The supplementary pension table: 301407 - ESTAT grant 2015 04.2.21-2

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Content

1. Background

This report describes the work done and the results obtained in creating the supplementary table on pensions, funded by the Eurostat grant 2015 04.2.21-2.

The international national accounting standards provide a somewhat scattered picture of pension arrangements. The System of National Accounts (SNA 2008) and the European System of Accounts (ESA 2010) allow for a better analysis and international comparability of the pension systems within and between countries, by introducing a supplementary table on pension schemes. Recommendations on how to compile this table have been collected in a technical compilation guide (Eurostat, European Central Bank, 2011). Since its release in 2011, this guide has served as the main reference for European Union National Statistical Institutes for completing the supplementary table, and compiling statistics on pension obligations of those schemes for which no actuarial estimations have previously been estimated.

The supplementary table on pension schemes is mandatory for all EU-countries on a three year basis, starting with 2015. Already in 2010 first preliminary estimates were published for the Netherlands. More recent work by Statistics Netherlands led to a research paper by Schmitz *et al*. (2015). The Eurostat grant led to further development of this pension table, and the methodology used , in order to meet the requirements of ESA 2010.

1.1 Meetings

The first preliminary results of the pension table were published by Schmitz *et al*. (2015). The results of the pension table proved interesting for the general audience as it was the first time that the size of implicit pension wealth of households was estimated in the Netherlands. This resulted in an article by Bruil *et al.* (2015).

Their technical discussion paper was also the input of a meeting with Eurostat[1] in 2016. In this meeting additional questions were raised on the methodology, and guidance was received on the way forward.

The development of the methodology was further presented at the Eurostat/ILO/IMF/OECD Workshop on Pensions, that was held in Paris from March 9 until March 11 in 2016. During this meeting, two presentations were held by Statistics Netherlands regarding the development work.

The first presentation, during the European session, discussed practical issues that arose during the compilation of the supplementary table. These issues were mainly the scope of the table with regard to the schemes covered, and which discount rate to use. As a result of this presentation, and the discussion held, it was clear that only the true old age pensions should be covered, and preferably not the disability and survivor pension schemes. These can only be included in case they can't be excluded. Even though this hampers international comparability, it clearly delineates the scope of the Grant project. Also, there was a debate about the discount rate, where Statistics Netherlands discussed the need for internal consistency in the table, this

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[1] The meeting was held at Statistics Netherlands, the 20th of January 2016. Participants were Jens Gruetz (Eurostat), Carlo Schmitz, and Arjan Bruil (both Statistics Netherlands).

resulted in the wish of Eurostat to provide them with the discount rate they preferred and which was agreed upon in earlier meetings, and in other working groups[2]. This further narrows the scope of this report, because other discount rate approaches are not considered.

The second presentation considered the effect of the chosen life expectancy on the results of column G in the supplementary table on pensions. Using different life expectancy projections, the preliminary results of the supplementary table were provided under four different scenarios. The impact of an increasing retirement age was substantial: entitlements were 13% lower when the retirement age continued to increase with life expectancy, compared with the scenario where it remained at 65 years. In this meeting the question was raised when a planned rise in retirement age should be included in the estimated entitlements for the supplementary table. It was commented that "*if it is in the law then it should be included. However, there may be cases where it may be harder to determine. For example, if it was not a law but an intention (i.e. a further step is needed to ratify to make a law) then he* [Phil Stokoe, IMF] *would not advocate including a planned rise in retirement age*" (OECD, 2016). Jens Grütz (Eurostat) brought up that in the next procedure for the European Commission's Ageing Report a common methodology of the life expectancy forecasts would be used. As a result, there was no need for different scenario's on this subject.

1.2   Grant research questions

The first voluntary transmission to Eurostat was done for the research year 2012. This current research funded by the Eurostat grant is an extension and a refinement of the work done. The project included:

1. Measuring the output of pension schemes, as should be recorded in row 11 of the supplementary table.
2. Adapting the basic model used to estimate unfunded government pension entitlements so the gradual changes in retirement age can be taken into account.
3. Valuing the government pensions entitlements to both the accrued benefit obligations (ABO) and projected benefit obligation (PBO).
4. Considering if other government pension schemes than the General Old Age Pension Act should be included in the estimates of column G and H, and, if needed, estimating the entitlements in these schemes.
5. Performing sensitivity analyses on other parameters than the discount rate.
6. Final estimates for the supplementary table for 2015

Issue [1] applies to the core SNA part of the supplementary table on pensions. Issues [2], [3], [4], and [5] apply to the non-core entitlements, and [6] applies to both and includes the transmission of a fact sheet as well.

In the next section the methodology of constructing the supplementary table will be discussed. We will complement the basic model used to estimate the unfunded state pension benefits of Schmitz *et al.* (2015) with the research questions above. In section 4 we will show the results for the time series 2012-2015, and include the sensitivity analyses on the discount rate, the valuation concept and the retirement age. Section 5 summarizes and concludes. Together with this report excel data files will be presented with the data transmission for the years 2012-2015. Also part of the grant is the fact sheet that comes with the data transmission.

[2] For example the ageing working group

2. Methodology

The supplementary table consist of a core SNA part, which is already covered by the SNA, but the presentation and level of detail of these stocks and flows differs. This part covers the second pillar of the Dutch pension system. The first pillar is hardly covered by the core SNA, only the paid contributions and the received benefits are covered in the sequence of accounts, but entitlements and related financial flows aren't. For this part we need to construct a model based estimate. The third pillar is not part of social insurance and out of scope of the pension table and thus this report.

2.1 First pillar

The subsection includes the research question 2, 3, 4, and 5 as listed in subsection 1.2. The research question 4, whether or not to include other schemes than the old age pension scheme in the pension table was discussed both in the meeting with Eurostat, and in the joint meeting of the Eurostat/ILO/IMF/OECD. This resulted in a clear scope of a pure old age pension, without disability and / or survivor pension schemes. For the government unfunded social schemes the latter two schemes can be independently determined and excluding them is easy. Hence, disability and survivor pension schemes are not considered. However this could hamper international comparison of the pension table, when other countries do include those.

Figure 1: Social insurance benefit by type (2015)
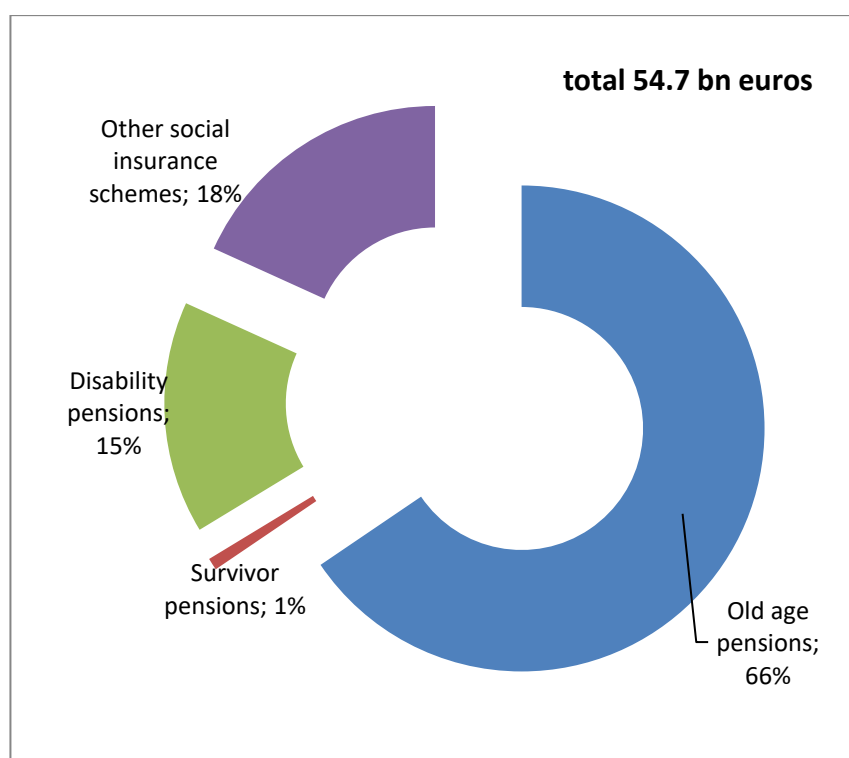
The methodology of the first pillar estimate in column H of the supplementary table on pensions depends on a number of elements. These are the current population, the life expectancy of the current population, the age profile of the state pension benefit (AOW) in the

research year, the retirement age as determined by law, and the setting of parameters which include the discount rate, and the level of indexation. These are discussed in more detail below.

