



IARIW 2024

IARIW 2024

Thursday, August 22 – Friday, August 30

Pension in the National Accounts and Wealth Surveys: How Do They Impact on Economic Measures?

Ilja Kristian Kavonius

(European Central Bank)

Paper prepared for the 38th IARIW General Conference
August 26-30, 2024

THEME 11: Further Improving Household Distributional Results with Particular Reference to
Adjusting the Top of the Distribution

Time: Wednesday, August 28, 2024 [17:30-18:30 GMT]

Pension in the national accounts and wealth surveys: how do they impact on economic measures?¹

In past, there have been several projects to include distributional aspects in the national accounts' framework. Household distributional information will also be covered in the forthcoming version of the System of National Accounts as well the G20 Data Gaps initiative sets household distributional information as a priority.

The starting point of this paper is to discuss, how the pensions are treated, and, how they could be included in the Distributional Wealth Accounts (DWA), an experimental quarterly dataset currently under development by the European System of Central Banks. DWA integrates the Household Finance and Consumption Survey (HFCS) with national accounts' household balance sheets. The first results of this project have been published for general public in January 2024. The results cover almost the complete balance sheet of households but one of the main household wealth categories, which is missing, is pensions. The main reason is that as pension systems vary much between different European countries, consistent treatment and the linkage is complicated as there are limitations in the underlying data sources.

The purpose of this paper is to discuss the treatment of pensions in the national accounts and wealth surveys and to establish the linkage between the HFCS and national accounts concerning the pension stocks and transactions. The paper discusses the complete pension system: social security pensions as well as employment-related pension schemes other than social security. As the pensions systems differ between the European countries, the paper discusses additionally the economic impact of different systems.

¹ I thank Henning Ahnert, Andreas Hertkorn, Linda Kezber, Jeanne Pavot and Pierre Sola for the valuable comments. The views expressed in this paper are those of the authors and do not necessarily reflect the views or policies the European Central Bank.

1. Introduction

In the past years, there have been several initiatives to include household distribution aspects in the national accounts. The G20 data gap initiative includes two recommendations to have these data in the national accounts: one concerning income accounts and another one covering household balance sheets. Additionally, the revised SNA will include a section describing how the distributional household accounts should be included in the accounts.

The ECB together with the national central banks has developed distributional wealth accounts (DWA). These accounts are compiled mainly by linking Household Finance and Consumption Survey (HFCS) and the household balance sheets of quarterly sector accounts (FA). This implies that the methodology is harmonised between the countries and the DWA aim to be fully aligned with the coverage of FA as defined in the ESA 2010.² In practice, the coverage is lower than in the FA as no suitable distributional information that could be used to compile distributional FA instrument breakdowns. Potential data sources to complete the coverage have not been identified so far as all assets are not included fully or at all in the HFCS (currency, other accounts payable/receivable, and occupational pensions). Furthermore, as international discussions also refer to changing the treatment of social security pensions for distributional accounts purposes, the paper also discusses these. However, given the different national pensions systems, this is difficult item to be included in the distributional wealth accounts.

Pensions are provided to individuals in an economy under one of three mechanisms, via social security, via employment-related schemes other than social security or via social assistance. Together, social security and employment-related pension schemes other than social security constitute social insurance schemes.³ From the national accounts point of view, the key distinction is whether the pension is a part of social security/social assistance as well as whether it is the pension system is employment or non-employment related. The assets of the first one are recorded on the balance sheet of the general government and the core national accounting does not recognise the future pension entitlements as assets. The employment related non-social security pension assets are recorded on the balance sheet of the pension fund and the accumulated pension entitlements are recorded on the balance sheet of households. The different types of additional pension schemes which are not employment related are not pensions in the sense of national accounts. However, a potential source of confusion is that in each country the pension system is individual, and small practical differences in implementation may cause differences in the recording and treatment in the national accounts.

The purpose of this paper is to take a stock of different pension systems in different countries and to analyse, how they are recorded in the accounting system and surveys as well as finally, to analyse their impact on the economic measures. The paper focuses on the following issues:

1. To summarise how the different pension systems are treated in the national accounts;
2. To investigate whether there is a corresponding item in Household Finance Consumption Survey with the national accounts and what the correspondence is.
3. To analyse the analytical implication of different pension systems for the statistical comparability;
4. To analyse the economic impact of these different pension treatments; and

² See: ECB 2024/a. ECB 2024/b. Expert Group on Linking macro and micro data for the household sector 2020.

³ SNA 17.116.

5. To conclude and propose some way forward in harmonising and linking these different pension systems in economic statistics.

2. Treatment of pensions in the national accounts

The key distinction concerning pensions in the national accounts is social security pensions and other employment-related pension schemes.

Social security pensions are insurance schemes where the beneficiaries as participants of a social insurance scheme are obliged by general government to insure against old age and other age-related risks such as disability, health etc. Social security pensions are provided to beneficiaries by general government (ESA2010 17.43.). Accrued pension entitlements (outstanding amounts) for a social security pension scheme are generally not recorded in the national accounts since they are considered contingent assets (ESA2010 5.09(f).) only and not genuine financial asset. This lower quality can be motivated by the fact that social security schemes are generally unfunded (pay-as-you go) and the benefits are determined by government. (ESA2010 17.22.). Any contribution made by employers and benefits of social security are recorded as distributive transaction in the non-financial accounts (ESA2010 17.25 and 17.27.).

While the outstanding amounts of entitlements under social security pension schemes as well as of any other employment-related defined benefit pension schemes provided by general government are not included in the core national accounts, they are in the ESA recorded in the supplementary table for accrued-to-date pension entitlements ("ESA Transmission programme Table 29"). (ESA2010 17.48.) However, it should be noted that these information are reported only every three years and the data are annual.

It could be argued that pension schemes function in a manner like life insurance schemes and that they should be treated as savings schemes of individual households. There are three reasons in the SNA why the designation of social insurance scheme is used to cover employment-related pensions, a designation that brings with it the recording of contributions and benefits as transfers. The first is that social security is essentially a process of redistribution across a wide section of the population with many individuals contributing so that those in need may benefit. A second reason is that pensions provide a regular and stable source of funding postretirement. In other economic applications, such as surveys of income and expenditure, pensions are regarded as income rather than dis-saving. The third reason for treating pension benefits as income rather than dis-saving is that they frequently cease when the pensioner (or survivor) dies. In this respect, pension entitlements are distinct from other financial assets that are unaffected by the death of the owner. (ESA2010 17.48.)

