pension plan, the government introduced fiscal arrangements to make pension savings more attractive. An example is the

exempt-exempt-tax (EET) rule, whereby pension contributions are untaxed, the returns on the pension assets are untaxed, while the pension benefits paid out are taxed. By deferring taxation to the retirement period the participant effectively pays lower taxes on his retirement benefits, because he is exempted from most of the social-security contributions. However, this rule can only be applied up to a certain threshold of pension accumulation (“aftoppingsgrens”). Once someone’s pension accumulation is above this threshold, tax needs to be paid over the entire pension contributions, or the part above this threshold needs to be put in a separate pension plan, whereby direct taxes are paid over this remaining part only.

3.3 Mandatory pension participation

Mandatory participation in a funded pension scheme can be motivated for a number of reasons. First, many people are myopic in their planning and, therefore, they might withhold themselves from saving for retirement when they are young (Benartzi and Thaler, 1995). Second, mandatory participation may result in lower costs associated with pension provision, because of economies-of-scale and because the fund does not incur the advertisement costs that would be associated with attracting new participants (Bikker and de Dreu, 2009). Third, in a collective funded pension scheme risks can be shared within and among generations, which may lead to welfare improvements (Cui et al., 2011; Gollier, 2008; Chen et al., 2014). From an ex ante perspective individuals would be better off participating. However, the arrangement would become unstable once it is hit by some bad shock and the participants that have to make additional payments (typically the young) to protect the rights of other participants (typically the retired) can quit the system. The system could break down and, anticipating this, individuals would not be prepared to participate in the first place. Hence, the benefits of risk-sharing will be forgone and from an ex-ante point of view everyone would be worse off (Beetsma et al., 2012; Beetsma and Romp, 2013). Therefore, mandatory participation may be necessary to reap the benefits of risk-sharing among fund participants. The first two reasons for making participation mandatory apply to both DB and DC funded schemes. The third argument applies to DB and collective DC schemes, but not to individual DC schemes, where risk sharing does not play any role.

Even though there is no statutory individual pension obligation in the Netherlands, more than 90% of the Dutch employees accrue occupational pension rights. The so-called Small Mandatory Participation (“Kleine Verplichtstelling”) applies to these employees, rendering participation in the pension arrangement provided by their employer mandatory.⁶

In addition to the Small Mandatory Participation there is the so-called Large Mandatory Participation (“Grote Verplichtstelling”), which is a participation obligation on the side of

⁶Employees who stay only temporarily in the Netherlands may get an exemption from this obligation.

the employers. Upon request from the social partners, the Minister of Social Affairs can make participation in a pension fund mandatory for all employers in a sector or profession. In practice more than 75% of the employees are obliged to participate in an industry-wide pension fund, due to the combination of the Small and Large Mandatory Participation. The main reason for participation in a sectoral pension fund being mandatory is that this will prevent employers to compete on the basis of their pension arrangement (Lutjens, 1999). Under a number of specific conditions employers may be exempted from mandatory participation in a sectoral fund. This is the case if one of the following conditions holds: (i) the employer already provided a pension plan for at least six months before participation in such a fund was made mandatory, or (ii) the employer has another collective agreement with the social partners, or (iii) the sectoral pension fund has been underperforming for at least the past five years (Sutrisna, 2010b; Ministerie SZW, 2000b).

There are also discussions about stimulating participation for those who are not obliged to save for retirement, which particularly concerns the increasing group of self-employed (DNB, 2015b; Ministerie SZW, 2015b). The self-employed represent a substantial part of the economy, as they contribute about 9% to the Dutch GDP. In recent years, there have been several developments to stimulate voluntary participation for self-employed. This includes the introduction of a collective pension scheme for the self-employed in January 2015 and the introduction of flexibility in the contribution levels and the pay-outs (Pensioen Federatie, 2014b; Sociaal en Cultureel Planbureau, 2015). However, there are also experts who argue that all wage earners should be obliged to participate (AFM, 2015).

3.4 Types of pension providers and funds

In the Netherlands pensions can be provided by various organisations, in particular pension funds, insurance companies and *Premium Pension Institutions* (PPI). Furthermore, it is possible to accumulate a pension capital through a bank savings scheme. Most of the pension assets are held by pension funds. There are three types of pension funds, each of which is subject to its own specific legislation. These are *industry-wide pension funds* (IPF), *professional pension funds* (PPF) and *corporate pension funds* (CPF).

More than 75% of the employees with a pension plan participate in an IPF (Ministerie SZW, 2009). Most IPFs feature mandatory participation due to the Small and Large Mandatory Participation. Because of the exclusive right to serve the employees of their own industry, there are three rules to prevent unfair market competition with other pension funds and insurance companies. First, IPFs are only allowed to provide pension plans for the sector or enterprise for which the fund is established. This is the *domain delineation* (“domein afbakening”). Second, an IPF has to be a single financial entity. That is, there is a prohibition of *ring-fencing* parts of accumulated wealth within the IPF. Third, the fund’s board consists of representatives of both employers and employees, i.e. *joint governance*

(Drijber et al., 2007; Ministerie SZW, 2006a).

About 0.5% of the participants have a pension plan managed by a PPF (Ministerie SZW, 2009). Participation in a PPF is usually mandatory for all workers in a specific profession, both employees and self-employed. Voluntary pension plans can be carried out by the fund as well, but only if this plan supplements the mandatory pension plan (Ministerie SZW, 2005).

A CPF takes care of the pension plan of a single or multiple enterprises and operates independently of it, such that the pension wealth of the employees is secured when their enterprise faces financial distress. Since 2010, it is possible for CPFs to be combined and subsequently achieve the advantages of economies-of-scale (Van Tilburg, 2010), if the separate CPFs have been affiliated with an enterprise or economic entity for at least five years (Ministerie SZW, 2010). After the combination of the funds, each of the originally separate CPFs continues to be a separate financial entity by law, implying ring-fencing.

For more than 10% of the participants, in particular those working in small enterprises and the self-employed, the pension plans are managed by insurance companies and banks, which, as commercial companies, aim at making profits. Moreover, they incur acquisition costs and, hence, the contribution rates for these pension plans tend to be substantially higher than those provided by other institutions (Van der Lecq and Steenbeek, 2006).

Since January 2011 a pension plan can also be managed by a PPI. This type of pension institution was established to enable the management of cross-border pension schemes as well. However, a PPI is only allowed to manage DC contracts. It is not allowed to incur insurance risks, nor to provide guarantees. Moreover, PPIs do not pay out benefits. At retirement, the pension wealth accumulated at the PPI can be used to acquire an annuity or another pension product from an insurance company (Pensioen Federatie, 2012a). At the moment, still less than 0.2% of the Dutch pension assets are managed by a PPI. However, participation in PPIs can be expected to increase, as they were introduced only quite recently (DNB, 2015c).

Table 1 provides an overview of the three pension pillars in the Netherlands. The table briefly describes each pillar, explains how financing takes place and describes whether participation is mandatory.

3.5 Recent developments

Over the past ten to fifteen years, the western world has become painfully aware of the potential financial consequences of population ageing. In some countries, such as Chile, Denmark, the Netherlands, the U.K. and the U.S., pension funds already play a prominent role in old-age income provision. However, in many countries pension provision is dominated by PAYG arrangements of which the current generosity will be unsustainable in the

Table 1: Overview of the Dutch pension pillars

First pillar	
Description:	Known as the “Algemene Ouderdomswet” (AOW). Pension rights are acquired during legal residency in the Netherlands between the ages of 15 and 65. The length of period determines height of pension. Also non-employed are eligible.
Financing:	PAYG through tax on income.
Mandatory features:	Contributions via the tax system are obligatory for all employed Dutch residents who have not reached the legal retirement age.
Second pillar	
Description:	<p>Accessible for employees. Several types of pension providers:</p> <ul style="list-style-type: none"> • Pension fund: <ul style="list-style-type: none"> ◦ Mandatory industry-wide pension fund (IPF): mostly DB ◦ Non-mandatory IPF: DB or DC ◦ Profession pension fund (PPF): mostly DB ◦ Corporate pension fund (CPF): DB or DC • Insurance company or bank: mostly DC (some insurance companies also provide DB pension plans, but these contracts are relatively expensive (Bikker and de Dreu, 2009)) • Premium Pension Institution (PPI): DC only <p>The duration of the contract of insurance companies and PPIs is fixed term, as the conditions are renegotiated at the end of the term (typically every five years), while the contract between an employer and a pension fund is one’s entire life.</p>
Financing:	Funded pension plans, both DB and DC arrangements.
Mandatory features:	No statutory obligation to participate in a pension plan. However, employers in some sectors and professions are obliged to participate in a pension plan, upon request of social partners, i.e. the Large Mandatory Participation. Furthermore, employees are obliged to participate in the pension plan provided by their employer(s), i.e. the Small Mandatory Participation.
Third pillar	
Description:	Individual pension accounts managed by an insurance company. May provide the only form of supplementary pension for employees, self-employed or non-employees, or it may fill the gap between a participant’s target pension and his second-pillar pension.
Financing:	Funded DC plans.
Mandatory features:	None.

long run. Hence, countries are raising retirement ages and are setting up or expanding their funded pension pillars, often with mandatory participation. Examples of countries that have recently moved towards more funding are Israel and Norway.

Given their large amounts of accumulated assets, Dutch pension funds were severely hit by the collapse of the dot.com bubble. As a result, they switched on a massive scale from final-salary to average-wage schemes, thereby eliminating the employer's back-service duty. The pension funds also reacted by raising contributions and sometimes not indexing pensions. In average-wage schemes, not only the retired participants, but also the active participants bear the risk of not indexing pensions. While indexation is rarely unconditional in pension contracts, at that time it was exceptional for pension benefits not to be indexed for inflation. Hence, the deviations from common practice in that period set a precedent for current policies to restore funding ratios.