2.1.1 Demography

The model uses the current population as the starting point. This population consists of three subpopulations: (i) individuals above the retirement age, these receive benefits, (ii) individuals below the retirement age who accumulate entitlements, and (iii) individuals below the retirement age who do not yet participate in the scheme. The borders between these subpopulations depend on the age of the population, and the legal retirement age per year. The latter subpopulation has by definition 0 entitlements and are therefore not further considered.

Demographic data is available for a number of subgroups (singles and couples for example), but life expectancy only for men and women (by age). Therefore the most detailed projections can be made by gender only. The number of years one will receive an AOW benefit can be determined, given the age of a person, by his or her life expectancy and the retirement age.

We use the current population and their projected life expectancy instead of the projected population, which is the approach taken in the Freiburg model (Eurostat, European Central Bank, 2011). The published population projections of Statistics Netherlands include migration, and this is unwanted. By using the current population and their life expectancy we eliminate the effect of migration, and have the same scope of the future population as the Freiburg model uses. Also the available time span of the population projections is insufficient. The model should be able to follow the youngest participating age group (15 years old) until they reach the highest age group. This means we need a span of at least 85 years, and therefore in 2012 projections until 2097. This is beyond the currently published projections of Statistics Netherlands, which go until 2060. Instead of working with the number of people by age group in later years, we use the remaining years the current age groups still have to live, and the value of the benefit they will receive in those years.

For the life expectancy we use the most recent projections of Statistics Netherlands. Figure 2 shows the remaining life expectancy of men and women in 2015. A newborn boy has a life expectancy of 80.1 years, and a newborn girl of 83.41 years. This table is available for each year.
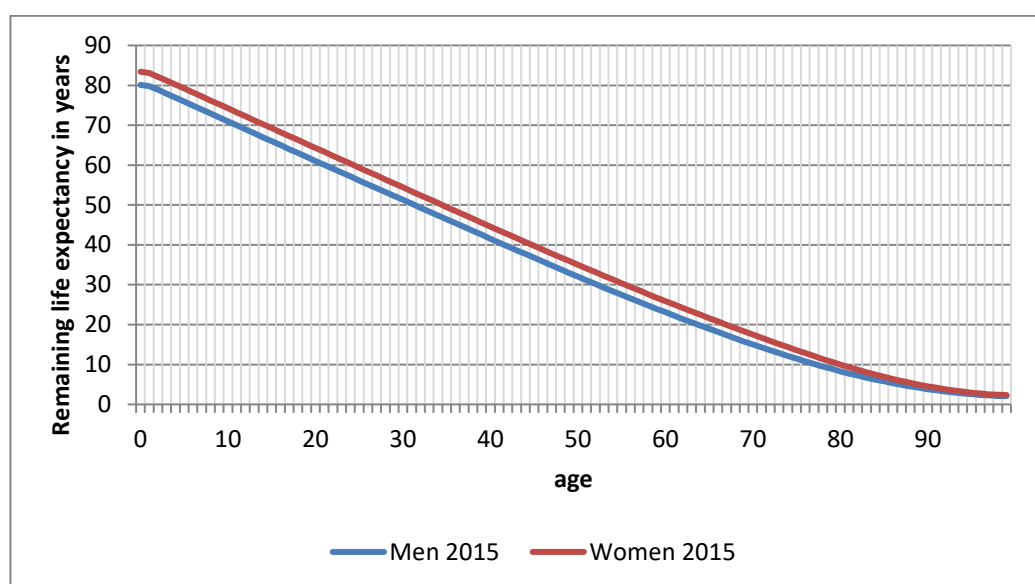
Figure 2: remaining life expectancy (2015)

Table 1 shows the life expectancy for the age group of zero-year olds. Each new generation of newborns has a slightly higher life expectancy than the generation before. This is not only true for the age group presented in Table 1, but for all age groups. What can be noticed from this table is that the increase is bigger in 2014 than in other years. This is a result of the renewing of the prognosis. Life expectancy for the years 2014-2060 are taken from the current prognosis[3]. Life expectancy for 2012 and 2013 is taken from a previous prognosis. In December 2017 a new prognosis is foreseen.

Table 1: Remaining life expectancy for 0-year-olds

	2012	2013	2014	2015	2016	2017
men	79.22	79.41	79.90	80.10	80.26	80.42
increase		0.19	0.49	0.20	0.16	0.16
women	82.82	82.94	83.26	83.41	83.53	83.65
increase		0.12	0.32	0.15	0.12	0.12

The increase of the life expectancy is a demographic feature, that is recorded in row 9 of the supplementary table. This row includes also the use of the current population in the new year, the age profile in the new year, and the corresponding national accounts total to calibrate this age profile (explained in the next section).

2.1.2   Age profiles

For the individuals above the retirement age, an age profile of the state pension benefits is known. For the individuals in the accumulation phase it is assumed they accumulate entitlements up to the level of the average entitlement in the research year. The age profile depends on the composition of the households, as single people receive a different amount

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http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=82690NED&D1=3&D2=a&D3=a&D4=a&HDR=G1,T,G3&STB=G2&VW=T

than couples. The benefits of couples differ between couples of which both partners receive a benefit, or if only one does. Accumulation of entitlements in the Netherlands is independent of the labor history, it only matters whether or not one has lived in the Netherlands or not. Over a period of 50 years before the retirement age one can accumulate 2%-point of a full entitlement for each year one has lived in the Netherlands.

The data source for the age profiles of 2012, 2013, and 2014 is the Income Panel Survey (IPS).This data sources is a cross section of the population in a given year. It is a sample survey taken from administrative records. The Income Panel Survey aims to describe the composition and distribution of the income of individuals and households in the Netherlands. It covers approximately 271 thousand people in over 93 thousand households. The survey records detailed income and wealth information by individual and household characteristics, among which the received state pension benefits. From 2015 onwards this data sources is replaced by the Integral Income and Wealth Survey (IIW), which is the full administrative data set on which the IPS sample survey was based. The number of individuals in this new set equals the number of individuals living in the Netherlands, i.e. 16.900.726 on January 1st of 2015.

Together with the transformation from a sample survey to an integral survey, the micro statistics revised their framework on a number of levels, however the variable used for the age profile conceptually didn't change. What did change is the reference date of the population. Where the IPS used 31st of December as the reference date, the IIW uses the 1st of January. This becomes clear for the age group of 64 years. In the IPS they didn't receive state pension benefits, because you had to be at least 65 years old. If you weren't 65 on the last day of the year you weren't for the whole year. However in the IIW, individuals aged 64 on the first day of the year possibly reach the retirement age somewhere during the year, which is reflected in the age profile of the AOW in this year.