Other employment-related pension schemes are contractual insurance schemes, either compulsory by law or encouraged by government, or where employers make it a condition of employment that employees (the beneficiaries) participate in a social insurance scheme specified by the employer to insure against old age and other age-related risks. These employment-related pensions are provided to beneficiaries either by the employer or by other units on behalf of the employer. (ESA2010 17.49.) The contributions and entitlements of these systems are also recorded in the core national accounts.

To understand the impact of these different systems on the economic accounting, we go next through the accounting of these different pension systems. In the core national accounts⁴, social security pensions are recorded as pay-as-you-go pension systems. Pay-as-you-go contributions in a period are used to finance the benefits in the same period. There is no saving element involved, either for general government or the employer operating scheme or for the beneficiaries participating in it. However, as we will see later in this paper, the social security pension funds might even have considerable funds, and these are recorded as assets of social security funds.

Table (1.) illustrates the recording of social security pensions. In the generation of income account employer is paying pension contribution which is received by the employee in the allocation of primary income account. In the secondary distribution of income account household pays the social security pension received from the employer as well as own share of pension contribution to the social security institution. The approach of national accounts is that all the social security contributions are paid by employees/households even though in the reality they do not receive the employers' part in their accounts. In the secondary distribution of income account, the social security institutions pay also pension benefits to the retired employees.

Table 1: Accounts for social contributions and pension benefits paid through social security

Uses					Account and transaction	Resources				
Employer	Social security	Households	Other	Total		Employer	Social security	Households	Other	Total
Generation of income account										
139				139	Employers' contributions (D.1211)					
Allocation of primary income account										
					Employers' contributions (D.1211)			139		139
Secondary distribution of income account										
		226		226	Social security contributions		226			226
		139		139	Employers' pension contributions (D.6111)		139			139
		87		87	Households' pension contributions (D.6131)		87			87
	210			210	Social security pension benefits in cash (D.6211)			210		210

Source: ESA2010.

In the case of other employment-related pension schemes, the defining issue in the recording is whether the underlying is defined contribution or defined benefit scheme. A *defined contribution scheme* is a pension scheme where the benefits are defined exclusively in terms of the level of the fund built up from the contributions made over the employee's working life and the increases in value that result from the investment of such funds by the manager of the pension scheme. (ESA2010 17.54.) The entire risk of a defined contribution scheme to provide an adequate income in retirement is borne by the employee. A *defined benefit scheme* is a pension scheme where the benefits payable to the employee on retirement are determined by the use of a formula, either alone or in combination with a guaranteed minimum amount payable. The risk of a defined benefit scheme to provide an adequate income in retirement may borne by the employer or a unit acting on his behalf, however it may also be the case that neither the employer nor other institutions have a

⁴ In the terms of national accounts, core refers to the part of the system which belong to the main (regularly compiled) national accounts. Respectively, non-core or supplementary data in national accounts is something which complements the economic description of the "core" national accounts. Sometimes, these type of complementary tables in national accounts are also called *satellite accounts*.

legal commitment to provide additional funds in case of funding shortfalls and the initially defined benefits may be adjusted.

Moreover, there are *notional defined contribution schemes* and *hybrid schemes* which are grouped in the national accounts as *defined benefit schemes*. A notional defined contribution scheme is like a defined contribution scheme but with a guaranteed minimum amount payable.⁵ In a *notional defined contribution scheme*, contributions (both from employee and employer) are credited to, and accumulated on, individual accounts. Those individual accounts are notional, in the sense that the contributions to the schemes are used to pay pension benefits to current pensioners. At retirement, the accumulated balance is converted into an annuity through a formula, based, among other factors, on a measure of life expectancy, and is revised annually to catch up with a measure of the standard of living.

Hybrid schemes are those schemes which have both a defined benefit and a defined contribution element. A scheme is classified as 'hybrid' either because both defined benefit and defined contribution provisions are present or because it embodies a notional defined contribution scheme and, at the same time, a defined benefit or defined contribution provision. The provision might be combined for a single beneficiary, or differentiated according to groups of beneficiaries by type of contract, pension provided, etc. The risk to provide an adequate income in retirement is shared between the employer and the employee under a notional contribution scheme and under a hybrid scheme.⁶

The fundamental difference in accounting for a defined benefit pension scheme as compared to a defined contribution pension scheme is the following: For the defined benefit pension scheme, the benefit to the employee in the current period is determined in terms of the undertakings made by the employer about the level of pension. Whereas for the defined contribution pension scheme, the benefit to the employee in the current period is determined by the contributions made to the scheme, and the investment income and holding gains and losses earned on those and previous contributions. Thus, while there is, in principle, complete information available on the benefits for the participant in the defined contribution scheme, the benefits for the participants in a defined benefit scheme are estimated actuarially.

⁵ ESA2010, 17.60.

⁶ ESA2010, 17.62-63.

Table 2: Accounts for pension benefits payable under a defined contribution scheme

Uses					Account and transaction	Resources				
Employer	Pension fund	Households	Other	Total		Employer	Pension fund	Households	Other	Total
Production account										
					Output (P.1)		1,4			1,4
Generation of income account										
11,0				11,0	Employers' contributions (D.1211)					
Distribution of primary income										
					Employers' contributions (D.1211)			11,0		11,0
			3,0	3,0	Property income (D.4)	3,0				3,0
	16,2			16,2	Investment income on pension entitlements (D.442)			16,2		16,2
Secondary distribution of income account										
		37,3		37,3	Household total pension contributions		37,3			37,3
		11,0		11,0	Employers' contributions (D.6111)		11,0			11,0
		11,5		11,5	Households' contributions (D.6131)		11,5			11,5
		16,2		16,2	Households' contribution supplements (D.6141)		16,2			16,2
		− 1,4		− 1,4	Social insurance service charges (D.615C)		− 1,4			− 1,4
	26,0			26,0	Other social insurance benefits (D.6221)			26,0		26,0
Use of income account										
		1,4		1,4	Final consumption expenditure (P.3)					
	11,3			11,3	Adjustment for the change in pension entitlements (D.8)			11,3		11,3
− 11,0	− 11,8	25,8	− 3,0	0	Saving					
Changes in assets				Financial account			Changes in liabilities			
					Net borrowing/lending (B.9)	− 11,0	− 11,8	25,8	− 3,0	0,0
		11,3		11,3	Pension entitlements (F.63)		11,3			11,3
− 11,0	− 0,5	14,5	− 3,0	0,0	Other financial assets					