The global economic and financial crisis that started in 2007-2008 and was followed by the European debt crisis was an even much bigger shock to Dutch occupational pension schemes. The value of their asset holdings plummeted as a result of drops in stock prices, while falling interest rates on high-quality public debt caused an enormous increase in the value of liabilities by reducing the rates at which future benefits have to be discounted. Both decreasing assets and increasing liabilities resulted in a dramatic decrease of funding ratios. Since the fourth quarter of 2008, the average funding ratio has been below 105% on a regular basis (DNB, 2013), while nowadays pension rights can only be (partially) indexed for inflation when the funding ratio 110% or higher. In fact, a number of funds were, as a last resort, forced to write off part of the accumulated nominal pension rights, a move that was applied for the first time in 2013.

3.6 The new pension contract

In 2010, the government-appointed "Goudswaard commission" concluded that the long-run financial sustainability of Dutch occupational funded pensions was under threat (Goudswaard et al., 2010). Together with the report of the "Frijns commission" (Frijns et al., 2010), which investigated the pension funds' investment behavior, this provided the starting point for the development of a new pension contract. An agreement between the social partners ("het Pensioenakkoord") about the new pension contract was reached in June 2010. The agreement has been worked out further in the Memorandum of June 2011 (Ministerie SZW, 2011a).

The new contract aims in particular at a more sustainable and a more *generation proof* occupational pension scheme (Ministerie SZW, 2011b, 2013b,c). Here we discuss four main changes to the existing contract. First, a semi-automatic link between life expectancy and the retirement age was introduced. Second, under the new contract the contribution rate

needs to be sufficient to cover the cost associated with the additional pension accrual (Ministerie SZW, 2013b,c). This cost is calculated using the aforementioned yield curve. Due to the volatility of the yield curve, the contribution rate might also become more volatile. However, no risk premium is required on top of it. Moreover, it is possible to stabilize the contribution rate, but only if it is above the minimum required level. Third, the financial assessment framework, the FTK, for pension funds has been adjusted to accommodate the new contract. The new FTK (“nFTK”) came into force at the beginning of 2015 (Pensioen Federatie, 2014a). The new framework allows for smoothing shocks over time, so as to stabilize pensions-in-payment (Staatssecretaris van SZW, 2014). This so-called adjustment mechanism for financial shocks (the “aanpassingsmechanisme financiële schokken” or “AFS”) will result in an immediate adjustment of pension rights in the case of large financial markets shocks hitting the fund. These shocks can be smoothed out over a maximum period of ten years (Bovenberg et al., 2012; Koninklijk Actuarieel Genootschap, 2013). Finally, the deductibility of contributions before taxes has now been limited to a maximum of 100,000 euros (the “aftoppingsgrens”) (Staatssecretaris SZW, 2014), while before there was no such maximum.

Under the new contract there are limitations on the risk-sharing arrangements, such that the funds do not overestimate their financial position and do not shift too much risk to future generations (Ministerie SZW, 2011b). The scope for intergenerational risk-sharing has changed with the new contract, because the minimum required contribution rate will be linked to the yield curve, while the period over which adverse shocks can be smoothed has been limited. The full implications of the new contract for intergenerational risk-sharing cannot easily be assessed. It has become easier to cut pension rights in response to adverse shocks. However, while such cuts become more immediate and more frequent, they will also be smaller than before, as shown in simulations by the CPB Netherlands Bureau for Economic Policy Analysis (the “CPB”) (CPB, 2012). Due to the introduction of the “aftoppingsgrens”, future tax payments have been shifted to the present, which has a negative effect on the welfare of young cohorts (Pensioen Federatie, 2012b).

While the new contract maintains back-loading, due to the system of uniform contribution and accrual rates (the so-called “doorsneesystematiek”), a discussion is emerging about the desirability of the “doorsneesystematiek” (AFM, 2015; DNB, 2015b; CPB, 2014; Ministerie SZW, 2014; Bovenberg and Gradus, 2015). Under this system, the accumulation of pension entitlements by older workers is effectively subsidised by young workers. Hence, the system features a PAYG-element. As a result, a switch from employeeship during the first part of one’s career to self-employment during the second part is unattractive, because the accumulation of pension rights during the part is relatively low. In addition to contribution and accrual rates being uniform, also the investment policy is uniform for all participants in a pension arrangement. This runs counter to the prescription of the standard life-cycle theory, according to which participants should take on less investment risk

as they become older (Bodie et al., 2007; Campbell and Viceira, 2002). However, abolishing the “doorsneesystematiek” may have legal consequences for the obligation to participate in a pension arrangement, because it would eliminate an element of solidarity among cohorts, while solidarity is one of the legal pillars behind the obligation to participate.

4 The pan-European pension market

The European Union (EU) hosts three categories of pension schemes: individual schemes, social security schemes and occupational schemes. The latter are organized by Institutions for Occupational Retirement Provision (IORP). These schemes cover about 20% of the working population of the EU. Total assets under management are about 2.5 trillion euros, which is approximately a quarter of the EU’s GDP level. Hence, IORPs play an important role in Europe’s economy (European Commission, 2014).

For a long time, there was no structured legislation for pension funds at the European level, which impeded the internal market for pension services. However, many EU countries are reforming or have already reformed their state pension, so that the benefits from the latter are expected to decline by about 25% over the coming decades (EFRP, 2008a), while the importance of European-level policies with regard to IORPs is increasing. In this section we will discuss these policies and, in particular, their consequences for Dutch pension funds.

4.1 The IORP Directive

In 2003, the *IORP Directive* was introduced in order to improve the integration of the European pension market (European Parliament and Council of the European Union, 2003a), aiming at a high level of protection for retirees, while guaranteeing efficient investment. This aim needed to be accomplished by the establishment of three sets of rules: (i) prudential rules to protect the fund’s participants, (ii) investment rules for the efficient management of savings, and (iii) rules for permitting cross-border management (European Parliament and Council of the European Union, 2003b). Since May 2007 the Directive has been in full operation in all Member States, while some countries have introduced cross-border pension products (Williams, 2010). A revision of the IORP Directive, i.e. the IORP II Directive, is now in the pipeline.

Some parts of the IORP Directive refer to the Solvency Directive, which is the European framework regulating the insurance industry. This framework is now under revision and needs to result into the Solvency II Directive, which is planned to come into force as of 1 January 2016. As a result, there is a need to revise the IORP Directive as well. The new directive will be referred to as the IORP II Directive. However, applying the Solvency II Dir-

ective to IORPs might have dramatic consequences for funded pension arrangements. The current assessment framework in the Netherlands, the FTK, conflicts with the Solvency II Directive on three main aspects. Under the latter (i) the recovery periods are much shorter, (ii) the required solvency buffer is substantially larger, because of stricter restrictions on the amount of risk that is tolerated, and (iii) the valuation of the liabilities does not only take into account accumulated nominal guarantees, but also conditional indexation. As a consequence, pension funds would have to increase their buffers and reduce the indexation on retirement benefits, in order to meet the requirements of the Solvency II Directive (De Haan et al., 2012). In fact, in several other countries, including Belgium, Ireland, Spain and the UK, the IORPs would even have to increase assets by approximately 50% of the liabilities or drastically reduce investment risk through a sell-off of equities. The latter could undermine the stability of the EU's financial system. Therefore, it has been suggested by both the European Commission and the European Federation for Retirement Provision (EFRP) to not apply the Solvency II Directive to IORPs, as IORPs differ from other financial institutions by the long-term nature of their investments, while in the Netherlands the possibility to write off part of the pension rights as a last resort would be maintained (EFRP, 2008a,b). For the time being, the IORP II Directive will not cover solvency rules for pension funds (European Commission, 2013).

The European Insurance and Occupational Pensions Authority (EIOPA) is the supervisory authority responsible for collecting relevant information communicated by Member States and has to be informed of any cross-border activities of IORPs (EIOPA, 2012b). In 2011, the EIOPA was asked for advice about the IORP II Directive by the European Commission through its *Call for Advice* (CfA). The call was made for three main reasons. First, there were only about 80 to 90 IORPs operating across the borders of different Member States, which represents only a very small portion of the around 140,000 IORPs that exist in the EU (Hermanides, 2012). The Commission intended to propose measures that would simplify the legal, regulatory and administrative requirements for setting up cross-border pension schemes. Second, the recent economic and financial crisis had demonstrated the need for risk-based supervision. This already existed for IORPs in some Member States. However, there was no supervision at the EU level. Third, in 2003 when the IORP Directive was adopted, DC schemes were less common than in 2011, when already nearly 60 million Europeans relied on a DC pension plan. Therefore, the Commission also sought advice about prudential regulation of IORPs with DC pension contracts. The review of the Directive was also accompanied by a *quantitative impact study* (QIS) to investigate to what extent Solvency II rules could be applied to IORPs and to provide data on the analysis based on the Commission's proposals (European Commission, 2011). EIOPA's advice to the European Commission became available in February 2012 (EIOPA, 2012a). In May 2015, EIOPA launched the *quantitative assessment and stress test* (QAST) to study the solvency of IORPs. The results could affect the position of the European Parliament on

whether the IORP II Directive should include solvency requirements. This will soon become a topic for negotiations among the European Parliament, the European Commission and the European Council. Based on the quantitative assessment, EIOPA also expects to deliver a consultation to the Commission early 2016 (EIOPA, 2015). The current deadline for the IORP II Directive to be implemented in national law is 31 December 2016 (European Commission, 2014).