To achieve consistent age profiles over the years we shift the age profiles of the IIW to a higher age group, i.e. we use the average amount of old age pension benefits received by 64-year-olds on the first of January, as the age profile of 65-year-olds on the last day of that year. Apart from this modification we need to impute a few values in the age profile for men in 2012 (ages 97 and 99) and 2013 (age 98). Because there were no men represented in these age groups we need to imputed a value. This is done by linear interpolation for the age groups 97 and 98, for 99-year-olds in 2012 are assumed to have on average a benefit equal to 98-year-olds in that year.

The age profiles are shown in Figure 3, separately for men and women. A comparison of the results shows that:
1. The age profiles for men and women differ. This due to the different levels of benefits for singles and couples, and differences in household composition between the age groups. Because men are often older than their partners they start out their retirement with a couples benefit including a full allowance. When they grow older more and more partners will reach the retirement age as well, the age profile will reach the level of the couples benefit without an allowance. When age further increases more people will become single, and the age profiles will increase to the level of a singles benefit. For women the profile is different, because they are often younger than their partner and start out with the couples benefit without an allowance. Also for women the AOW income age profile is getting higher with age when they become single.

2. The age profiles taken from the IPS have more noise than the age profile from the IIW, especially for the higher ages. This is a result of the sample survey where weighting is needed to reach the level of the total population. The sample survey only had limited observations in the higher age groups, the IIW has a full coverage.
3. The levels of the IPS-profiles and the IIW-profiles differ for the age groups above 85. Apart from the larger number of observations, also the shift in the reference period influences this. In the IPS the age profile was a result of the amounts received by the population that was alive on the last day of the year. Hence they had received the maximum amount they could in that year. In the IIW also individuals that passed away were included, who pulled down the average.
4. The average values for 65-year-olds decreased between 2012 and 2015, as a result of the gradually increasing retirement age.

Figure 3: Average state pension benefits for men (top graph) and women (bottom graph)
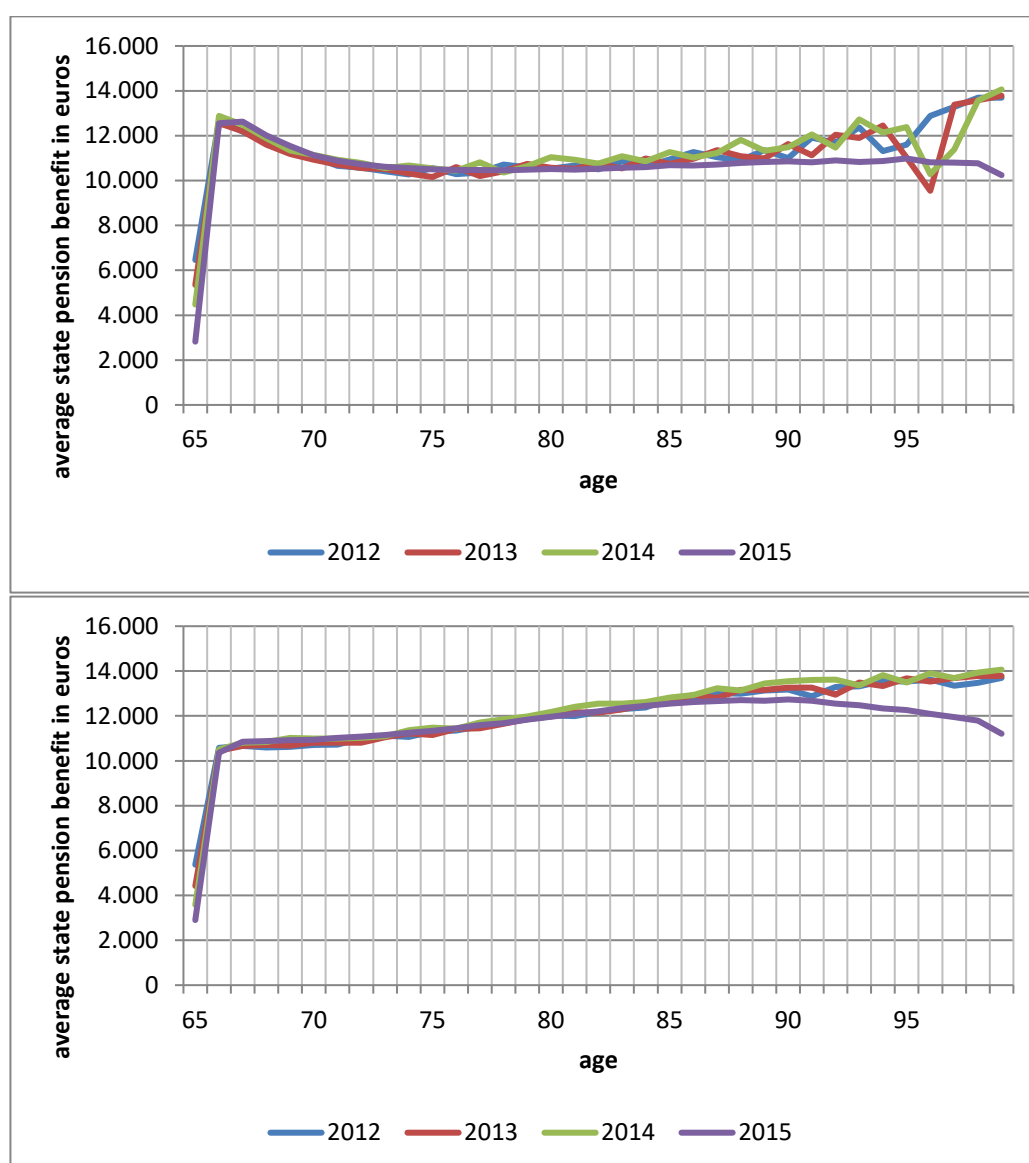
The effects of changing the age profile from one year to the next is recorded in row 9 of the pension table, as part of demographic changes. For all years this effect is relatively limited. Also

for 2015, which differs substantially based upon Figure 3, but this mainly happens in the highest age classes. These have lower population numbers and therefor contribute far less to the total entitlements.

To be consistent with the SNA data the micro age profiles are balanced to the SNA sum, by using a simple coefficient.

$$C = \frac{SNA}{\sum(AOW_i * P_i)} \tag{1}$$

Where SNA equals the SNA value for the state pension benefits, AOW_i equals the AOW benefit age profile for age group i, and P_i equals the population in each age group i. The age groups are limited to the current retirees (i = {65-99}.

Because there are different flat rates, only depending on household composition, and the number of years one has lived in the Netherlands, there is no single target value for accumulation of entitlements. We assume that each individual in the accumulation phase accumulates 2% of the average benefit in a year. For the age group of 65 years we estimate partly an accumulated amount and partly an amount for their benefit. Over the years considered here, the accumulation share increases and the benefit share decreases, because of the increasing retirement age.

2.1.3 Retirement age

The basic model of Schmitz et al. (2015) does not taken into account the gradual increase of the retirement age. The resulting entitlements were based upon a retirement age of 65 years for all years to come. This was an oversimplification of the model, given that the increase of the retirement age was a fact already in 2012.

At the joint Eurostat/ILO/IMF/OECD Workshop on Pensions, held in Paris in March 2016, the model was adjusted for this, and a sensitivity analysis was presented for different scenarios. Four scenarios were considered: (i) the retirement age remained at 65 years, (ii) the retirement age increased until 67 in 2023 and remained at that age for the years beyond 2023, and (iii) the retirement age increased even beyond 2023. This third scenario depended on the projected life expectancy of the age group of 65 years old, for which two options were considered, the life expectancy as published by Statistics Netherlands, and as published by Eurostat.