Table (2.) illustrates the accounting principles for the defined contribution scheme. If we start from the production account, the output of pension fund is equal to social insurance service charges, which is recorded as negative uses for households and negative resources for pension funds in the secondary distribution of accounts. In this sense, this increases household disposable income, and this same amount is recorded in the household final consumption expenditure. In the generation of income account employers are paying their contribution to the households and in the distribution of primary income account, households receive these contributions. The property income generated by the investment is also directly recorded as an income of employer although in the real world, this income flow is directly deducted from the employers' payments. For households, pension fund pays investment income in the distribution of primary income although in the real world this income is deducted from the households' pension contributions. In the secondary distribution of income account, households pay all the pension contributions and related charges. No matter whether original contributor is employer or households, households always pay the contribution. The pension benefits are also paid in the secondary distribution of account. In the Use of income account, household saving is adjusted to reflect pension saving in the savings as in the concept of disposable income, these savings are not included. In the financial accounts, the saving increases households' pension entitlement assets and correspondingly, pension funds' liabilities.

Table 3: Accounts for pension benefits payable under a defined benefit scheme

Uses					Type of account and transactions	Resources				
Employer	Pension fund	Households	Other	Total		Employer	Pension fund	Households	Other	Total
Production account										
					Output (P.1)		0,6			0,6
Generation of income account										
10,0				10,0	Employers' contributions (D.1211)					
4,1				4,1	Employers' imputed contributions (D.1221)					
Allocation of primary income account										
					Employers' actual contributions (D.1211)			10,0		10,0
					Employers' imputed contributions (D.1221)			4,1		4,1
			2,2	2,2	Property income (D.4)		2,2			2,2
	4,0			4,0	Investment income payable on entitlements (D.442)			4,0		4,0
Secondary distribution of income account										
		19,0		19,0	Household total contributions		19,0			19,0
		10,0		10,0	Employers' actual contributions (D.6111)		10,0			10,0
		4,1		4,1	Employers' imputed pension contributions (D.6121)		4,1			4,1
		1,5		1,5	Households' actual contributions (D.6131)		1,5			1,5
		4,0		4,0	Households' contribution supplements (D.6141)		4,0			4,0
		− 0,6		− 0,6	Social insurance service charges (D.615C)		− 0,6			− 0,6
	16,0			16,0	Other social insurance benefits (D.6221)			16,0		16,0
Use of income account										
		0,6		0,6	Final consumption expenditure (P.3)					
	3			3	Adjustment for the change in pension entitlements (D.8)			3		3
− 14,1	− 1,2	17,5	− 2,2	0	Saving					
Changes in assets					Financial account	Changes in liabilities				
					Net borrowing/lending (B.9)	− 14,1	− 1,2	17,5	− 2,2	0
		3		3	Pension entitlements (F.63)		3			3
	4,1			4,1	Claims of pension funds on pension managers (F.64)	4,1				4,1
− 10,0	− 2,3	14,5	− 2,2	0	Other financial assets					

Table (3.) shows the accounting of the defined benefit schemes. Concerning the non-financial transactions, the recording of transaction is similar with the defined contribution schemes. The key difference in the financial accounts is that the non-funded part is recorded as pension fund claims for the employer and asset of pension fund. It is also important to notice that this recording applies only to the non-social security pensions even though they are also mainly defined benefit schemes.

Additionally, the ESA 2010 includes a new supplementary table (Table 29) for accrued pension entitlement and alternative breakdowns for the core pension as shown in Table (4.). The table can help in breaking down the pension system into defined benefit and contribution systems and further to ones which are classified to the general government or financial corporations. This is something which could help to link national accounts with other data sources but the key issues is the availability of these data. Countries must report this data in 3-year intervals and a time lag of 2 years for data as of 2012. The last relatively complete reference period for these data is 2021 which was published in February 2024 in the Eurostat's database.

Table 4: Supplementary table on accrued-to-date pension entitlements in social insurance

	Core national accounts						Not in the core national accounts	Total pension schemes	Counterparts: pension entitlements of non-resident households (4)
	Non-general government			General government					
	Defined contribution schemes	Defined benefit schemes and other (1) non-defined contribution schemes	Total	Defined contribution schemes	Defined benefit schemes for general government employees (2)		Social security pension schemes		
					Classified in financial corporations	Classified in general government (3)	Classified in general government		
Pension entitlement									

3. The corresponding data in the Household Finance and Consumption Survey (HFCS)

3.1. Linkage between Financial Accounts and the HFCS

The HFCS blueprint questionnaire⁷ includes question concerning pensions. The core questionnaire⁸ includes questions related to the existence of the pension plan and if the pension plan has a balance related to the accumulated entitlements of the pension plan. This covers typically the defined contribution plans which have a balance but theoretically, also the defined benefit plans although these should not typically have a balance. Thus, concerning defined benefit pensions, it is unclear how well these are covered in the HFCS. Typically, the practical coverage of these pensions varies from country to country.

Tables (5.) and (6.) show the linkage between the FA and HFCS for pensions.⁹ The structure of the questions is different in HFCS waves 1 and 2 comparing to the waves 3 and 4. Table (5.) shows the linkage for waves 1 and 2 and table (6.) for waves 3 and 4. In practice, the questions are only structured differently but they do capture the same pension systems.

The HFCS target variables on pension wealth are broken down into (a) public or social security with an individual account balance, (b) occupational pension plans that have an account balance, and (c) voluntary non-occupational pension/whole life insurance schemes. This breakdown is in principle aligned to the national accounts' classification. However, the practical coverage of these variables varies from country to country. This is discussed more in depth in the next section where the national pension systems are discussed. National accounts include household's financial assets in non-life and life insurance as well as occupational pension entitlements as part of the financial accounts, while social security pensions are considered as distributive transactions that are recorded only in the non-financial accounts. In the HFCS, the definitions of output variables on public and occupational pension wealth are harmonised, but the collection of these items is open to national implementation, because public and occupational pension schemes are country specific.

For public and occupational pension plans that do not provide an account balance to their members, it is not feasible to ask for the corresponding value in a household survey. Respondents might know

⁷ The blueprint questionnaire refers to the questionnaire manuscript which is followed in all the countries conducting the survey.