4.2 Consequences for Dutch pension funds

In the Netherlands, the IORP Directive was adopted in 2006 (Ministerie SZW, 2006b). It aims at a pan-European pension market, with prudential investment supervision and the development of pension plans in countries where such plans are less common. Hence, the Directive constitutes an opportunity for cross-border activities of the Dutch pensions industry (DNB, 2012). However, as a consequence of the specific legislation (domain delineation, the prohibition of ring-fencing and the specific governance requirements), most of the Dutch pension funds are not able to exploit the opportunities that the Directive offers. Therefore, in 2007 the Dutch parliament decided to introduce a Dutch version of a cross-border pension fund.⁷ After a long gestation period, the current plan is to launch a so-called General Pension Fund (in Dutch “Algemeen Pensioenfonds” or “APF”) at the beginning of 2016. The APF will be an IORP in the meaning of the IORP Directive.⁸ Ring-fencing will be compulsory for an APF, while, to achieve advantages of economies-of-scale for small CPFs, domain delineation will not apply to an APF. This contrasts with the current legislation for IPFs. As the plan stands now, for IPFs with large mandatory participation it will not be possible to make use of an APF. This would create an undue advantage for IPFs, because of the exclusive right of mandatory participation, while insurance companies do not have this advantage within the market competition for pension products. However, the Dutch Deputy Minister of Social Affairs and Employment has called for a debate about and an investigation into the obligation to participate in an IPF (Ministerie SZW, 2015c). In Section 5 we elaborate in more detail on this issue.

Overall, there are now several possibilities to set up cross-border pension activities. However, the cross-border activities of the Dutch pensions sector are still very limited (Schouten, 2009), a situation that may arise from fundamental obstacles caused by international differences in: (i) tax arrangements: one needs knowledge about a country’s specific tax arrangements, while the pension product needs to be shaped in line with these arrange-

⁷Luxembourg and Belgium also introduced pension providers for cross-border activities in 2005-2006. Moreover, in the U.K. and in Ireland pension plans are typically managed by trusts, which are able to export pension services as well since the implementation of the IORP Directive (Ministerie SZW, 2012b).

⁸Previous plans included the so-called General Pension Institution (in Dutch “Algemene Pensioeninstelling” or “API”) and the so-called Multi Pension Fund (in Dutch “Multipensioenfonds”)(Ministerie SZW, 2012a,b, 2013a).

ments; (ii) law: companies need to acquaint themselves with the legal details in the participants' country – Dutch pension law would only be applicable to a limited extent; and (iii) demography and markets: to attract new participants, one needs to take country-specific characteristics into account. For example, country-specific mortality tables are needed, because life expectancies can be different. Also language barriers play a role. This is especially the case when, for reasons of transparency, (legal) information needs to be provided in the host country's language.

Notwithstanding these obstacles, the APF may be an interesting option in particular for multinationals that prefer a single pension plan for both their Dutch and foreign employees. To summarize, the implementation of the APF is accompanied with several changes in the legislation. As mentioned, ring-fencing will be compulsory in the APF and domain delineation will be abolished, which contrasts with the current legislation on IPFs. Moreover, as mentioned in Section 3.4, CPFs are required to exist for at least five years before they can be combined, while there will be no minimum period of existence for pension funds to join an APF. The rules for governance will be revised as well, so that it can be carried out by independent professionals (Ministerie SZW, 2013a, 2015c).

Employers who were obliged to participate in a pension fund will be able to join an APF, if they meet the requirements for exemption from mandatory participation. Also employers who earlier joined a pension fund voluntarily, will be able to join an APF. Given that some employers now find it easier to switch to another pension fund, this likely reduces the scope for risk-sharing within a given pension fund. While the Dutch pension obligation remains in force for the time being (Ministerie SZW, 2012a,b, 2013a, 2015c), in the longer run these developments may undermine the obligation.

5 The case for mandatory pension participation

Recently, mandatory participation in Dutch pension funds has come under discussion again (Van der Lecq, 2012; NOPD, 2012; Pensioen Federatie, 2012b; AVV, 2011; Ministerie SZW, 2015c; Lever et al., 2015). Some features of the new Dutch pension contract and the emergence of a pan-European market for pension services may also undermine the pension obligation. This section discusses mandatory participation in relation to these developments.

5.1 Justification of mandatory participation

The *European Court of Justice* (ECJ) has ruled that “Small Mandatory Participation” does not violate the *competition law*, because collective agreements between employers and employees are excluded from this law. Moreover, the ECJ finds “Large Mandatory Parti-

icipation” acceptable, because it enables a high degree of solidarity, such as the uniform contribution rate, no adverse selection, the conditional indexation policy and other risk-sharing features (Drijber et al., 2007). The eventual boundaries on mandatory participation are determined by the ECJ. However, these boundaries are not clearly incorporated in the law. Hence, the legal justification of mandatory participation relies on jurisprudence. In the Netherlands there are three notable cases in which the ECJ has ruled that the occupational pension obligation does not violate European competition law.⁹ From these rulings, it immediately follows that the agreement between employer and employee regarding the pension obligation is justified if it satisfies two conditions: (i) the agreement is a result of a collective agreement between the social partners, hence this concerns the *nature* of the contract, and (ii) the agreement contributes directly to the improvement of the employment conditions. This concerns the *purpose* of the contract (Hage et al., 2010). In another case for the Netherlands the Court justified the pension obligation by the fact that otherwise the contracting freedom of the social partners would be undermined.¹⁰ More recently, in a comparable case for France the ECJ ruled that the obligation is still justified.¹¹

Using the existing jurisprudence, we can conclude that solidarity features are very important for maintaining the Dutch occupational pension obligation. However, several elements in the new pension agreement, as proposed in 2011, might weaken solidarity. Examples are a potentially reduced degree of risk-sharing and the link between the retirement age and life expectancy (Degelink, 2012). However, some solidarity features remain unchanged in the new contract, which helps to preserve the justification of mandatory participation.

The APF might provide an interesting opportunity for the export of pension services by Dutch financial companies and might provide benefits for small pension funds because of economies-of-scale. The exact format and implementation of the APF are still under consideration, as there may be important consequences for the interpretation of the pension obligation (Boot, 2007). Under the current proposals a pension fund in which participation is mandatory cannot be converted into an APF, while leaving the nature and scope of

⁹The verdicts of the ECJ on 21 September 1999 (case C-67/96, Albany International BV against Stichting Bedrijfspensioenfonds Textielindustrie; joint cases C-115-117/97, Brentjens Handelsonderneming BV against Stichting Bedrijfspensioenfonds voor de Handel in Bouwmaterialen; and case C-219/97, Maatschappij Drijvende Bokken BV against Stichting Pensioenfonds voor de Vervoer- en Havenbedrijven) demonstrate that the occupational pension obligation does not violate European competition law (Hoogervorst, 2000).

¹⁰Case C-222/98, H. van der Woude against Stichting Beatrixoord in 2000, where the social partners agreed on a collective health care scheme that was carried out by an insurance company. H. van der Woude requested for the employer’s part of the health care contributions a different (cheaper) health insurance. However, the Court ruled that this would undermine the agreement between the social partners (ECJ, 2000).

¹¹This test concerned a supplementary healthcare scheme for the entire French bakery sector. Upon request from the trade unions, the Minister of Labour made this scheme compulsory for the entire sector. However, this decision was challenged by a healthcare company. In 2011, the Court ruled that the obligation was necessary to ensure the financial sustainability of the collective scheme (ECJ, 2011).

the mandatory participation unaffected (Ministerie SZW, 2012b, 2013a, 2015c). Hence, it may be quite difficult for both the APF to gain popularity, as the Dutch pension market is dominated by funds in which participation is mandatory.

The development of the APF would likely be stimulated once mandatory funds are allowed to join these or convert into these as well. Among others, Drijber et al. (2007) argue that in this case the obligation for sectors and industries to participate in a specific occupational pension fund will change into an obligation to participate in some pension scheme. This way, these sectors and industries are also able to make use of the APF, while this is not the case under the current proposals. This possibility is currently under investigation by the Ministry of Social Affairs and, if desirable, the alternative type of pension obligation will be implemented at a later stage (Ministerie SZW, 2015c,a).

Overall, there are several possible scenarios for the development of mandatory participation. First, if pension arrangements remain within the original pension funds, there are practically no consequences for the sustainability of the obligation. Second, if an increasing number of mandatory pension arrangements become managed by an APF, which operates in a competitive market and also offers other pension products, pressure may arise to relax the obligation to participate in a specific arrangement. For example, firms or employees may obtain the opportunity to switch between arrangements offered by the same APF. Moreover, once a strong connection between pension contributions and benefits emerges, the pension fund will become to be considered as a commercial enterprise. This makes it even harder to justify mandatory participation (Vos and Pikaart, 2007).

In February 2015 the possibility of combining IPFs with mandatory participation while allowing for ring-fencing was proposed by the amendment of Lodders and Vermeij (2015). Under this amendment, these pension funds would be able to gain from some advantage of economies-of-scale and keep their original assets separated (ring-fencing). This is particularly attractive in case two pension funds wish to collaborate, while their funding ratios differ substantially. Note, however, that this does not imply that these IPFs with large mandatory participation can make use of an APF. Hence, the amendment concerns the combination of IPFs with mandatory participation only, while an APF can only be formed by pension funds without large mandatory participation. The decision of the Dutch Cabinet on this amendment is important for processing the bill of the APF by the Dutch Senate. Furthermore, the sustainability of the mandatory participation, when this amendment would come into force, is currently under investigation (Ministerie SZW, 2015a).