This exercise showed that the increasing retirement age influences the entitlements greatly. The result for 2012 showed that entitlements were 13% lower in case the retirement age increased with life expectancy after 2023.

In 2012[4], the law was enacted in which the increase of the retirement age was captured (Table 2). The retirement age would increase gradually from 65 in 2012 to 67 years in 2023. After that it will rise along with the life expectancy of a 65-year-old, following a pre-set formula.

$$V = (L - 18.26) - (P - 65) \tag{2}$$

In this formula, V equals the increase in retirement age, L is the remaining life expectancy of a 65 year old, and P is the retirement age at the time of increase. When V is negative, or less than 0.25, there won't be an increase. When V is 0.25 or more, the increase in set to 3 months.

Table 2: Gradual increase of the retirement age as enacted in 2012

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
years	65	65	65	65	65	65	66	66	66	66	67
months	1	2	3	5	7	9	0	3	6	9	0

Already in 2012 the increase was accelerated by the newly formed government. The retirement age will increase to 66 years in 2018 and 67 years in 2021 (Table 3). From 2022 onwards the increase depends on the life expectancy. The scenarios presented at the Eurostat/ILO/IMF/OECD Workshop on Pensions didn't include the accelerated retirement age, but only the first adaptation made in 2012. A correct measurement would include the acceleration as well, so this is taken into account in this report.

Table 3: Accelerated increase of the retirement age

	2013	2014	2015	2016	2017	2018	2019	2020	2021
years	65	65	65	65	65	66	66	66	67
months	1	2	3	6	9	0	4	8	0

In December 2016 the State Secretary for Social Affairs and Employment informed the House of Parliament on the further increase in 2022 (Ministry of Social Affairs and Employment, 2016). Because of the increasing life expectancy, it followed from the formula that the retirement age will be 67 years and 3 months in 2022.

In this paper we consider a short time series of four years (five including the closing balance sheet of 2011). In the estimates for 2012 we incorporate the retirement age as presented in Table 3. For the years after 2021, the retirement age remains at 67 years. We do not estimate a possible increase based upon the projected values of V, L, and P in the formula, because the government needs to take an additional action to formalize this increase. This issue was brought up in the Paris meeting as well. The opening balance sheet of 2012 is based upon the retirement age of 65 years, the effect of the increase is recorded in row 7 of the pension table. In 3.1.3 the sensitivity of this approach is considered.

2.1.4 Parameters
As a result of the meetings mentioned in 1.1, the choice of the discount rate is out of scope for this paper. Schmitz et al. (2015) debate the choice for a different discount rate than Eurostat suggests. They use the same interest rate term structure as pension funds are obliged to do, which results in large differences between the estimates for the unfunded state pension entitlements. In this paper we will only consider the Eurostat suggested 3% real discount rate (based upon a 5% nominal rate and 2% inflation). We will show the sensitivity of this discount rate by also using the upper bound and lower bound estimates when using a 1%-point lower or higher discount rate. This sensitivity analysis is mandatory to come with the data transmission.

The unwinding of the discount rate is recorded as Household social contribution supplements (row 2.4). The technical compilation guide explains that for social security schemes, property income is equivalent to the unwinding of the discount rate, meaning that its value is equal to the discount rate times the entitlements on the opening balance sheet (Eurostat, European Central Bank, 2011, p. 36). The service charges (row 2.5) are available in the annual report of the organization that implements national insurance schemes in the Netherlands (SVB).However, zero is recorded in the supplementary table because these are paid out of general taxation. The service charges in column G are the costs the participants in early retirement arrangements have to pay. These costs must be paid out of the premiums received, just like the benefits. This means that less can be added to the reservations. There is no external party responsible for paying any shortage.

Another update on the basic model is the indexation of benefits. Without indexation entitlements can only be determined as accrued benefit obligations (ABO). Because the entitlements in the Netherlands do not depend on labor history, wage increases do not influence these entitlements. The data presented here include indexation of future entitlements, thus resulting in the projected benefit obligation (PBO), as preferred by Eurostat and the ECB (2011, p. 20). The indexation is set at 1% each year and afterwards confronted with the actual indexation. Because there is not one single index (depending on the type of benefit, whether it is a singles or a couples benefit), the true indexation is measured as the increase in the average benefit. This follows from the age profiles we use.

Here we note that the SNA core part of the pension table, as it is determined by the pension funds and insurers, mainly follows the accrued benefit obligations approach. While the harmonized choice for PBO for unfunded government pension schemes improves comparability with other countries, the comparability within a country, and within the pension table, is gone. These two perspectives seem impossible to unite in one table, and could lead to publication of two versions.

2.2 Second pillar

There are no conceptual differences between the recording of the funded pension schemes in the supplementary table versus the core national accounts. The totals of the rows in the supplementary table (excluding columns G and H) are directly comparable to the totals in the standard national accounts. The only difference is caused by some pay-as-you-go pension schemes for early retirement or direct payments that are carried out in the Netherlands. These are currently not fully recorded in the core accounts, but they are in the supplementary table, therefore causing a difference with the national accounts totals.

The data demands of the supplementary table go beyond of what is available in terms of source statistics. This section presents the required steps taken to complete the table for those pensions headed under the second pillar, being the funded pension schemes and some PAYGO arrangements. This section draws heavily upon Schmitz *et al* (2015).

The columns of the table identify the various pension sponsors, the type of risk-sharing between the sponsor and the pension holder and whether or not the pension scheme is recorded in the core national accounts. The rows represent the transactions, more or less consistent with the distributive and financial transactions in the SNA. The main focus will be on the rows 2,2 and 8 which need to be specified different from ESA 2010 for the Netherlands.

2.2.1 Sponsors

All pension funds and insurance companies under the second pillar must comply with Dutch pension laws under supervision of the Dutch Central Bank (DNB). In this role DNB collects information on the pension schemes, which is equally used for statistical purposes. This source of information does not provide much information on the collective pension insurance contracts with insurance companies, and also the distribution of the total over DB and DC schemes is not known. For funded non-general government schemes, this total is in column C. The distribution over column A (DC schemes) and B (DB schemes) is made using a fixed key for all rows. This key is based upon the share of DB versus DC contributions (known by type of pension fund), and is used to divide all rows in the table. The keys used for the different types of pension funds change yearly, and are shown in the table below (for 2012 and 2015). The tendency towards DC schemes is growing at the expense of DB schemes under the influence of the discussion on the sustainability of the pension system in the Netherlands. Most adaptions of DB schemes are changes into CDC (collective defined contribution) schemes and not into pure DC schemes. By definition of the supplementary table these are recorded as DB schemes.

Table 4: Share of DB and DC schemes in the total (2012)

	2012		2015	
Type of pension fund	DC	DB	DC	DB
Industry-wide pension funds	0.3%	99.7%	0.3%	99.7%
Company pension funds	2.4%	97.6%	2.0%	98.0%
Professional pension funds	22.7%	77.3%	15.6%	84.4%
Collective pension insurance	24.8%	75.2%	36.3%	63.7%

Two government sponsored funds (ABP; the pension fund for civil servants, and FVP; a pension institution for the unemployed in liquidation since 2012) are DB schemes, but excluded from column B and allocated to column E. Beside the funded pension schemes, column B also reports on early retirement schemes (which will end in 2015) arranged by private employers and some other pay-as-you-go pension arrangements by private employers. The value of these PAYGO entitlements at the end of the year are calculated using the average benefit, indexed with an expected wage development in the forthcoming years, and the (partly estimated) number of benefits in the few years the arrangement still exists. This is discounted at the same interest term structure used by pension funds (3 year term: 1,75% in 2012). The other variables (contributions, benefits) of the early retirement pension entitlements are derived from the current accounts.