⁸ The core questionnaire refers to the core or obligatory set of questions which are collected in all the participating countries. Correspondingly, non-core questions are the ones which are included in the questionnaire structure but are not obligatory.

⁹ The linkage is also presented in: Expert Group on Linking macro and micro data for the household sector (2020) and the earlier versions in: Kavonius and Törmälehto 2010. Kavonius and Honkkila 2013.

how many years they have contributed, and what they might expect to receive under the current rules of the plans after terminating work, but the present value of this entitlement could be determined only through estimation methods that are not carried out during the production of HFCS statistics. The exclusion of public and occupational pension plans that do not provide an account balance in the HFCS affects the comparison of pension wealth across countries.

Table 5: Insurance, pension and standardised guaranteed schemes (F6) for HFCS waves 1 and 2

FA code	FA description	HFCS code	HFCS description
N/A	N/A in the FA core accounts. Supplementary data (Table 29 of the ESA Transmission Programme)	PF0510	Public pension/social security plan with an account balance
N/A	N/A in the FA core accounts. Supplementary data (Table 29 of the ESA Transmission Programme)	PNF0720	Non-core variable on employment related pension plans without an account balance (i.e. defined benefit plans). Collected in NL and FI for the second wave .
F62	Life insurance and annuity entitlements Includes non-employment related, voluntary pension schemes May also include insurance against disability and incapacity for employment	PF0920	Voluntary pension/whole life insurance schemes Includes non-employment related voluntary pension schemes and life insurances where the insurer guarantees to pay the policy holder an agreed minimum sum or an annuity, at a given date or at the death of the policy holder, if this occurs earlier
F63	Pension entitlements Includes non-social security employment related pensions (defined contribution and defined benefit)	PF0600 PF0700	Has occupational pension plan Current Value Of All Occupational Pension Plans That Have An Account Includes employment related pensions for which benefits are not yet received, excluding employers considered as 'public sector pension providers'. If the pension scheme has an account balance, the current value of the account is asked. Otherwise only the existence of such plan is asked. Current value of all occupational plans that do not have an account

Table 6: Insurance, pension and standardised guaranteed schemes (F6) for HFCS waves 3 and 4

FA code	FA description	HFCS code	HFCS description
N/A	N/A in the FA core accounts. Supplementary data (Table 29 of the ESA Transmission Programme)	PFA020\$x PFA080\$x	type of pension plan \$x 1 – Public current value of pension plan \$x
N/A	N/A in the FA core accounts. Supplementary data (Table 29 of the ESA Transmission Programme)	PNF0720	Non-core variable on employment related pension plans without an account balance (i.e. defined benefit plans). (only wave 4)
F62	Life insurance and annuity entitlements Includes non-employment related, voluntary pension schemes May also include insurance against disability and incapacity for employment	PFA020\$x PFA080\$x	type of pension plan \$x 3 - Voluntary pension scheme 4 - Whole life insurance current value of pension plan \$x Includes non-employment related voluntary pension schemes and life insurances where the insurer guarantees to pay the policy holder an agreed minimum sum or an annuity, at a given date or at the death of the policy holder, if this occurs earlier
F63	Pension entitlements Includes non-social security employment related pensions (defined contribution and defined benefit)	PFA020\$x PFA080\$x	type of pension plan \$x 2 – Occupational current value of pension plan \$x Includes employment related pensions for which benefits are not yet received, excluding employers considered as ‘public sector pension providers’. If the pension scheme has an account balance, the current value of the account is asked. Otherwise only the existence of such plan is asked.

In the (core) FA there is no recording of social security pension schemes as the government is responsible for the settlement of contributions and benefits (“government control”)¹⁰. The linking can be done for years for which the non-core pensions are available, i.e., when the so-called Table 29 of the ESA Transmission Programme is available. The last relatively complete year is 2021. Additionally, these pensions are non-core items in the HFCS and these data are collected only by few countries, i.e. FI and NL and these data are collected in two surveys of four. In some cases, where the public system is hybrid, it is possible that some values are collected in the core questionnaire as part of public pensions which have an account. However, this is rarely the case.

Despite different terminology (national accounts do not refer explicitly to voluntary pension schemes) the FA concept of ‘F62 Life insurance and annuity entitlements’ can be interpreted as the conceptual equivalent of the HFCS ‘Voluntary pension schemes’, which includes personal (voluntary) pension plans and whole life insurances. HFCS questions on assets of voluntary pension schemes and whole life insurances are asked from all respondents older than 15 years, regardless of whether or not the persons are retired or are receiving benefits from these pension/whole life insurance schemes. F62 refers to non-employment related schemes. F62 also contains some other forms of insurance against substantial risks (incapacity for employment, disability) but their recording in the FA may vary across countries (see ESA 16.10-15). Their amounts are typically assumed to be small.¹¹

Concerning the valuation of the data, financial accounts are typically based on actuary information on technical reserves reported by insurance corporations and reflect the present value of the life insurance. In the HFCS the value of accounts is measured as the current value, i.e., “how much are they worth at the moment”, which could be either an amount like the present value, or a current (and lower) liquidation value of the life insurance contract. There are therefore relevant differences in the valuation concepts of ESA 2010 and the HFCS concept, as well as some uncertainty about the value used in each case of the HFCS.

Concerning the income accounts, all the pension funds have similar structure. The income flows are otherwise similar but social security pension funds typically do not have property income from the funds which is allocated to the households. In the HFCS, there is only one income related item in pension contributions which is monthly contribution to plan (PFA050\$x). This is the only item which could be linked with financial flows of other employment related pensions. This item has the same limitations than the corresponding wealth items. Regarding social security pensions, the survey collects received employee income (PG0100) but not the social security payments by employee or employer.

Concerning the received pensions (income flows), the HFCS includes questions related to received income from public pension plans (PG0300) as well as private and occupational pension plans (PG0400). The key issue is that the European data transmission detail does not have social security pensions separately.

¹⁰ See ESA 2010, 2.117 :

2.117 Definition: the social security funds subsector includes central, state and local institutional units whose principal activity is to provide social benefits, and which fulfil each of the following two criteria:

(a) by law or by regulation certain groups of the population are obliged to participate in the scheme or to pay contributions; and

(b) general government is responsible for the management of the institution in respect of the settlement or approval of the contributions and benefits independently from its role as supervisory body or employer.