In Table 2 we present an overview of features of occupational pension contracts, where we indicate whether the ECJ justifies mandatory participation or not. As for the current contract, we know from jurisprudence that mandatory participation is justified. We also consider a fictitious contract, which is an individual arrangement without risk-sharing and with possibilities for opting out. We can argue that the ECJ does not justify mandatory

Table 2: Justification mandatory participation Dutch occupational pension scheme

Features Dutch pension contract	Judgement ECJ
Old contract:	
<ul style="list-style-type: none"> • agreement between social partners and employees (<i>nature</i>) • collective agreement (<i>nature</i> and <i>purpose</i>) • high degree of solidarity (<i>purpose</i>) <ul style="list-style-type: none"> ◦ uniform contribution rate ◦ conditional indexation ◦ nominal guarantees (DB-elements) ◦ no adverse selection 	mandatory participation justified
New contract:	
<ul style="list-style-type: none"> • (possibly) less risk-sharing (<i>purpose</i>) <ul style="list-style-type: none"> ◦ link between retirement age and life expectancy ◦ link between minimum required contribution rate and yield curve ◦ limited smoothing period of shocks • possible consequences APF/IORP II Directive (<i>purpose</i>) <ul style="list-style-type: none"> ◦ more market competition ◦ benefits linked to contributions ◦ switching between funds allowed ◦ ring-fencing 	justification for mandatory participation may have become weaker
Fictitious contract:	
<ul style="list-style-type: none"> • individual (DC) arrangements (<i>nature</i>) • no risk-sharing between participants (<i>purpose</i>) • switching between funds allowed (<i>purpose</i>) 	mandatory participation not justified

participation for this fictitious contract, as it is not a collective agreement (*nature*) and it features a low degree of risk-sharing (*purpose*). As discussed above, the new Dutch pension contract potentially leads to less risk-sharing, while the introduction of the APF and the IORP II Directive might erode some solidarity features as well.

5.2 Further developments

Recently, several issues have come to the fore that are important for maintaining mandatory pension participation in the Netherlands. First, the governance requirements for pension funds have been revised and implemented in the Dutch pension law. The legislation about independent and professional governance came into effect in July 2014 (Ministerie SZW, 2013d). Second, some developments support the conditions for the implementation of the APF. Note that by permitting ring-fencing, solidarity among the participants may be reduced. Third, the revised financial assessment framework, the nFTK, may have implications for the degree of intergenerational risk-sharing. Moreover, it is unclear whether and when this framework for occupational pension funds will be replaced by the IORP

II Directive. For the time being, the nFTK, rather than the IORP II Directive will monitor the solvency of Dutch pension funds (European Commission, 2013). Fourth, the degree of risk-sharing may decrease if pension contributions or accrual rates were to become age-dependent. Fifth, the legislation concerning the possibilities to switch between pension funds is under discussion (Ministerie SZW, 2012c; Lever et al., 2015). This is particularly important for maintaining mandatory participation, as the scope for risk-sharing will be undermined when participants are allowed to switch between funds without additional costs. Finally, it is unclear whether it will be possible for mandatory IPFs to collaborate.

6 Pension arrangements and mandatory participation in other countries

In this section, we concisely describe the pension systems of some other countries, particularly those with mandatory participation features in their occupational pension schemes. Moreover, we compare these features to those in the Dutch pension system. Our descriptions of the pension systems of Australia, Chile, Sweden and the U.K. are for a substantial part based on GAO (2012). We also discuss the pension systems of Denmark, Iceland, Switzerland and the U.S. A detailed overview of national pension schemes can be found in OECD (2013).

6.1 Australia

According to the Melbourne Mercer Global Pension Index 2014 the Australian system is ranked as number two (Mercer, 2014, p.7-9). Hence, a priori it is interesting to discuss the main features of the Australian pension system, which is known as “Superannuation”.

The first pillar provides a means-tested state pension financed by general government revenues and indexed to CPI inflation. The second pillar is a mandatory occupational pension scheme. Since 1992 Australian employers have been required to contribute a minimum percentage of an employee’s salary to a pension account. Originally, the minimum contribution rate was 3%. Since 2002, it has been 9%, while the government has proposed to gradually increase this minimum to 12% from 2025 onwards. About 85% of the pension plans are DC, while the remaining plans are DB. As of the age of 55, individuals are allowed to draw down accumulated benefits as a lump-sum or annuity. In 2025, this minimum age will be 60. However, participants are required to continue contributing to a fund until the age of 70. For those who do not choose a specific pension plan, employers have been required to designate a default plan.

There are three types of trust-based pension plans: (i) industry-wide or single-employer plans, which are managed by non-profit entities; (ii) retail plans, which are managed by

for-profit service providers; and (iii) self-managed plans, in which participants manage their own pension account. The pension provider is required to inform the participants about financial decisions and the financial status of their pension wealth. In particular, participants receive an annual disclosure, such that they can easily find important information and compare products.

There is a pension regulator, who assesses the riskiness of pension plans by giving them a score from low (least risky) to high (most risky). Moreover, plans with more than \$50 million in assets are required to report quarterly, on top of the standard annual reporting. While contributing to a pension account is mandatory, some participants are eligible to choose their own fund, whereby one is not allowed to change funds more than once a year. However, other participants have no freedom to choose a pension fund, as they are employed under an industrial agreement and, therefore, are obliged to participate in the employer's fund.

Finally, the Australian pension scheme applies a tax-tax-exempt (TTE) rule, whereby contributions and the accumulation phase are taxed, while the pension benefits are untaxed. This is in contrast to most countries, including the Netherlands, as typically the EET rule is applied to stimulate pension savings.

6.2 Chile

In 1981, Chile switched from a public PAYG pension system to a second-pillar system of mandatory individual DC plans. Moreover, an additional reform added a first pillar pension for people of retirement age without a pension or with a very low pension. They can apply for a means-tested social security pension, which is financed from general government revenues.

Each month, Chilean workers contribute 10% of their income, up to a certain threshold, to a pension fund management company, a so-called *Administradoras de Fondos de Pensiones* (AFP). An AFP manages the accounts of the participants and provides information on their pension benefits. Currently, there are six AFPs and workers are free to choose in which AFP they participate. Participants are also free to choose among five types of funds offered by their AFP. These funds range from what is referred to as fund A with the most risky investment portfolio through fund E with the least risky investment portfolio. Upon retirement, participants can choose to buy an annuity from an insurance company or to set up a schedule for withdrawals from the AFP. Combinations of these two options are also possible.

There is a guaranteed minimum pension for those who have contributed for at least 20 years. In addition to the contribution for a worker's own pension, AFPs charge contributions for survivor and disability insurance. These contributions are used for pension

benefits of (partly) disabled workers and surviving relatives of pensioners.

Employers are required to withhold the contributions of their employees from their salary and transfer them to the employees' pension fund. Employers are not required to make additional contributions to their employees' accounts, except for survivor and disability insurance. From 2015 onward, contributions will also be mandatory for the self-employed. There is a specific default option for those who do not actively choose an AFP or a fund. AFPs charge administrative fees and the AFP with the lowest fee is the default for all Chilean workers. The default AFP is determined by a bidding process that takes place every two years. The pension fund's default is a life-cycle investment strategy, in which the riskiness of the investment portfolio decreases with age (for example, fund B for young workers, fund C for middle-aged workers and fund D for older workers and retirees). About 75 percent of the participants use the default option. Hence, each AFP has a strong incentive to become the lowest cost provider.

Participants can only invest through one AFP, hence duplication of costs is avoided. The lowest-cost AFP that won the first bidding process charged a fee of 1.14% of a participant's salary, which was substantially lower than the 2.36% charged by the highest-cost AFP. The AFP that won the second bidding process charged 0.77% of the salary, while the current default AFP has charged 0.47% for two years from August 2014 onwards. Hence, the bidding process has increased market competition and resulted in lower fees. Moreover, all participants receive a personalized fee disclosure and an overview of what they would have been charged if they were in one of the other five AFPs.

There are at least two major differences with the Dutch pension system. First, the obligation to participate holds for all workers in Chile, while in the Dutch system this obligation applies to specific sectors and industries. However, 90% of the Dutch employees participate in a pension fund, which is substantially more than the approximately 60%-70% participation rate of workers in Chile, because so far the self-employed (about a quarter of total employment) have not been required to participate, while effectively it has been impossible to enforce the participation of many low-wage earners who frequently switch jobs (James et al., 2010). However, we can expect an increasing participation rate in Chile, as the pension obligation will be gradually introduced for the self-employed as well. Second, because it features individual DC retirement accounts, the scope for intergenerational risk sharing in the Chilean system is substantially smaller than in the Dutch system.

6.3 Denmark

The Danish pension system was ranked number one in the Melbourne Mercer Global Pension Index 2014 (Mercer, 2012, p.7), a choice that was motivated as follows "A first class and robust retirement income system that delivers good benefits, is sustainable and has

a high level of integrity.” Here, our discussion of the Danish pension system will be based mainly on Guardancich (2010).

The current retirement age in Denmark is 65, but it is set to rise to 67 during 2024-2027 by six months per year. Early retirement is possible, but at a reduced benefit. The first pillar is formed by a residence-based mandatory PAYG state pension, which consists of a basic benefit that is gradually reduced for incomes above a certain level, a means-tested supplement and a small funded part for all employees between the ages of 16 and 67. The contribution rate to the latter part is approximately 1%, of which two-thirds are covered by the employer and one third by the employee. People who have lived in Denmark for at least 40 years are eligible for a full PAYG state pension. For those with fewer years of residence, the state pension is reduced pro-rata. Depending on their pension balance at retirement, pensioners can receive monthly payments in case of a high balance, an annuity in case of a moderate balance or the entire balance as a lump sum in case it is low. People on maternity leave and unemployed receive benefits from this fund as well. Moreover, there is a voluntary public fund to top up pensions in the case of disability.

The second pillar is a funded occupational pension scheme. While it is not mandatory by law, as employers contribute voluntarily to a pension fund, in practice it is mandatory through the collective, mainly industry-wide, agreements among the social partners. In contrast to most of the Dutch agreements, these agreements are of the DC type, whereby the contribution rate is typically between 9%-17%. On average, it is about 11%, of which the employer contributes two-thirds. As in the Netherlands, the contributions are exempted from tax, while the retirement benefits are taxed. However, in Denmark the annual interest gains during the pension accumulation phase are taxed. Both the Danish and Dutch occupational pension schemes have a participation rate of more than 90% of the employees.