The pension benefits paid directly by private employers, a kind of early retirement scheme, are of minor importance (less than 0.1 pro mille) and ending in 2015. The value of entitlements is therefore calculated as the yearly benefit times a capitalization factor derived from the calculations on early retirement schemes.

DC schemes sponsored by the government are not found in the Netherlands, so column D is left blank. The defined benefit schemes sponsored by the government and classified as a financial corporation (recorded in column E), are the previously mentioned ABP and FVP, and a fund, not under supervision, that pays pensions to civil servants in former parts of the Dutch Kingdom in

Indonesia and Surinam (SAIP). The valuation method is the same as described for column B, except for SAIP where the financial accounts are used. The entitlements of SAIP amount to less than 1 million euros.

Column F is not filled for the Netherlands. If the government organizes a funded pension scheme this is characterized as a pension fund by law, and because pension funds are financial institutions, they are recorded in column E.

Columns G reports on the government sponsored early retirement scheme. This scheme is accounted for in the same manner as for the early retirement schemes in column B. The benefits paid directly to the military personnel by the government is also reported in column G and treated in the same way as the direct payments of private employers in column B (capitalization factor 10).

The total in column I is broken down into two complementary columns, J and K. In order to estimate the columns J and K, a distribution key is used. This key is based upon the part of foreign premiums in the total premiums for every column. For the state pensions the key is based upon the share of the foreign benefits in the total benefits. Currently this is all the information we have on these shares.

Table 5: Foreign and national share in total pension schemes

	2012		2015	
Pension scheme type	Foreign	National	Foreign	National
Funded pensions schemes (executed by pension funds)	1.6%	98.4%	1.9%	98.1%
Funded pensions schemes (executed by insurance companies)	2.8%	97.2%	2.0%	98.0%
Early retirement schemes	0%	100%	0%	100%
Direct payments	0%	100%	0%	100%
State pensions	3.6%	96.4%	3.7%	96.3%

2.2.2   Pension funds types

The employment related pension schemes in the Netherlands, whether DB or DC, can be specified in industry-wide pension funds, company pension funds, professional pension funds, and collective pension insurance with an insurance company . This distinction (that is not visible in the supplementary pension table) is relevant, because they deal with possible surpluses and shortages of funds differently, and therefore, for each of these types the ESA 2010 guidelines need to be interpreted on a case-by-case basis. This is needed to complete the rows 2,2 and 8 in the supplementary table, in order to know where these surpluses and shortages should be booked.

Table 6: summary of funds at the end of 2012

Type of pension fund	number of funds / contracts	
Industry-wide pension funds	84	Funds
Company pension funds	327	Funds
Professional pension funds	12	Funds
Collective pension insurance	41,855	Contracts

Industry-wide pension funds are obligatory for employees in a particular industry. This means that all employers, or sponsors, in the industry are united in one pension fund, and, together with the employees, are accountable for possible shortages in funding to meet future obligations. In this case the pension fund has two options to keep the pension fund balanced: increasing the pension contributions or decreasing the benefits. In case of a surplus the opposite situation holds. Both measures will be the outcome of negotiations between employer and employee organizations. Any surpluses in funding the actuarial requirements are saved as buffers. These buffers are part of the net worth of the pension fund, although one may argue that the pension holders are the ultimate owners of entitlements and surpluses. The net worth of the pension funds is negative when the sum of their assets is below the technical reserves.

Company pension funds are most often related to a single company. Employer and employees have a direct relationship, and the employer can be hold responsible for any shortage of the pension fund, or can be seen as the claimant of surpluses of the pension fund. A growing part of the pension schemes in these company pension funds has a (C)DC character. Because of this direct relationship between the sponsor, the pension fund and the participant, an exception with regard to the ESA 2010 treatment of technical reserves is made. Sponsors can be held accountable for shortages of their pension fund and this debt from the sponsor to the pension fund must be reported explicitly in ESA 2010 (as claims of pension funds on pension managers which is a new transaction in ESA 2010 compared to its predecessor ESA 1995). In case of surpluses, these are recorded as debts from the pension fund to the sponsor..

Professional pension funds are set up by individuals, usually in unincorporated businesses and in specific professions. By Dutch law they have an obligatory character for all professionals in a specific profession. In terms of technical reserves the professional pension funds represent about 2.3% of total pension reserves of the pension funds in the Netherlands at the end of 2012, and 2.2 % in 2015. Professional pension funds are quite similar to company pension funds in terms of their close relationship between the fund and the sponsor. The resulting value of the claims of pension funds on pension managers should be very small, because DC schemes will hardly have a surplus or deficit. In case the return on investments is insufficient for a DC scheme, the pension benefits will be lowered, and vice versa. Therefore the claim of pension funds on pension managers is set to zero.

Sponsors may assign the management of their pension scheme to an insurance company. Such pension schemes are classified under company pension schemes, but the percentage of DC-schemes under such arrangements is much higher (about 25% in 2012, and 36 % in 2015) than for other company pension schemes. Pension schemes managed by insurance companies are guaranteed schemes: the insurance company is responsible for any deficit (or surplus). Following the same reasoning as for the professional pension funds, the resulting value of the claims of pension funds on pension managers should be very small and therefore is set to zero.

Because the different types of pension schemes have a different accountability for the surpluses and deficits within the scheme, the recording thereof in the supplementary table differs as well. For all columns, except for column H, the employer imputed social contributions (row 2,2) are interpreted somewhat differently from ESA 2010. ESA 2010 identifies these imputed contributions as a balancing item to complete the reconciliation from row 1 to row 10. However ESA 2010 also prescribes that the employers contributions (actual and imputed) as part of the earnings of employees must equal the contributions received from employers by insurers and pension funds (ESA 2010, § 4.92 and § 4.97). The employer imputed social contribution is interpreted in a way that fits the Dutch situation best: the net social contributions reflect the premiums and premium supplements that actually flow into the pension fund, and the imputed social contributions show how the surplus or deficit of the fund is treated (not as a financial transaction (row 2,2) but through other changes (row 8) it flows in or out the buffer/net worth). The actual premiums are set by negotiations between employer and employee organizations. When they agree to set the actual premiums higher than the actuarial premiums, this means that the surplus is used to strengthen the buffer or net worth of the pension fund or to make indexation possible. In the opposite case, the deficit is taken from the buffer to make up the actual premiums to the actuarial premiums.

Only for company pension funds a financial transaction linked to the surplus/deficit is reported as imputed employer social contributions, because of the direct relation of the sponsor with the pension fund, meaning that the employer can be held accountable for any surplus or deficit. The pension funds reports a debt to, or a claim on, the employer in the ESA2010 transaction Claims of pension funds on pension managers (coded F.64 in the national accounts). The employer reports the counterpart of this transaction. Only the company pension funds are balanced in row 2,2, because of the direct relation of the sponsor with the pension fund. The other pension schemes use row 8 (changes due to revaluations) to record the surplus or deficit. Apart from these amounts paid by employers and employees that exceeds the actuarial needed payments, row 8 consists of some differences raised by imperfect details, and changes resulting from changes in the interest rate term structure for DB-schemes and unrealized increase of wealth in DC-schemes.

The social security schemes in column H are not allowed to record flows in row 2,2 (employer imputed social contribution) and this row cannot be used as a balancing item either. The government just pays out the benefits of these PAYGO schemes, and there is no relation between the contributions received by the government and the benefits they pay. To emphasize this distinctive character of social security schemes, ESA2010 introduces a separate balancing item in row 3. This balancing item consists mostly of the difference caused by an internal rate of return deviating from the actuarial discount rate.

The output of the pension schemes (row 11) is determined as the sum of costs, consistent with SNA and ESA regulation for pension funds.