¹¹ The F62 Life insurance and annuity entitlements is also currently completely included in the DWA.

3.2. Data in practice: F63 Pension entitlements

Employment related, but non-government-controlled schemes are recognized in ‘Pension entitlements’ (F63) in the FA for all EU countries and are available as annual and quarterly time series. Those plans can be voluntary or mandatory, as well as defined benefit or defined contribution.

In the HFCS, the current value of occupational pension wealth includes only plans that have an account balance. Another – potentially significant - difference between FA and HFCS is that the HFCS output variable on occupational pensions does not cover pensions of individuals that are already receiving such benefits.¹²

Pension plans can be divided into defined contribution plans, defined benefit plans, and hybrid plans (i.e. those that have characteristics of the two). For the defined benefit plans households might not always be aware of any balance, and for the household it is difficult to provide a present value from future pension payments during a survey. In the FA the value of defined benefit plans is the actuarial value which is based on the insurance companies’ balance sheet data. ESA expected future benefits (including but not confined to declared bonuses) less the present value of future premiums (ESA 2010, 16.44a). These amounts thus exceed the amounts that the individual household may consider as its personal “account”.

The European System of Central Bank Expert Group on Linking Micro and Macro Statistics for the Household Sector (EG-LMM) conducted in 2016 a survey concerning the coverage and linkage of different concepts. Concerning the question whether the countries include any defined benefit plans in their HFCS survey variable, the replies were the following:

- Concerning the first wave four countries (AT, BE, FR and SI) indicated that they include some defined benefit plans. Concerning the first HFCS wave, 10 countries¹³ replied that the defined benefit plans are not included in the survey variable on occupational pensions.
- In the second wave 13 countries¹⁴ replied that defined benefit plans are not included in the HFCS. HU and LT indicated that they do not have occupational defined benefit plan schemes. LU also emphasised that they do not know whether there are such a defined benefit plans which have account balance. Similar indications are included in some “no” replies. DE commented that all the pension plans which have an account balance are included and if there are any occupational related defined contribution plans these would also be included. Moreover, SK informed that they do not have occupational plans which have an account balance.

Table (7a.) shows that the issues of defined benefit schemes is a relevant question as several countries in the core accounts have those in their pension entitlements (F63). Table (7b) shows the actual amounts in 2021 in different pension schemes. As all the countries have defined benefit plans (or hybrid plans) in the national accounts pension entitlements, the correspondence between national accounts and the HFCS can be only somewhat right in the cases where countries include defined benefit plans in their HFCS item.

¹² Three countries (FR, IT and NL) in the first wave and four (additionally: FI) in the second wave collect these data.]

¹³ CY, DE, ES, FI, GR, IT, MT, NL, PT and SK

¹⁴ In addition to the countries above EE, LT and PL.

Table 7a: Countries indicating in the ESA Transmission Programme that the following pension scheme are relevant to them. The table is based on reference year 2021 data of the Table 29 ESA Transmission Programme.

Pension type	Applicable countries
Private defined benefit schemes	BE, DK, DE, IE, ES, IT, CY, LV, LU, NL, AT, PT, FI and SE.
Defined benefit schemes for general government employees classified in financial corporations	DK, DE, CY, NL, PT and SE.
Defined contribution schemes of general government (core accounts)	LT, SI and SE
Defined benefit schemes for general government employees classified in general government (core accounts)	SE
Defined benefit schemes for general government employees classified in general government (not in core accounts)	BE, DK, DE, EE, IE ES, FR, CY, LV, LT, LU, MT NL, AT, PT, SK, SE and UK

Table 7b: The different pension schemes reported by countries in 2021. The data are based on Table 29 of the ESA Transmission Programme

	S1P Pension schemes (core and not core accounts)	S12P Private pension schemes	S12PC Private defined contribution schemes	S12 PB Private defined benefit schemes	S12BI Defined benefit schemes for general government employees classified in financial corporations	S13PC Defined contribution schemes of general government (core accounts)	S13PBI Defined benefit schemes for general government employees classified in general government (core accounts)	S13PBX Defined benefit schemes for general government employees classified in general government (not in core accounts)	S13PS Social security pension schemes (not in core accounts)
Belgium	1,740,511	136,069		136,069				295,829	1,308,613
Bulgaria	149,900	9,996	9,996						139,903
Czechia	663,993	22,700	22,700						641,293
Denmark	321,317	233,407	228,287	5,120	5,881			74,400	7,628
Germany	12,769,025	838,270		838,270	147,930			1,649,278	10,133,547
Estonia	98,211							2,921	95,291
Ireland	767,311	120,911	59,024	61,886				175,700	470,700
Spain	6,193,940	64,692	38,024	26,668				547,399	5,581,849
France	9,964,000							1,317,000	8,647,000
Croatia	205,401	17,897	17,897						187,504
Italy	8,076,339	162,830	157,419	5,411				0	7,913,509
Cyprus	77,860	3,379	2,354	1,025	421			9,502	64,558
Latvia	82,858	6,348	6,186	162				2,298	74,212
Lithuania	163,790	5,910	5,910			14		2,653	155,212
Luxembourg	261,670	4,986	3,455	1,531				43,983	212,701
Hungary	498,921								498,921
Malta	37,459							2,773	34,686
Netherlands	3,683,525	1,310,829	73,385	1,237,444	498,807			8,939	1,864,950
Austria	1,878,592	50,571	27,950	22,621				276,827	1,551,195
Portugal	830,311	23,597	1,930	21,667	56	0		205,619	601,038
Slovenia	207,154	2,692	2,692			1,917			202,546
Slovakia	243,884	10,979	10,979					35,283	197,622
Finland	836,863	8,863	1,385	7,478					828,000
Sweden	1,607,853	529,623	441,139	88,484	2,539	4,202	49,370	23,695	998,424

3.3. Borderline to the social security pensions

The other key issue in the comparability and linkage between the HFCS and national accounts is whether the borderline between social security pensions and other employment related pension is drawn in a symmetric/same way. Both systems can legally be obligatory, but the question is rather whether these are provided by the government or not. The practical application of this rule may vary from country to country and the borderline between social security pensions and other pensions is flickering. As a practical delineation, one applied criterion is whether the government is controlling the pension plan beyond its role as a supervisory body or employer, i.e., whether the government can change the conditions of pension plan such as retirement age or the level of the pension.