Finally, also Denmark features a third pension pillar that consists of voluntary funded DC schemes, mainly for those who are not covered by a second-pillar pension.

6.4 Iceland

This description is based on Jonasdottir (2007). The Icelandic pension system also consists of three pillars. The first pillar provides a public pension financed by an income tax of approximately 6%. It consists of a basic pension and a supplementary pension. Both components are means-tested, whereby the benefits decrease for earnings above a certain threshold.

The second pillar is an occupational funded scheme. The retirement age is 67, although early retirement is also possible, but against reduced benefits. The scheme is mandatory for all wage earners since 1974 and for all self-employed since 1980. Employees are free to

choose their occupational pension fund. There is a minimum contribution rate of 12% of earnings, of which the employers contribute 8% and the employees contribute 4%. These contributions are divided into two parts. The first part is used to provide a monthly benefit of at least 56% of average monthly earnings (based on 40 years of contributions) from retirement until death. Retirement benefits for this first, and mandatory, part are guaranteed. Hence, through this guarantee the Icelandic pension system features a high degree of risk-sharing. The second part, and in particular that part of the contributions that exceeds the mandatory 12%, is placed into individual accounts. The majority of these plans are DC, while approximately 25% of them are DB, as they provide a guaranteed retirement income adjusted for price inflation.

Taxation follows the EET system by which retirement benefits are taxed. However, for the mandatory pension scheme, the tax-exemption rule only applies when contributions by the employee do not exceed 4% of his income and those by the employer do not exceed 8% of his income. Hence, there is a maximum of tax deductible contributions of 12% of the employee's income. For the third pension pillar, which consists of voluntary arrangements, tax deductibility applies to a maximum contribution by the employer of 2% of the employee's income. Until the age of 60 pension wealth cannot be withdrawn from these voluntary individual pension savings.

6.5 Sweden

This description is largely based on Sunden (2006) and GAO (2012). Before the 1998 pension reform in Sweden, the first-pillar public pension scheme covered about 75% of total retirement income. The second pillar consisted of occupational pensions, while the third pillar comprised individual accounts. These pillars covered about 15% and 10% of total retirement income, respectively.

There was a need for reform, in particular because the pension rights and benefits were growing faster than wages and contributions. Moreover, population ageing was putting pressure on the financial stability of the system. Hence, in 1998 the public pension system was transformed into a mandatory "notional defined-contribution" (NDC) scheme: a DC plan financed on a PAYG basis. Moreover, a mandatory second pillar of funded individual accounts was introduced, known as the "Premium Pension Plan". Under this new system, benefits are more closely linked to contributions, while they are dependent on lifetime earnings. Moreover, the benefits are adjusted automatically to longevity changes.

The total mandatory contribution rate equals 18.5%, of which 16 percentage points is contributed to the NDC plan. The contributions under the NDC plan are recorded in the participants' individual accounts to fund their claims. However, these accounts are notional in the sense that the contributions are used to finance current pension benefits to retirees as under a PAYG scheme. The notional accounts are updated on the basis of the

three-year moving-average increase in economy-wide earnings. Each cohort's accounts are moreover updated through the redistribution of the accounts of the cohort members who die.

Under the NDC plan, the retirement age is flexible, though subject to a minimum age of 62, which will be increased to 63 in 2019. At retirement, the accumulated notional capital is converted into an annuity calculated by dividing the notional account by a so-called "annuity divisor", which is linked to the average life expectancy. This way the system is less vulnerable to population ageing. Hence, if longevity increases, people are stimulated to retire at a later age in order to maintain the same replacement rate. After retirement, benefits rise in line with nominal average earnings minus the interest rate imputed in the annuity divisor. Indexation of pensions in payment and returns credited to the accounts is affected by an automatic balancing mechanism based on the system's funding ratio and designed to secure its financial stability and minimize the risk of political manipulation. Next to the public pension scheme, the state provides a means-tested guaranteed minimum benefit, which is financed by general tax revenues.

The remaining 2.5% of the contributions are credited to mandatory individual accounts under the Premium Pension Plan, which was introduced to allow participants to manage their pension wealth according to their own risk preferences and to profit from the returns on the capital market. A government agency (the PPM) has been established to administer the plan and keep administrative costs low. Participants are allowed to change funds on a daily basis. People are free to choose a maximum of five different funds out of more than 800 funds.¹² There are external advisers who provide investment advice for a certain fee. Also under the Premium Pension Plan benefits can be withdrawn as of the age of 62. Subsequently, participants are required to annuitize their savings. They can choose to keep their annuities in their own funds. However, these annuities do not provide guarantees. For a guaranteed annuity, they can move their asset holdings into an insurance product. Since 2010 a default life-cycle fund has been in place for those who do not actively manage their pension wealth. This default fund is an independent non-profit government entity that places the accounts of younger individuals into a global equity fund, while in order to reduce investment risk the accounts of older participants are gradually shifted into bond investments as they grow older.

In addition to these public arrangements, there are also quasi-mandatory occupational schemes that cover about 90% of the employees. These schemes mix DB and DC elements. Employees born before or in 1978 fall under the old plan, while those born later fall under the new plan in which they contribute a fixed percentage of their salary over a certain range. They can choose the form of savings, subject to some restrictions, and the fund manager.

¹²Discussion of some behavioural biases concerning this type of investment is found in Benartzi and Thaler (2001).

The Swedish system differs in particular from the Dutch pension system on four accounts. First, participation in the Swedish system is mandatory for all workers. Second, the Dutch second pillar mostly consists of collective DB arrangements with intergenerational risk-sharing, while the Swedish second pillar consists of individual DC plans without any risk-sharing. Third, the PAYG component is dominant in the Swedish system, in contrast to the Netherlands where the first and second pillars are of roughly the same magnitude. Fourth, for their individual accounts, the Swedes can tailor their risks by choosing among a large number of different pension funds, while participants in Dutch funds are not able to take their own investment decisions. Nevertheless, a large fraction of the Swedish participants do not actively choose and, therefore, they participate in a default fund.

6.6 Switzerland

The Swiss pension system consists of three pillars, of which the first and the second pillar are mandatory to participate in. The first pillar provides retirement benefits that are financed on a PAYG basis. Employers and employees each pay half of the contributions. The first-pillar contribution rate equals 10.3% of an employee's salary, whereby the employer and the employee each pay half of the contribution. This includes old-age and survivors' insurance (8.4 percentage points), invalidity insurance (1.4 percentage points) and compensation in case of service or maternity (0.5 percentage points). For the self-employed, the contribution rate is lower (a maximum of 9.7%) and dependent on the annual income. The level of the retirement benefit depends on the number of years contributions have been made and the height of the average lifetime earnings. A minimum benefit is provided for each eligible resident and a maximum for people with average lifetime earnings above a certain threshold.

The second pension pillar is a mandatory occupational scheme. This scheme is funded on the basis of given contribution rates over annual income. There are four age classes for the contribution rate. The contribution rate is 7% for the youngest age class and increases to 18% for the oldest age class. The retirement ages for men and women are 65 and 64, respectively. Employers are obliged to provide a collective pension scheme and employees are required to participate in it. The retirement benefits vary depending on the pension fund. However, the system features a DB element in the sense that there is a statutory minimum benefit of about 7% of the participant's accumulated pension wealth. Pension wealth accumulates at a given interest rate that is broadly equal to the growth rate of earnings and that tends to be adjusted every two years.

Finally, the third pillar consists of voluntary pension plans offered by insurance companies and banking foundations, in particular for those who want to supplement the benefits from the compulsory scheme.

Swiss pension arrangements are under pressure for several reasons. Due to population

ageing there is concern about the sustainability of the PAYG first pillar. Moreover, the second pillar is fragmented over more than 4,000 funds, lacks transparency and has achieved only low investment returns so far. Hence, it is inevitable that the Swiss pension system will be reformed, as the current promises by the system cannot be met in the future (Blaich, 2010). Moreover, it is suggested that the retirement age should be raised to make the system more robust (Mercer, 2012).

6.7 The United Kingdom

The U.K. public first pillar consists of a flat-rate basic pension and an earnings-related supplementary pension. For the latter, the benefit is based on the average lifetime salary, with contributions in earlier years uprated with economy-wide average earnings. After retirement, benefits are indexed to prices. Public pensions are financed by contributions from workers. Up to a certain income threshold, no contributions have to be paid. The contribution rate is 12% between this lower threshold and an upper threshold, while it is 2% on earnings beyond this upper threshold (HMRC, 2012).

Workers can also voluntarily save for additional pension income via the second pillar. Since 2001, employers who had not been sponsoring a pension plan before have been required to designate a pension provider for their workers. Moreover, since October 2012, employers have been required to automatically enrol their employees into a pension plan and provide a minimum contribution (DWP, 2012b). There is no mandatory participation for employees, as they are permitted to opt out within a month after the automatic enrolment. Thereafter, contributions are locked in the pension scheme until the age of 55. Once every three years, employers are required to re-enrol the opt outs. All plans provided by employers are required to have a default fund. Depending on the pension scheme, participants might be able to reduce or increase the level of contributions.

From 2012 to 2017, the minimum contribution rate to the second-pillar plan under automatic enrolment is 2% for the employee and 1% for the employer. In 2017, the minimum rates will be raised to 5% and 2%, respectively, and from 2018 and on, these rates will be 8% and 3%, respectively. The government contributes 1% through tax relief. Hence, the current total minimum contribution rate is 4% of income and it will be gradually raised to 12%. On average, the contribution rate to DB plans is higher than to DC plans. The average contribution rate to DB plans was 5.2% for employees and 15.4% for employers, while for DC plans these rates are on average 2.9% and 6.1%, respectively (Office for National Statistics, 2014). About 70% of the total pension assets are kept in DB plans, while the roughly remaining 30% are kept in individually-arranged DC plans.