3. Final supplementary table

In this section the final supplementary table for 2015 is shown. Together with this report also the data transmission for 2012, 2013, 2014, and 2015 will be delivered. Also a fact sheet is added, in which the data transmission is described. The fact sheet is first discussed with Eurostat during the preliminary transmission of 2012. The sensitivity analyses presented here are only applied to the unfunded state pension benefits. The results for the second pillar pension schemes are consistent with the core SNA, with one exception which is discussed below.

Figure 4: Final estimates of the supplementary pension table (2012-2015)
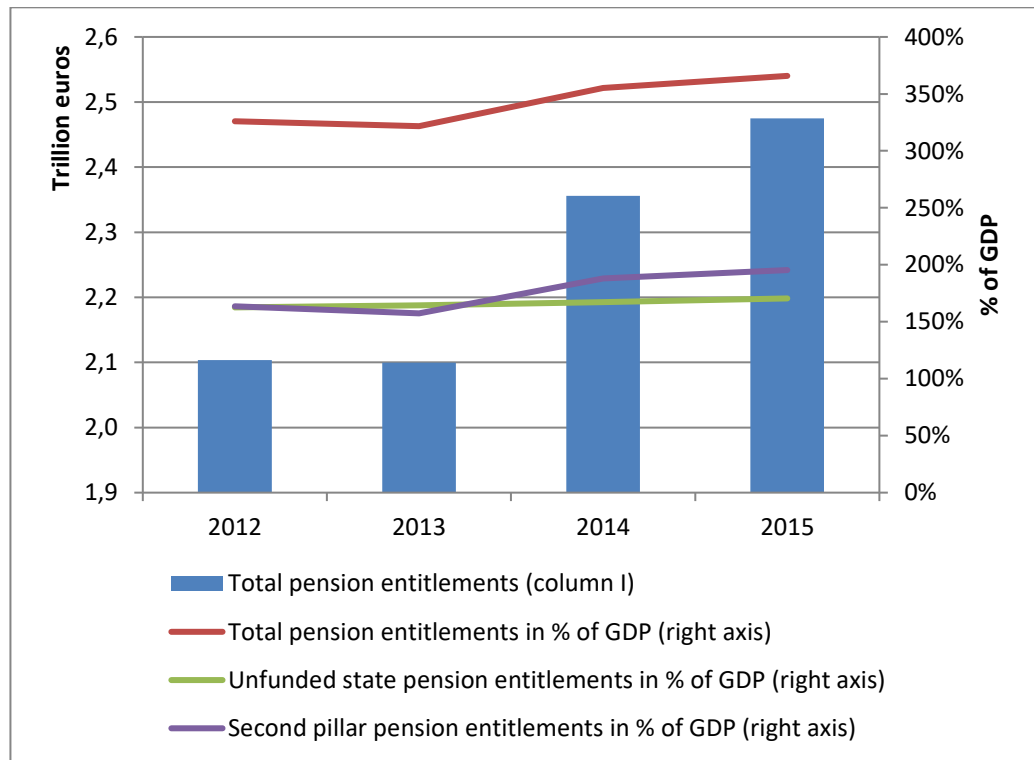
Figure 4 shows the resulting estimates of total pension entitlements for the Netherlands for the years 2012-2015. It shows that total entitlements increase from 2.1 to almost 2.5 trillion euros. This is mainly the effect from the discount rate used for the second pillar pension entitlements. This effect also shows when the results are presented as a percentage of GDP. The unfunded state pension entitlements remain stable, where the second pillar pension entitlements fluctuate more over these four years.

Figure 5: Supplementary pension table 2015

Recording / Pension manager	Code	Relations	Row No.	Non-general government: Defined contribution schemes (XPC1W / A)	Non-general government: Defined benefit schemes (XPB1W / B)	Non-general government: Total (XPCB1W / C)	General government: Defined contribution schemes (XPCG / D)	General government: Defined benefit schemes, Classified in financial (XPBG12 / E)	General government: Defined benefit schemes, Classified in general (XPBG13 / F)	Not in the standard accounts: Classified in general (XPBOUT13 / G)	Not in the standard accounts: Social security (XPI314 / H)	Total Pension Schemes (XPTOT / I)	Counterparts: Pension entitlements of non-resident households (XPTOTRH / J)	Counterparts: Pension entitlement of non-resident household (XPTOTNR / K)
Opening balance sheet														
Pension entitlements (incl contingent pension entitlements)	XAF63LS		1	55,051	845,091	900,142		340,131		6,806	1,108,912	2,355,991	2,291,814	64,177
Changes in pension entitlements due to transactions														
Increase in pension entitlements due to social contributions	XD61p	Σ 2.1 to 2.4 – 2.5	2	4,100	43,841	47,941		13,148		1,355	57,666	120,110	116,837	3,273
Employer actual social contributions	XD6111		2.1	2,009	16,604	18,613		5,373		371	0	24,357	23,912	445
Employer imputed social contributions	XD6121		2.2		-365	-365		0		620		255	262	-7
Household actual social contributions	XD6131		2.3	1,173	8,389	9,562		2,335		371	24,399	36,667	35,540	1,127
Household social contribution supplements[5]	XD6141		2.4	1,773	23,636	25,409		5,958		0	33,267	64,634	62,814	1,820
Less: Pension scheme service charges	XD6151		2.5	855	4,423	5,278		518		7	0	5,803	5,691	112
Other (actuarial) change of pension entitlements in social security pension schemes	XD619		3								191,424	191,424	184,476	6,948
Reduction in pension entitlements due to payment of pension benefits	XD62p		4	4,295	24,628	28,923		9,912		677	35,813	75,325	73,264	2,061
Changes in pension entitlements due to social contributions and pension benefits	XD8	2 + 3 - 4	5	-195	19,213	19,018		3,236		678	213,277	236,209	228,049	8,160
Transfers of pension entitlements between schemes	XD81		6	-1,373	1,034	-339		339		0	0	0	6	-6
Change in entitlements due to negotiated changes in scheme structure	XD82		7	0	0	0		0		0	0	0	0	0
Changes in pension entitlements due to other flows														
Changes in entitlements due to revaluations[6]	XK7		8	23,624	11,541	35,165		14,653		-1,284	-220,994	-172,460	-165,610	-6,850
Changes in entitlements due to other changes in volume[6]	XK5		9	73	0	73		3,014		0	52,059	55,146	53,178	1,968
Pension entitlements (incl. contingent pension entitlements)	XAF63LE	1 + Σ 5 to 9	10	77,180	876,879	954,059		361,373		6,200	1,153,254	2,474,886	2,407,437	67,449

Figure 6 shows the total entitlements by scheme for 2015. It shows that the social security schemes (the unfunded pension entitlements as estimate by the model described in this report) account for almost half (46%) of total entitlements. Defined benefit schemes account for another 51%, and DC schemes form the remaining 3%. Of the total entitlements 97% is allocated to resident households.