In the HFCS, the respondent may not be aware of whether the government controls the pension plans he/she is participating in. However, in national questionnaires the names of pension plans are often collected. In the questionnaire, which was conducted in 2016 by the EG-LMM, it was asked whether government-controlled pension schemes are included in the data collection of the HFCS on occupational pensions. The replies are the following:

- Concerning the first wave, seven HFCS countries answered 'yes' (AT, BE, CY, FR, GR, IT and SI), six countries 'no' (ES, FI, MT, NL, PT and SK), one country yes and no (DE) and one country left reply empty (LU). BE and DE indicated that the government decisions can affect all pension systems, i.e. all the pension systems are subject of pension laws. LU made the same point but emphasised also that this does not necessarily mean that these pension schemes are controlled by the government.
- Concerning the second wave all five new countries indicated that they do not include any plans which are government controlled.

These replies also indicate that in the several cases the borderline between the social security pensions and other employment related pensions is unclear.

4. The implication of different pension systems on the household wealth

4.1. Different pension systems in Europe

As discussed earlier in this paper, the current SNA/ESA draws the borderline between different pension systems on basis of whether the system is social security or not. The borderline for this is that whether the government has control over the assets and actual pension programmes or not. The key issue for distributional wealth project like the ESCB DWA is that only the assets of non-social security pensions are defined as household wealth. An additional complication to this issue is brought by the fact that the pension systems which are defined as the social security in the national accounts are not necessarily always identified as such in the wealth surveys (HFCS).

As the SNA states, social insurance pensions in all countries are provided, if at all, in part by general government and in part non-government, "private sector" pension funds. The part provided by general government is called social security and the part by employers is called employment related schemes other than social security. The division between which pensions are provided by social security and which by other employment-related schemes *varies considerably from country to country with the consequence that the coverage and therefore, national perceptions of what the term "social security" designates also vary considerably*. To make clear the recommendations in the SNA, it is necessary to consider the types of coverage provided in different countries. (SNA 17.118.)

This section attempts to give a general characteristic of broadly applied pension systems in different countries. As one country often has several different pension systems, this is a broad categorisation

and rather indicates what is typical in a country. The analysis is based on two data sets: reported national accounts' data and the Mercer Global Pension Index data. Marsh McLennan is the world's leading professional services firm in the areas of risk and strategy which is as a private company analysing pension systems internationally. The Mercer's perspective is the pension corporations as in the case of the national accounts, the perspective is the households.

The pension schemes can be classified into three categories according to how the systems are recorded in the national accounts. The reason why this is done is to make a distinction how the pension system is constructed and thus, how it is recorded in the national accounts have direct impact on the economic indicators, i.e., in which sectors wealth and indebtedness are accumulated. The second aspect is that concerning the comparability of pensions in different data sources and thus, in linking different data sources, this makes a large practical difference. The key issue is that in the context of national accounts, the pensions are strictly related to employment and thus, it is difficult to recognise and to draw the line between which are pensions in this sense, and which are not. The second issue is that the borderline between social security pension and other employment related pensions impacts on which economic sector is holding the actual assets.

The rough classification/generalisation of these systems is based on the data described above and the detailed analyses is presented in Annex (1.). The pensions are classified in four categories according to how these are recorded in the national accounts and whether these are actual pensions or not. It should be noticed that the classification and description is done on basis what is described in the OECD pension data sources¹⁵ and Mercer data. As the descriptions vary between the countries, it might be that the classification in some countries is not fully right and therefore, the table should be taken as tentative.

The first system is the basic minimum pension. This is the basic social security pension which is existing in some form in all countries. One way of implementing it is a basic state pension which is paid completely or partly if employment related pension is not sufficient. In some countries, this is a minimum pension, and the employment related pensions are paid on the top of this. These are always paid directly from the government's budget and as typically are not employment related and thus, are not also considered to be pensions but rather basic social security. This is typically the case in the national accounts as well as wealth surveys even though they are referred often in the legislation as pensions (for instance: basic pension).

The second type of schemes is the common employment related pension system. How these are arranged in different countries varies much. This also has an impact how these systems are recorded in the national accounts. It is often the case that the countries do not have one system purely and therefore, there might be characteristics from several systems. Below there are main characteristics of different pension systems in different European countries:

1. Defined benefit pay-as-you-go-system (PAYG): this is probably the most common system in Europe. It is typical that the system has hardly accumulated assets and the government pays the pensions directly from the pension/social contributions. Typically, the future social security entitlements are high (opposite to system which are considered to private) and social security fund assets are almost non-existing (opposite to the partially funding pay-as-you-go defined benefit systems).

The Mercer Global Pension Index does not consider these systems financially very sustainable. The reason is that to maintain the system in long run, it is likely that either the

¹⁵ OECD 2023/a. OECD 2023/b.

contributions or the government payments need to be increased or the future benefits need to be decreased.

- These are not recorded as households' assets in the core national accounts, but the payments are recorded as social transfers. The future entitlements are available in the satellite table (see: Table (4.)). If these were considered households assets, by the same token this would increase general government implicit debt. The assets related to these schemes are recorded as social security fund assets (general government).
 - Whether these are captured in the wealth surveys (like the HFCS), it may vary from country to country. If there is a nominal account value for the pensions (for instance: social security pension for employees and civil servants in Germany), these might include in variables like "public pensions". However, in the several cases, these types of account values do not exist as these are pure defined benefit systems.
 - Following countries have this as a dominate plan: AT, BE, FR, DE, HU, IE, LU (also DC), NO (also DC), PT, ES, SI and SK.
2. Defined benefit plans which are partially funded and partially PAYG: this is relatively rare system¹⁶. The future pension entitlements are considerably larger than the funds which are recorded as government assets. If the pension contributions structurally are not enough for financing the running pension, there is an option to use the returns of the funds or actual funds, and not only to adjust either level of the contributions or the benefits.

The Mercer Global Pension Index classifies these systems financially relatively sustainable.