There are two main types of pension plans in the U.K.: trust-based plans provided by non-profit entities and contract-based plans provided by for-profit pension-service providers. In particular, there exists a non-profit trust-based DC pension scheme known as “National

Employment Savings Trust” (NEST), which is established to support automatic enrolment at low cost. However, a number of new trust-based plans have been launched to compete with NEST.

The current retirement age is 65. However, the retirement age is set to gradually increase to the age of 68 for generations born in 1978 or later (DWP, 2012c). Furthermore, the government is considering to link the retirement age to life expectancy in the future. Early retirement is possible, but not before the age of 55 and only when the participant meets specific requirements, such as a secured minimum lifetime income. In general, pension wealth is used to purchase an annuity. There are also efforts to improve the participants’ selection of the annuity provider by publishing prices and providing information on the website of the “Money Advice Service” (DWP, 2012a).

6.8 The United States

This description is based on Thompson (2006). The retirement system in the U.S. comprises public pension provision, employer-sponsored plans and individual accounts. The public-sector program is dominant for the lower half of the income distribution, while private and/or individual arrangements are dominant for the upper half of the income distribution. Recently, a debate has emerged about the financial sustainability of the public-sector and private-sector retirement programs. Sustainability has become an issue in particular now that the baby-boomers have started to retire.

Public pension provision, the first pillar, takes place through the Old-Age, Survivors’ and Disability Insurance (OASDI) Social Security program. The pension is financed through contributions by employers and employees. Part of the contributions are also used to finance disability benefits and benefits to survivors. Benefits are adjusted annually in line with the rate of growth of average earnings.

Individuals who retire at their “normal” retirement age receive a full benefit. However, it is possible to retire earlier, but against a reduced benefit. The normal retirement age differs per cohort. For individuals born in 1937 or earlier, the normal retirement age is 65. The retirement age increases by two months a year for the cohorts born in the period 1938-1943 and it again increases by two months a year for the cohorts born in the period 1955-1960. Hence, for the cohorts born in 1943-1954 the retirement age is 66 and for the cohorts born in 1960 and later, it is 67. Early retirement, with reduced benefits, is possible as of the age of 62.

While public pension benefits depend on the individual’s career average income, the system does redistribute high- to low-income earners. As a consequence, average earners obtain retirement benefits of about 43% of their career-average income, while the lower- and upper-half of the income distribution receive about 70% and 30%, respectively.

The second pillar consists of employer-sponsored programs. These programs used to be mainly DB pension plans, while employers often offered additional voluntary DC plans. However, in the last decades many DB plans have been replaced by DC arrangements. The most common form of DC plan is the so-called “401(k) plan”, which diverts a share of the employee’s salary to an individual retirement account, which may also allow for a profit sharing arrangement. A penalty tax has to be paid by people who draw down their retirement account before their retirement age. Participants can select their investment portfolio by choosing out of several investment products. Some employers hire professionals to manage their employees’ investments. About 10% of all the retirees are required to take benefits in the form of an annuity and about 20% of retirees are required to take the balance as a lump sum. The remaining 70% of retirees are allowed to select their pay-out strategy. However, only one in four chooses to take out an annuity.

Individual Retirement Accounts (IRAs), which form the third pension pillar of the pension system, cover about 25% of the private-sector retirement programs. They are mainly intended for self-employed and employees not covered by an employer-sponsored plan. The rules for withdrawing IRA balances are quite similar to those for employer-sponsored accounts.

Participation in the public retirement program is mandatory for all employees who pay tax. Employers are not required to provide a pension plan to their employees, but the use of default options in order to stimulate employees to participate in a pension scheme gains popularity (Dellaert and Ponds, 2014). Roughly 60% of the employees in the U.S. have the possibility to participate in a pension plan provided by their employer and of these about 80% choose to do so.

6.9 Comparison across the countries

We cannot a priori say which pension system is “better” than another, as this depends on country-specific factors, such as the political, demographic and economic conditions. For example, a pension arrangement that is more generous is not necessarily “better”, because it may also require higher contributions from its participants. To the extent that this raises the costs for the employers it also impacts negatively on their labour market position. Moreover, we cannot say what the best design for a second-pillar pension is, because this depends strongly on how the first pension pillar is arranged. However, we can learn from other countries’ pension system designs and compare their specific features to the Dutch system.

First-pillar pensions can be financed through a specific social security tax or through general public revenues. For the countries reviewed in this section, we have seen that most first pillars are means-tested or income-tested schemes and are financed by general revenues or a social security tax. The Danish first pillar uses both sources of financing, as it

Table 3: Financing of and benefits from the first pension pillar

	Type of financing	Benefit
Australia	general revenues	means-tested
Chile	general revenues	means-tested
Denmark	general revenues and social security tax	means-tested and income-tested
Iceland	social security tax	means-tested
the Netherlands	social security tax	flat rate
Sweden	general revenues	means-tested
Switzerland	social security tax	income-tested
U.K.	social security tax	income-tested
U.S.	social security tax	income-tested

contains a means-tested basic pension and an income-tested supplement. Table 3 reports the sources of financing and the format of the benefits from the first pension pillar of the countries we have reviewed. For example, the Dutch first pillar provides flat benefits, as each Dutch resident receives an equal benefit independent of means or earnings.

Occupational second-pillar pension schemes are usually funded. Only in Sweden the occupational pension scheme is financed on a PAYG basis, although the benefits are linked to the contributions as well. Table 4 reports the type of financing of the second-pillar pension schemes of the various countries. We have seen that most countries feature a DC arrangement or an arrangement that combines DB and DC elements. The Netherlands is rather extreme in that the far majority of the arrangements are of the DB type, DB meaning that retirement benefits are guaranteed in nominal terms.¹³ The third pillar schemes of the countries we reviewed are all based on voluntary arrangements. The third pillars are intended for those who are insufficiently or not at all covered via the other pillars.

As discussed, as a consequence of population ageing and adverse financial shocks, the sustainability of pension systems is under pressure almost everywhere. For some countries this has already resulted in pension reform. Chile, Denmark, Sweden and the U.K. are examples of countries that have reformed their pension systems. In all the other countries reviewed here, there is a debate about potential reform. Some countries have raised the retirement age or introduced a link between life expectancy and the level of the retirement benefits. Table 5 provides an overview of the retirement age and its features. Moreover, some countries, in particular Sweden, the U.K. and the U.S., have seen a broad shift from DB to DC (OECD, 2011). Also the new pension contract in the Netherlands will feature more DC elements, a development which may be relevant in relation to the mandatory participation in the system.

¹³According to a study of Towers Watson (2015), 95% of total Dutch pension assets is allocated to DB. The pension schemes of Canada and Japan also rely almost entirely on DB plans.

Table 4: Financing of the second pension pillar

	Financing (DC - DB)^a	Contribution rate^b
Australia	funded (85% - 15%)	minimum of 12%
Chile	funded (in principle DC, but de facto partly DB, due to minimum guarantees)	minimum of 10% (administrative fees not included)
Denmark	funded (95% - 5%)	typically between 9%-17% (about 11% on average), of which the employer contributes two-thirds
Iceland	funded (mandatory part DB, remaining part 75% - 25%)	minimum of 4% (for the employer: minimum of 8%)
the Netherlands	funded (5% - 95%)	average of 6.4% on earnings above a threshold (for the employer: average of 11.2%)
Sweden	PAYG (mostly notional DC; small part DC and DB)	mandatory 9.25% (also for the employer: mandatory 9.25%)
Switzerland	funded (60% - 40%)	mandatory 3.5%-5%-7.5%-9% from youngest to oldest age class (also for the employer: mandatory 3.5%-5%-7.5%-9%)
U.K.	funded (29% - 71%)	minimum of 2%, but will be increased to 8% (for the employer: minimum of 1%, but will be increased to 3%, for the government: 1%)
U.S.	funded (58% - 42%)	average of 9%

^aThe shares of total pension assets invested in DC and DB plans for Australia, the Netherlands, the U.K. and the U.S. are based on a study of Towers Watson (2015) and the shares of Switzerland are based on Towers Watson (2012). The figures for Denmark and Sweden are based on OECD (2013, p.191).

^bThis concerns the employee's part of the contribution rate on earnings. Usually, employers also contribute to employees' pension plans.

Table 5: Retirement age

Retirement age and related features	
Australia	draw down benefits from 55 onward, contributing until 70
Chile	men: 65; women: 60; early retirement only if someone meets specific requirements
Denmark	currently 65; however, it will be increased to 67
Iceland	normal retirement age of 67, early retirement not before the age of 60
the Netherlands	currently 65; however, it will be increased to 67
Sweden	minimum of 62; however, it will be increased to 63; later retirement is accompanied with higher retirement income
Switzerland	men: 65; women: 64
U.K.	normal retirement age of 65; however, proposal is to increase it to 68; early retirement not before the age of 55 and sufficient lifetime income needs to be assured
U.S.	normal retirement age between 65-67 depending on someone's year of birth; penalty tax is imposed in case of early retirement (possible at the age of 62 at the earliest)

The arrangements in the countries we reviewed above suggest that there are at least four different ways to support pension participation. First, a pension scheme can rely on mandatory participation by law for all wage earners. This is the case in Chile, Iceland, Sweden and Switzerland. Second, a scheme can rely on mandatory participation for employees only and, therefore, not for self-employed. This is the current situation in Australia, and it used to be the case in Chile during 1981-2014. Third, there are countries with a quasi-mandatory pension scheme, such as the Denmark and the Netherlands. Under these schemes, employers and employees are bound through collective agreements between the social partners, which makes participation *de facto*, if not *de jure*, mandatory. Fourth, when participation is voluntary, it can be stimulated through default options and beneficial fiscal treatments, such as in the U.K. and in the U.S. Table 6 reports the second-pillar participation arrangements for the countries considered above.