Figure 6: Pension entitlements by scheme (% of total, 2015)
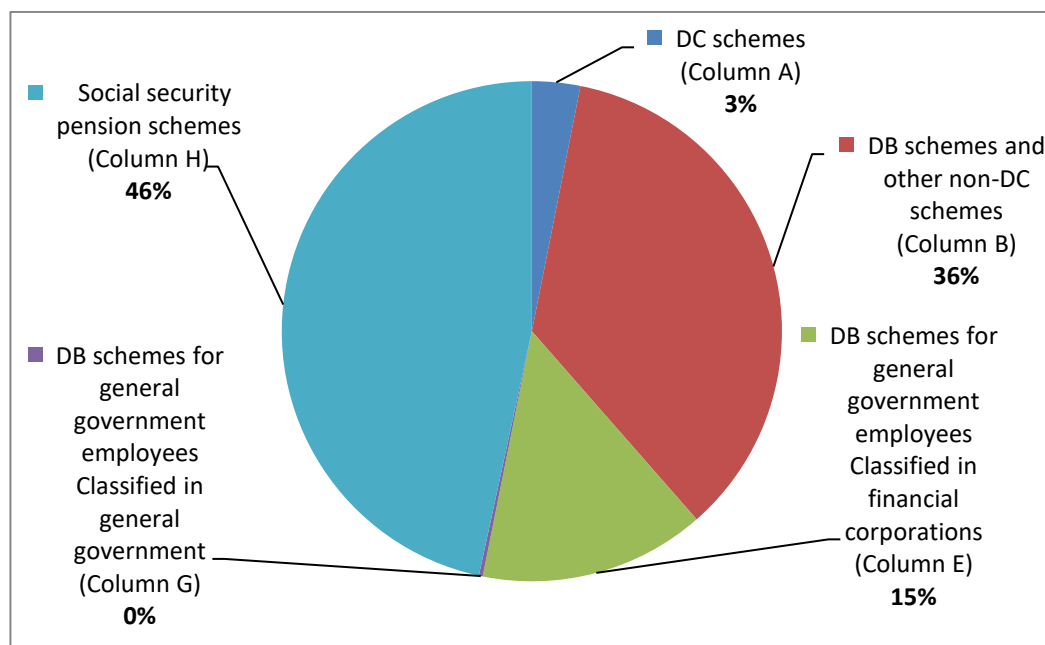
The supplementary table on pensions still has some minor differences with the Sector Accounts totals. The differences for D.6111 and D.6221 are the result of correcting the sector accounts totals for double counting the reinsured pension arrangements of pension funds. Insurance companies report these reinsured pension arrangements as pension policies, whereas they should be reported as non-life insurance. So the reinsured pension arrangements are counted twice in the core accounts: one time by pension funds and another time by insurance companies, but the supplementary pension table records this only once. As a result, the paid contributions (D.6111), and the received benefits (D.6221) are both lower in the supplementary table than they are in the core SNA accounts. This is also reflected in the comparison of D.8.

Table 7: Difference between T29 and SNA results

		2012	2013	2014	2015
D.6111	SNA	25,643	27,928	27,148	24,357
	Difference with T29	*- 630*	*- 590*	*- 1,534*	*- 665*
D.6221	SNA	38,508	38,686	39,743	39,512
	Difference with T29	*- 799*	*- 1,328*	*- 884*	*- 903*
D.8	SNA	24,260	26,609	24,143	22,312
	Difference with T29	*162*	*737*	*- 651*	*- 383*

3.1   Sensitivity analyses

3.1.1   Discount rate

The sensitivity of the discount rate is compulsory in the data transmission to Eurostat. The benchmark estimates are based upon the 3% real discount rate and for analytical purposes plus and minus 1 percentage point are calculated as well.

Figure 7: Effect of the discount rate
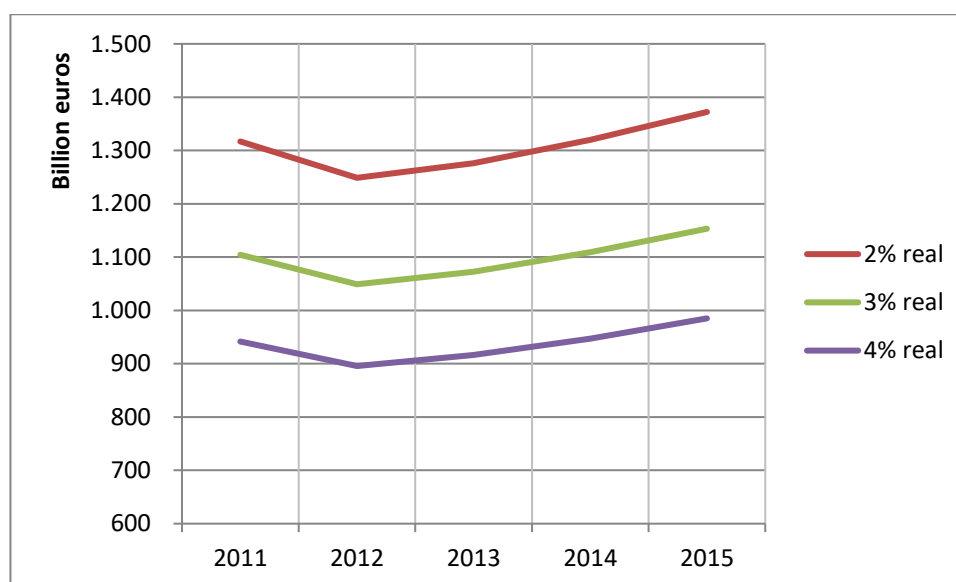
A lower discount rate leads to higher entitlements. A decrease of the discount rate by 1 percentage point leads to an increase in entitlements of 19%. If the discount rate is increased to 4%, pension funds and insurers have better prospects of their return on investments, and thus entitlements decrease. In this case by around 14%.

In the Netherlands, pension funds and insurers are obliged to use the interest rate term structure as published by the Dutch Central Bank to discount their second pillar pension entitlements. Schmitz *et al.* mimicked this approach, because using different discount rates within the same pension table would lead to inconsistencies. The IRTS used for the second pillar entitlements differs from the prescribed discount rate by Eurostat. The IRTS is adjusted to market conditions monthly and fluctuates frequently, the percentage is currently much lower than the 3% real discount rate that is prescribed.

Columns G reports on the government sponsored early retirement scheme and the direct payments to military personnel. The former scheme will end by 2016, and is recorded in the same manner as the early retirement schemes in column B. For the early retirement scheme a sensitivity analysis is not possible, just as this is not possible for the core pension schemes. Statistics Netherlands does not calculate this scheme, but takes these data from annual reports. Also this column reports on the benefits paid directly to the military personnel by the government, which are treated in the same way as the direct payments of private employers in column B (using a capitalization factor 10). For this capitalization factor a sensitivity analysis is possible. The upper bound in Figure 8 uses a higher capitalization factor (15) and the lower bound uses capitalization factor 5. The effect is marginal, on average over these four years the sensitivity is plus or minus 0.8% of GDP.

Figure 8: Sensitivity of DB schemes classified in general government (not in core accounts)
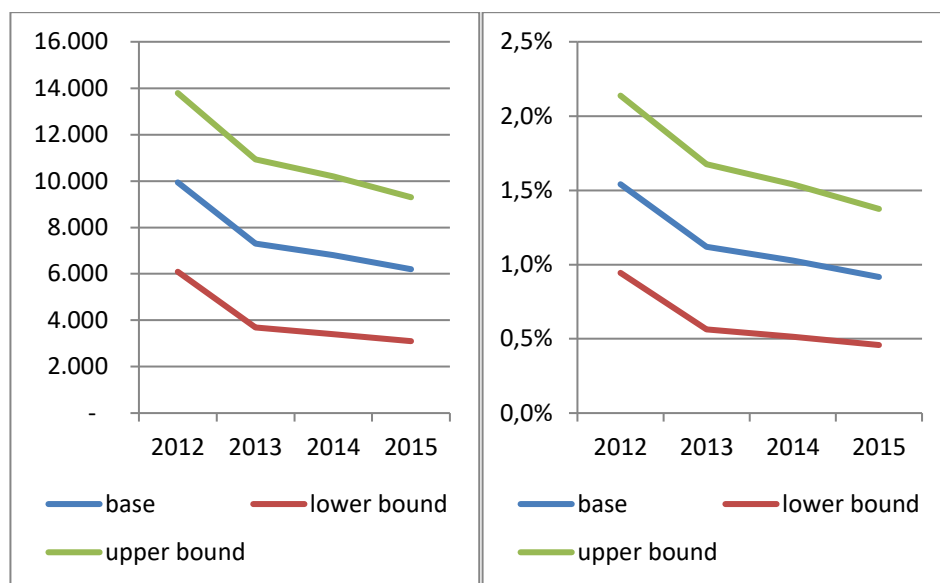
3.1.2 ABO versus PBO