- The accumulated assets are not recorded as households' assets in the core national accounts and the payments are recorded as social transfers. The future entitlements are available in the satellite table (see: Table (4.)). The assets related to these schemes are recorded as social security fund assets (general government). As in the fully funded DC system assets would be household assets and in the case of reclassification, these social security fund assets could be therefore considered to be recorded as household assets and the difference between the future pension entitlement and these assets as government debt to households.
 - These are typically not captured in wealth surveys. In the case of the HFCS, this is applicable only to Finland (SE does not conduct HFCS or similar survey) and the social security pensions are surveyed only twice as non/core items.
 - Currently this type of system dominant is in FI. The old Estonian and Swedish pension schemes had certain similarities with this one.
3. Defined contribution plan which is fully funded. These systems have an individual pension accounts and the future pensioner has often some degree of decision on the investment. These are typically quasi-mandatory or voluntary. The assets belong to the households. The Mercer Global Pension Index classifies these systems financially very sustainable.
- The assets of these schemes are already recorded as assets of households in the core national accounts. This of course raises a certain comparability issue vis-à-vis to the countries which have defined benefit schemes.
 - The assets of these types of funds belong to households and for the part which are funded should also be covered in the wealth surveys.

¹⁶ In larger scale: as can be seen in the last column of Annex (1.), most schemes have minor reserves (clearly under 10% of the GDP) to stabilise the pension system. However, these are rather considered to be buffers which can be used for instance to smooth timing of the payments.

- These systems are currently in: DK (obligatory), EE (2021 onwards), LT (based on collected POINTS), NL (quasi-voluntary), UK (voluntary) and US (voluntary). Relatively small obligatory employment related pension which is supported large voluntary private pensions appear also in IE.
4. Notional defined contribution system is many ways like the PAYG pension scheme. For everyone, the amount added to a pot which is appreciated by a rate of return. However, this rate is only notional one set by the government. The money collected from the contributors is used to finance current pension benefits. The Mercer Global Pension Index classification concerning the financial sustainability depends on the situation whether there are accumulated funds or not.
- The national recording varies depending on whether there are underlying assets. As these mostly are completely nominal systems, i.e., there are no underlying assets, these are also not in the national accounts core system.
 - In the case of the wealth surveys, households may declare that they have public pension scheme but, in these systems, they are normally their accumulated future pensions.
 - These systems are currently in: GR (from 2015 onwards, not funded), IT (not funded), LV (partially funded) and SE (notional system PAYG and additionally, mandatory DC scheme (classified as HH assets)).

The third type of schemes is voluntary additional pensions which have been taken by beneficiary or employer and must be employment related. These are typically funding defined contribution schemes and are also included in the core national accounts as household assets. These are practically the same or overlapping pension schemes with fully funded defined contribution plans, but these are always voluntary, i.e., not obligatory, or quasi-voluntary. In several countries, there are a kind of quasi-public fully funded defined contribution plans, and these might be only ones existing in addition to the minimum public pensions. These are the national core pensions and should always be recorded in the national accounts as *F63 Pension entitlements*.

The fourth type pension is voluntary saving plans or programmes which do not have strictly speaking anything to do with employment. Even though these might be called pensions, and these might include some tax benefits, these are not in national accounts' sense pensions but rather regular savings. In the national accounts, these should be recorded in a sense as a look-through, i.e., like households would directly own these different assets of the schemes. Similarly, the wealth surveys should not treat these as pensions.

4.2. The problems in linking wealth survey and national accounts: how to get a comparable wealth concept?

Inclusion of pensions in the wealth concept and in the distributional wealth accounts raises several issues. As already seen earlier in this paper, these can be categorised into two categories: (1.) the issues which cause problems in the comparability of wealth concepts between the countries; and (2.) the issues related to the comparability between different data sources and their practical implication for instance in the distributional accounts.

The first issue related to the comparability is related to whether the pension described in the second category in the previous section are classified to social security type of pensions or other employment related pensions. The issue related to this is twofold: first, the key criteria is legal control of the assets, which appear as an own pension account and some own decision power in deciding the investment of the assets. However, this does not mean that a household could do

whatever it wants with these assets, i.e., for instance realise them. It rather means that the responsibility of possible losses or wins (typically: defined contribution schemes) is carried by the household. However, the critical issue is that if household misses this control and the assets are pooled, is there actually an economic reason that in the first case pensions should be added in the household wealth and in the second case the pensions should be excluded? The treatment of pensions has also implicit a broader impact on the economic measurement, which is discussed more in detail in the following section. Second, it could also be argued the social security pensions should be included in wealth. However, if the social security pension system does not have any accumulated assets and the system is not financially sustainable, i.e., the future cuts to the pensions benefits are obvious but simply not yet implemented. How much does this describe the economic reality? Due to these issues and different interpretations of the wealth concepts, all pensions are often simply left out of the wealth comparisons.

Concerning the second issue of comparability of different data sources, in this case, between the HFCS and national accounts, as discussed earlier, there at least four open issues to which the answers vary from country to country. Therefore, for this question, there is no one answer but rather separate answers for each individual country. The first open issue is that whether the social security pensions are captured by the survey. This is mostly not the case and as indicated above. Only FI and NL have collected these data on voluntary basis for two years. However, the key difficulty in collecting these data is whether there is some identifiable account for individuals. In some cases, this is the case and at least some of these pensions are captured under the core survey public pensions.¹⁷ However, if some values of these funds are reported, the open question is how it is done as the future pension entitlements are not known.

The second issue is that in several countries in the other employment related pensions there are both defined benefit and defined contribution plans. In the household surveys like the HFCS, the existence of all plans can be still captured but as only defined contribution plans have account balance and defined benefit plans not, it is difficult to capture defined benefits plans in the HFCS. Given the large role of defined benefit plans (see: Table 7b), the linkage between wealth survey and national accounts other employment related pensions is not necessarily good. The quality of linkage varies from country to country depending first on how predominant the defined benefit plans are in the other employment related pensions and whether the local wealth study has been able to capture the defined benefit plans. This is something which needs to be checked country by country.

The third issue how the private voluntary pension systems, i.e., the schemes which are classified in the fourth category in the previous section, are treated in the wealth surveys. As mentioned earlier, in the economic statistics' sense, these are not really pension schemes but rather general saving schemes. In the macro statistics or in the national accounts, the classification of different funds should be easier as it is done at the level of pension fund but in the wealth surveys, the situation might be different. This information is something which is asked from households and thus, the correct reply requires that the household can identify whether the scheme that they are having is a pension scheme or not. As in the public discussion and even sometimes the government policies refer those as pensions, the households consider so also often in their replies.¹⁸

The fourth issue is that how actually this difference between social security pensions and other employment related pension schemes is recognised in the macro statistics and whether the

¹⁷ In the case of Germany this is for instance the case.