7 Concluding remarks

This paper has discussed mandatory participation in Dutch occupational pensions. Mandatory participation may have important benefits, in particular because it forces short-sighted individuals to increase their savings for retirement and because it allows different cohorts of participants to share risks among each other. Abolishing mandatory participation may induce younger generations to leave the system when it is hit by a bad shock. Knowing that participants can walk away from the system when they are called upon to make additional contributions undermines its sustainability, because individuals might no longer be prepared to participate in the first place. The consequence is that the aforementioned benefits in terms of intergenerational risk sharing are lost for all the participants.

Table 6: Participation in the second pension pillar

	Participation
Australia	mandatory for all employees
Chile	mandatory for all wage earners; however, only 60%-70% participate
Denmark	quasi-mandatory for most employers and employees through collective agreements
Iceland	mandatory for all wage earners
the Netherlands	quasi-mandatory for most employers and employees through collective agreements
Sweden	mandatory for all wage earners
Switzerland	mandatory for all wage earners
U.K.	employers are obliged to enrol employees into a pension fund; employees are allowed to opt out
U.S.	voluntary; however, 60% of employees can participate in an employer-sponsored plan and 80% of these employees decide do so; the use of default options is increasing

We have argued that both Dutch and European developments may have consequences for mandatory participation in the Netherlands. The EU aims at a more competitive pension market through the implementation of the IORP Directive. This might provide interesting opportunities for firms operating in the Dutch pension sector, although there are a number of obstacles to developing cross-border pension activities. Some barriers may be reduced through revision of legislation. A potentially promising development in this respect seems to be the introduction of the APF. However, its introduction may also weaken the justification for mandatory participation. In addition, in a legal sense the new pension contract seems to contain fewer solidarity features.

Pension arrangements differ across countries and there are several ways to support participation in an occupational pension plan. Some countries feature mandatory participation by law for all employees or all wage earners, while other countries rely on voluntary participation, but sometimes offer default options. Current developments pose a number of interesting policy questions. Can individuals be persuaded to participate in a pension savings plan without making participation mandatory? How important will the APF become? What are the consequences of allowing pension funds that operate in the mandatory second pillar to convert into an APF, or to collaborate with each other? To what extent can solidarity be reduced without undermining the legal basis for mandatory participation due to the infringement of competition law? It is difficult to answer these questions for the Netherlands as there are still substantial uncertainties concerning the development of the pan-European pension market and the legislative boundaries set by the European Court of Justice.

8 Bibliography

- AFM (2015). Naar een toekomstbestendig tweede-pijlerpensioen. www.afm.nl.
- AVV (2011). Moedige bekentenis van FNV opent weg voor jongeren. avv.nu.
- Beetsma, R. and Romp, W. (2013). Participation constraints in pension systems. *CEPR Discussion Paper*, 9656.
- Beetsma, R., Romp, W., and Vos, S. (2012). Voluntary participation and intergenerational risk sharing in a funded pension system. *European Economic Review*, 56:p.1310–1324.
- Benartzi, S. and Thaler, R. (1995). Myopic loss aversion and the equity premium puzzle. *The Quarterly Journal of Economics*, 110(1).
- Benartzi, S. and Thaler, R. (2001). Naive diversification strategies in defined contribution plans. *American Economic Review*, 91:p.79–99.
- Bikker, J. and de Dreu, J. (2009). Operating costs of pension funds: the impact of scale, governance and plan design. *Journal of Pension Economics and Finance*, 8:p.63–89.
- Blaich, R. (2010). Switzerland - different from the rest? *AEGON Global Pensions View*.
- Bodie, Z., McLeavey, D., and Siegel, L. (2007). *The Future of Life-Cycle Saving and Investing*. Research Foundation of CFA Institute.
- Boot, A. (2007). Modernisering van het uitvoeringsmodel voor pensioenregelingen en marktwerking. *NEA PAPER*, 6.
- Bovenberg, L. and Gradus, R. (2015). Reforming occupational pension schemes: the case of the Netherlands. *Forthcoming in Journal of Economic Policy Reform*.
- Bovenberg, L., Nijman, T., and Werker, B. (2012). Voorwaardelijke pensioenaanspraken over waarderen, beschermen, communiceren en beleggen. *Netspar Occasional Paper*.
- Campbell, J. and Viceira, L. (2002). *Strategic Asset Allocation: Portfolio Choice for Long-Term Investors*. Oxford University Press.
- Centraal Aanspreekpunt Pensioenen (2015). Overzicht AOW-inbouw en AOW-franchise. www.belastingdienstpensioensite.nl.

- Chen, D. H. J., Beetsma, R. M. W. J., Ponds, E. H. M., and Romp, W. E. (2014). Intergenerational risk-sharing through funded pensions and public debt. *Forthcoming in Journal of Pension Economics and Finance*. An earlier version is available as CESifo Working Paper Series No. 4624.
- CPB (2012). Generatie-effecten pensioenakkoord. CPB Notitie.
- CPB (2014). Doorsneesystematiek in pensioenen onder druk? CPB Policy Letter.
- Cui, J., Jong, F. d., and Ponds, E. (2011). Intergenerational risk sharing within funded pension schemes. *Journal of Pension Economics and Finance*, 10(1):1–29.
- Degelink, B. (2012). Leeftijdsonderscheid door het pensioenakkoord. *Nieuwsbrief Achmea Academy*.
- Dellaert, B. and Ponds, E. (2014). Pensioen op maat: Heterogeniteit en individuele keuzevrijheid in pensioenen. In A. L. Bovenberg, C. van Ewijk, . T. N., editor, *KVS Pre-adviezen Aanvullende Pensioenen*, pages 45–71. Amsterdam: KVS.
- Dijk, P. v. (2007). Pensioen en AOW: van toen tot nu. *Plus Pensioengids*.
- DNB (2012). Premiepensioeninstelling (PPI). www.toezicht.dnb.nl.
- DNB (2013). Toezichtgegevens pensioenfondsen. www.statistics.dnb.nl.
- DNB (2015a). Aanpassing UFR leidt tot realistischer rekenrente voor pensioen. *DNBulletin*.
- DNB (2015b). Position paper DNB ten behoeve van de nationale pensioendialoog. www.dnb.nl.
- DNB (2015c). Premiepensioeninstellingen. www.statistics.dnb.nl.
- DNB (2015d). UFR method for calculating interest rate term structure. www.toezicht.dnb.nl.
- Drijber, B., Rijcken, P., and Fortuijn, D. (2007). Modernisering van het uitvoeringsmodel voor pensioenregelingen. *Rapport uitgebracht aan het Ministerie van SZW*.
- DWP (2012a). Automatic enrolment into a workplace pension. www.dwp.gov.uk.
- DWP (2012b). Removal of stakeholder designation requirements. www.dwp.gov.uk.
- DWP (2012c). State pensions. www.dwp.gov.uk.
- ECJ (2000). ECJ Case C-222/98 mededingingsregelingen en machtspositie — collectieve overeenkomst — premie ziektekostenverzekering voor werknemers. Jurisprudentie.

- ECJ (2011). ECJ Judgment in Case C-437/09 AG2R Prevoyance v Beaudout Père et Fils SARL. Reference for a preliminary ruling: Tribunal de grande instance de Périgueux - France.
- EFRP (2008a). IORP Directive - securing workplace pensions. EFRP paper on Funding and Solvency Principles for IORPs.
- EFRP (2008b). Response to EC consultative document Ares(08)14767. EFRP paper on IORPs covered by article 17 of the IORP Directive IORPs operating on a cross-border basis.
- EIOPA (2012a). EIOPA's advice to the European Commission on the review of the IORP Directive 2003/41/EC. EIOPA-BOS-12/015.
- EIOPA (2012b). Occupational pensions. eiopa.europa.eu.
- EIOPA (2015). EIOPA launches pensions stress test and quantitative assessment on solvency for occupational pension funds. eiopa.europa.eu.
- European Commission (2011). Call for advice from the European Insurance and Occupational Pension Authority (EIOPA) for the review of directive 2003/41/EC (IORP II). ec.europa.eu.
- European Commission (2013). Occupational pension funds (IORPS): Next steps. MEMO/13/454.
- European Commission (2014). Impact assessment. Commission staff working document.
- European Parliament and Council of the European Union (2003a). Directive 2003/41/ec of the european parliament and of the council of 3 june 2003 on the activities and supervision of institutions for occupational retirement provision.
- European Parliament and Council of the European Union (2003b). Institutions for occupational retirement provision. europa.eu/legislation_summaries.
- Frijns, J., Nijssen, J., and Scholtens, L. (2010). Pensioen: onzekere zekerheid. *Rapport van de Commissie Beleggingsbeleid en risicobeheer*.
- GAO (2012). Defined contribution plans approaches in other countries offer beneficial strategies in several areas. Report to Congressional Requesters. GAO-12-328.
- Gollier, C. (2008). Intergenerational risk-sharing and risk-taking of a pension fund. *Journal of Public Economics*, 92(5-6):1463–1485.