Another difference with Schmitz *et al.* is the incorporation of different valuation approaches. Not only the accrued benefit obligation approach is calculated, also the projected benefit approach. The latter leads by definition to higher estimates for the pension entitlements. The PBO approach only includes a possible indexation in the Netherlands, because the state pension benefits do not depend on labour history, thus possible wage increases are not relevant. Schmitz et al value the entitlements according to the ABO concept, because also the second pillar pension entitlements are valued this way. This concept is best suited for national accounting purposes. The concept of valuation is far less influential than the discount rate. Entitlements according to the ABO approach are lower (because no indexation), and about 85% of PBO entitlements.

**Figure 9: Effect of valuation concept**

3.1.3 Retirement age

The retirement age in the benchmark estimates for 2011 is 65 years. In 2012 this increased as described in Table 3. In 2021 the retirement age will be at 67 years, after 67 it is to rise along with the life expectancy of a 65-year-old. Every increase after 2021 has to be confirmed by the government. In December 2016 this was done for the first time by the State Secretary for Social Affairs and Employment. She informed the House of Parliament on the further increase in 2022 to 67 years and 3 months. Because this is done in 2016, it should be reflected in the 2016 closing balance sheet, and thus falls outside the scope of this report.

The benchmark estimates included the increase in retirement age that is enacted. In case a confirmation is needed this is not taken into account. However, it is possible to predict the increase, because population projections allow us to use the formula in advance.

Figure 10: Effect of different retirement age projections
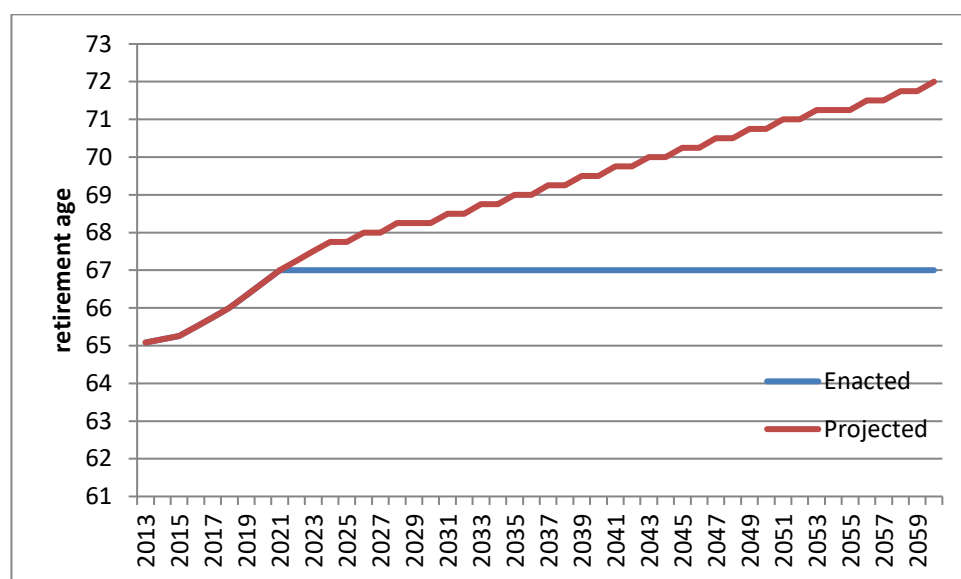
The projected life expectancy of a 65-year-old results in a retirement age of 72 in 2060. For later years no projections are available. Clearly using the projected life expectancy would lead to lower entitlements because benefits simply are paid out later in life and thus for a shorter period. At the end of 2011 entitlements for both approaches are still equal because the retirement age was still set at 65 years. In 2012 entitlements declined due to the increase in the retirement age, where the decline was more than twice as large when the increase was projected beyond 2021.

Figure 11: Entitlements for two retirement age scenarios
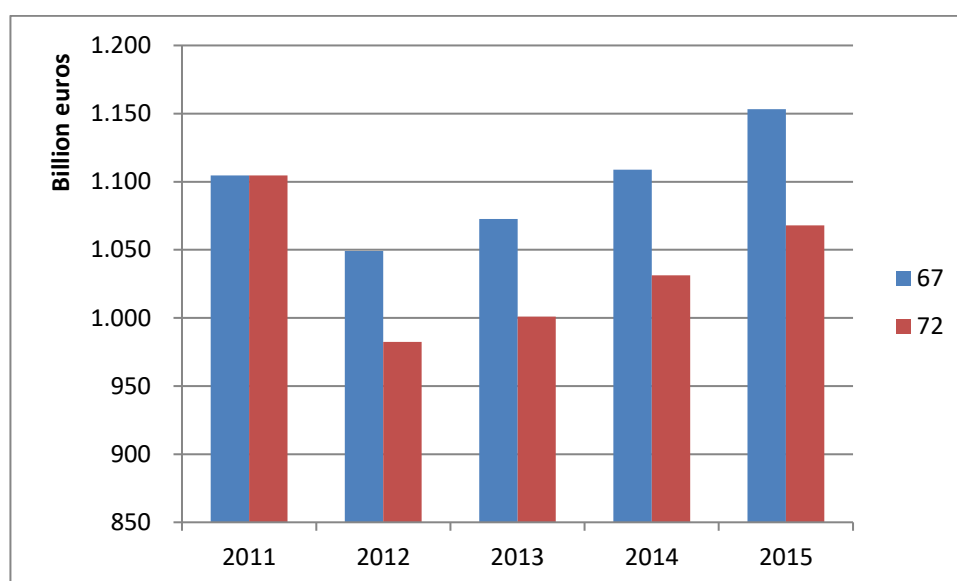
4. Summary and conclusions

This report describes the work done and the results obtained in creating the supplementary pension table, funded by the Eurostat grant 2015 04.2.21-2. The methodology presented by Schmitz et al. (2015) is in this research further developed to meet the requirements as laid out by Eurostat.

By introducing a supplementary table on pension schemes, the SNA should allow for a better analysis and international comparability of the pension systems within and between countries. The results of this report show that the introduction of, previously not recorded, unfunded pension entitlements are indeed very influential. The second pillar pension scheme equals almost 200% of GDP in the Netherlands (2015). Including also the first pillar entitlements raises this to 366%. For international comparison it is essential to know these differences.
It is also essential to keep in mind that the supplementary table on pensions only describes the accrued entitlements today. The table is not about the financial sustainability which should be based on an open group approach.

For a comparison in time (within a country), this pension table still has to deal with the important issue of the discount rate. Entitlements in the second pillar are large in the Netherlands because a lot is saved, but the development over time depends also on the discount rate used. In the present report this issue is outside the scope but worth mentioning because of the influence it has on levels and developments.

The valuation approach is less influential than the choice for the discount rate. By definition the entitlements that are valued according to the ABO approach are lower than those valued to the PBO approach. The last sensitivity analysis made is for the retirement age. The base scenario uses the enacted age, which currently states that retirement begins at 67 in 2022. If this age is increased in years after 2022, this should be explicitly confirmed. However, it is possible to project a further increase, which leads to a further decrease of the entitlements visible in 2012.

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