- Goudswaard, K., Beetsma, R., Nijman, T., and Schnabel, P. (2010). Een sterke tweede pijler, naar een toekomstbestendig stelsel van aanvullende pensioenen. *Rapport van de Commissie Toekomstbestendigheid aanvullende pensioenregelingen*.
- Guardiancich, I. (2010). Denmark current pension system: first assessment of reform outcomes and output. *Research Project "assurer une pension adéquate dans un contexte européen"*.
- Haan, J. d., Joseph, A., Vos, S., and Wijckmans, J. (2012). De impact van Solvency II-regels op pensioenfondsen. *ESB*.
- Hage, G., Verheijen, S., and Dijk, C. v. (2010). Het opnemen van minimumtarieven voor ZZP'ers in een CAO-bepaling. *Court the Hague, Case 343076 / HA ZA 09-2395*.
- Hassler, J. and Lindbeck, A. (2005). An overview of notional defined pensions plans. *Inter-American Conference on Social Security*.
- Hermanides, E. (2012). Europa kijkt vooral naar risico's. *Het Financieel Dagblad*, page 5.
- HMRC (2012). National insurance contributions. www.hmrc.gov.uk.
- Hoogervorst, J. (2000). Nieuwe regeling voor verplichte deelneming in een bedrijfstakpensioenfonds (wet verplichte deelneming in een bedrijfstakpensioenfonds 200.). *Eerste Kamer der Staten-Generaal vergaderjaar 2000-2001, 27 073(24b)*.
- Hoogervorst, J. (2012). Wet verplichte deelneming in een bedrijfstakpensioenfonds (wet Bpf 2000). www.st-ab.nl.
- IFRS (2011). IAS 19 employee benefits. www.ifrs.org.
- IFRS (2012). Beter inzicht in pensioenverplichtingen onder IFRS. www.accountant.nl.
- James, E., Edwards, A., and Iglesias, A. (2010). Chile's new pension reforms. *National Center for Policy Analysis - Policy Report, 326*.
- Jonasdottir, M. (2007). The Icelandic pension system. *Icelandic Ministry of Finance*.
- Koninklijk Actuarieel Genootschap (2013). Voorontwerp van wet herziening FTK. Reactie Koninklijk Actuarieel Genootschap op de door het Ministerie van Sociale Zaken en Werkgelegenheid uitgezette consultatie.
- Lecq, S. v. d. (2012). Denken over ontkoppeling verplichte uitvoering. *presentation at Netspar PIL conference*.
- Lecq, S. v. d. and Steenbeek, O. (2006). *Kosten en baten van collectieve pensioensystemen*. Kluwer.

- Lever, M., Ponds, E., Cox, R., and Huitron, M. (2015). Internationale vergelijking van kapitaalgedekte pensioenstelsels: Keuzevrijheid kan ruimer, risicodeling internationaal verschillend. *Netspar Letter*.
- Lindbeck, A. and Persson, M. (2003). The gains from pension reform. *Journal of Economic Literature*, 41:p.74–112.
- Lodders and Vermeij (2015). Amending letter: Wijziging van de pensioenwet en enige andere wetten in verband met de invoering van een algemeen pensioenfonds (wet algemeen pensioenfonds). reference: 34 117 Nr. 17.
- Lutjens, E. (1999). *De Wet Bpf, 50 jaar verplichte bedrijfspensioenfonds*. Kluwer.
- Mann, N. (2013). UK DB pension scheme deficits up to £257bn. www.theactuary.com.
- Mercer (2011). Melbourne Mercer global pension index.
- Mercer (2012). Melbourne Mercer global pension index.
- Mercer (2013). Melbourne Mercer global pension index.
- Mercer (2014). Melbourne Mercer global pension index.
- Ministerie SZW (2000a). Wet van 21 december 2000, houdende nieuwe regeling voor verplichte deelneming in een bedrijfstakpensioenfonds (wet verplichte deelneming in een bedrijfstakpensioenfonds 2000). Staatsblad van het Koninkrijk der Nederlanden.
- Ministerie SZW (2000b). Wet van 21 december 2000, houdende regels met betrekking tot de gevallen waarin en de voorwaarden waaronder een bedrijfstakpensioenfonds vrijstelling van de verplichte deelname aan een bedrijfstakpensioenfonds verleent, kan verlenen, intrekt en kan intrekken (vrijstellingsbesluit wet bpf 2000). Staatsblad van het Koninkrijk der Nederlanden.
- Ministerie SZW (2005). Wet van 6 oktober 2005, houdende nieuwe regeling voor verplichte deelneming in een beroepspensioenregeling (wet verplichte beroepspensioenregeling). Staatsblad van het Koninkrijk der Nederlanden.
- Ministerie SZW (2006a). Wet van 7 december 2006 houdende regels betreffende pensioenen (pensioenwet). Staatsblad van het Koninkrijk der Nederlanden.
- Ministerie SZW (2006b). Wet van 7 december 2006 houdende wijziging van de pensioen- en spaarfondsenwet en enige andere wetten in verband met de implementatie van richtlijn nr.2003/41/EG van het Europees Parlement en de Raad van de Europese Unie van 3 juni 2003 betreffende de werkzaamheden van en het toezicht op instellingen voor bedrijfspensioenvoorziening (PbEG L 235/10). Staatsblad van het Koninkrijk der Nederlanden.

- Ministerie SZW (2009). Het Nederlandse pensioenstelsel. www.actuva.nl.
- Ministerie SZW (2010). Wet van 17 mei 2010 tot wijzigingen van de pensioenwet in verband met het uitbreiden van de werkingssfeer voor ondernemingspensioenfondsen. Staatsblad van het Koninkrijk der Nederlanden.
- Ministerie SZW (2011a). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Pensioenakkoord*. reference: ASEA/SAS/2011/16480.
- Ministerie SZW (2011b). Waarborgen voor een “generatieproof” nieuw pensioencontract. Supplement to the letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Pensioenakkoord*. reference: ASEA/SAS/2011/16480.
- Ministerie SZW (2012a). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Algemene Pensioeninstelling (API)*. reference: AV/PB/2012/8020.
- Ministerie SZW (2012b). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Antwoorden verslag schriftelijk overleg API*. reference: AV/PB/2012/16691.
- Ministerie SZW (2012c). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Stand van zaken n.a.v. Witboek Pensioenen*. reference: IZ-EA-2012-15695.
- Ministerie SZW (2013a). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Algemene Pensioeninstelling*.
- Ministerie SZW (2013b). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Consultatie voorontwerp van wet herziening FTK*. reference: 2013-0000099637.
- Ministerie SZW (2013c). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Follow up consultatie voorontwerp van wet FTK*. reference: 2013-0000134942.
- Ministerie SZW (2013d). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Wetsvoorstel versterking bestuur pensioenfondsen*. reference: 2013-0000088278.
- Ministerie SZW (2014). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Voortgangsrapportage De Nationale Pensioendialoog*.

- Ministerie SZW (2015a). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Amendement Lodders/Vermeij: ringfencing bij fusie tussen verplichtgestelde bedrijfstakpensioenfondsen*.
- Ministerie SZW (2015b). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Kamervragen van het Van Klaveren (Groep Bontes/Van Klaveren)*. reference: 2015-0000038233.
- Ministerie SZW (2015c). Letter from the Minister of Social Affairs and Employment to the chairman of the Tweede Kamer on *Wetsvoorstel algemeen pensioenfonds (34117)*.
- NOPD (2012). Herfststatement Nederlandse orde van pensioendeskundigen. NOPD .nl.
- OECD (2011). Pensions at a glance 2011: Retirement-income systems in OECD and G20 countries. OECD Publishing.
- OECD (2013). Pensions at a glance 2013: OECD and G20 countries. OECD Publishing.
- Office for National Statistics (2014). Occupational pension schemes survey, 2013. Statistical Bulletin.
- Omtzigt, P. (2006). De grote verplichtstelling. In Lecq, S. v. d. and Steenbeek, O., editors, *Kosten en Baten van Collectieve Pensioensystemen*, chapter 10. Kluwer.
- Pensioen Federatie (2012a). Premiepensioeninstelling (PPI). Pensioenfederatie.
- Pensioen Federatie (2012b). Regeerakkoord slecht voor pensioenopbouw, vooral voor jongeren. Pensioenfederatie.
- Pensioen Federatie (2014a). Financieel toetsingskader (FTK). Pensioenfederatie.
- Pensioen Federatie (2014b). ZZP'ers. Pensioenfederatie.
- Ponds, E. and Riel, B. v. (2007). The recent evolution of pension funds in the Netherlands: The trend to hybrid DB-DC plans and beyond. *Center for Retirement Research at Boston College*, 9.
- Rijksoverheid (2012). Hoe hoog is de AOW-premie? www.rijksoverheid.nl.
- Schouten, E. (2009). Grensoverschrijdende pensioenen bij verzekeraars: grote verschillen tussen theorie en praktijk. *Pensioen en Praktijk*, 7(11):6–13.
- Schwarz, A. (2006). Why consider a funded pension system? info.worldbank.org.
- Sociaal en Cultureel Planbureau (2015). Pensioenen: solidariteit en keuzevrijheid. Opvattingen van werkenden over aanvullende pensioenen.

- Staatssecretaris SZW (2014). Wet van 2 juni 2014 tot wijziging van de wet verlaging maximumopbouw- en premiepercentages pensioen en maximering pensioengevend inkomen en het belastingplan 2014. Staatsblad van het Koninkrijk der Nederlanden.
- Staatssecretaris van SZW (2014). Memorie van toelichting wetsvoorstel aanpassing financieel toetsingskader. Staatsblad van het Koninkrijk der Nederlanden.
- Sunden, A. (2006). The Swedish experience with pension reform. *Oxford review of economic policy*, 22(1).
- Sutrisna, J. (2010a). De huidige doorsneepremie in de verplichtstelling: een perverse solidariteit? www.aectueel.nl.
- Sutrisna, J. (2010b). Verplichte deelname aan bedrijfstakpensioenfondsen. *Pensioenadvies*.
- Thompson, L. (2006). US retirement income system. *Oxford review of economic policy*, 22(1).
- Tilburg, B. v. (2010). Multi-opf biedt kleine pensioenfondsen nieuwe kansen. www.hollandlaw.nl.
- Towers Watson (2012). Global pension assets study. www.towerswatson.com.
- Towers Watson (2015). Global pension assets study. www.towerswatson.com.
- Vos, M. and Pikaart, M. (2007). Jongeren met pensioen: Intergenerationele solidariteit anno 21e eeuw. *NEA PAPER*, 4.
- Williams, J. (2010). Dutch cross-border IORP could launch 15 new schemes in a year. *Investment and Pensions Europe*.