¹⁸ For instance, in the German HFCS, the pensions include so called Riester and Rürup "pensions", which are not employment related and not in that sense pensions but rather state subvented saving programmes.

borderline is the same in the micro statistics. In the macro statistics recognising and classifying unit is somewhat easier than in the micro statistics. Like in the non-employment related saving schemes, the individuals do not necessarily recognise whether his/her employment-based pension is social security or not.

After going through the issue related to the comparison of pensions, it should be asked whether pensions in the wealth surveys, in this case in the HFCS, and national accounts could be linked. This conceptual and practical linking is essential for instance in compiling distributional accounts. This issue should be separated into two separate parts: whether the social security pensions, which are not in the current core national accounts, should be included and whether the other employment related pensions, which are included in the core national accounts' household wealth, could be included.

Concerning the social security pensions, the HFCS core questionnaire in principle does not cover these pensions. In the case that these are some kinds of hybrid schemes and thus, have also some kind of account value, some of these pension systems are collected under the heading "public pensions". For instance, in the case of Germany and Ireland, there are some social security pensions collected under this item, but it should be investigated in country specific cases, how representative this collection is. However, most countries, which conduct this survey, do not have anything recorded under this item.

The so-called non-core variable list, which is not obligatory, includes also social security pensions, which do not have an account. In theory, the linkage of this variable would be straight forward, but the key issue is that this variable is collected only by Finland and the Netherlands and for those countries only twice. Given that also the national accounts Table 29 data, which includes the social security pensions, is available for most countries only for years 2015, 2018 and 2021, in practice, due to overall lack of the data, the possibility of linking these two data sets is limited.

Concerning the other employment related pensions, the situation is more complicated. For the countries (according to Table (7b.) for instance: CY, IT, LT and NL), in which these pension systems are predominantly defined contribution schemes, the linking to the HFCS should be relatively clear as the accounts' balances are also clearly from these defined contribution schemes. Only clear conceptual limitation is that the HFCS includes only pensions which are not paying out the benefits as the national accounts include all pensions. In the cases where the pensions are mainly defined benefits, the linkage requires more detailed analysis, i.e., whether the corresponding HFCS covers anything or if it does, what it covers.

If we are aiming to the most comparable wealth concept, the pensions are complicating the comparison. Including some of the pensions and excluding some employment related pension might indicate more the institutional differences in the pension systems than differences in the actual wealth. From the other perspective, it can be asked, how sensible it is to include any value for the pay-as-go-pension which financing is in the long-term not sustainable and it is obvious that the pension benefits will not remain at the promised level. On the other hand, it is also obvious that it is very unlikely, that the this promise of future payment is also worth nothing. The other extreme is the defined contribution employment related pension schemes which have own personal account balance which is allocated to an individual. Here, the accumulated assets are attached to a person who also up to certain point carries the risk of investment. The different treatment of these systems has a fundamental impact on the economic measures of household wealth and government assets. This is discussed more in detailed in the following section.

4.3. The impact of different pension systems on wealth

The different treatments of the different pension schemes have also impact on the different macroeconomic indicators. The purpose of this section is to focus on what the impact is on the household wealth and, how the ranking changes in international comparison. This analysis presents five different wealth concepts and their impact on the household wealth and government debt in the international comparison. The reason why general government debt is taken in this comparison is that if non-funded social security pension entitlements are considered to be household wealth, then by the same token, these need to be considered to be general government obligations, i.e. general government debt. The different wealth and indebtedness concepts used in this analysis are the following (Table 8):

- *HH assets per capita* describes the household financial and non-financial assets per capita without pension wealth and non-financial business wealth. From this point of view, this is nearest to the ESCB distributional wealth accounts' wealth concept;
- *HH assets with n.a. pension per capita* describes the households financial and non-financial assets with pension wealth which are included in the core national accounts' pensions;
- *HH assets with all pensions per capita* includes as above all core national accounts core financial and non-financial assets (excluding non-financial business wealth) as well as social security pensions' future entitlements;
- *HH net wealth per capita* describes the household financial and non-financial assets per capita without pension wealth and non-financial business wealth minus the liabilities;
- *HH net wealth with na pensions per capita* describes the households financial and non-financial assets with pension wealth which are included in the core national accounts' pensions minus liabilities;
- *HH net wealth with all pensions per capita* includes as above all core national accounts financial and non-financial assets (excluding non-financial business wealth) as well as social security pensions' future entitlements minus liabilities;
- Maastricht debt is the standard Maastricht debt concept;
- *Maastricht debt with pension liabilities* refers to the standard Maastricht debt concept which include additionally the social security pension liabilities;
- *Maastricht debt with net pension liabilities* refers to the standard Maastricht debt concept which include additionally the social security pension liabilities and the assets of the social security funds. The idea of this concept is that it describes the true debt including the financing deficit caused by the public pension schemes.

Table (8.) shows these concepts above and additionally, country rank for each individual indicator. The purpose is to illustrate how the different treatment of pension schemes appear in the wealth. It is useful to look at the table by using different grouping of pension system characteristics which are presented in section (4.1.). The countries which have predominantly *defined benefit pay-as-you-go-system* are indicated in light blue in the table (8.). Typically, in these cases the household wealth increases relatively little when the national accounts' core pensions are included in the household wealth. The increase depends typically on additional pensions which are taken either by employer or employee to complement social security pension system. The same situation is typically in the *defined benefit plans which are partially funded and partially PAYG* (light red in the table) and in the *notional defined contribution systems* (grey in the table). In the *defined contribution plans, which are fully funded* (light orange in the table) the wealth in the core national accounts' pensions is considerable. This depends also how old the system is and thus, how much assets are accumulated in the schemes/funds. In Denmark and the Netherlands, the increase is particularly large. In the case

of Estonia, the numbers still reflect the situation before the pension reform when they had partially funded defined benefit system. The system was relatively young and thus, the accumulated assets were also relatively small.

Table 8: The impact of different pension systems on household wealth and government debt in 2018

	HH assets per capita		HH assets with n.a. pensions per capita		HH assets with all pensions per capita		HH net wealth per capita		HH net wealth with na pensions per capita		HH net wealth with all pensions per capita		Maastricht debt, % of GDP		Maastricht debt with pension liabilities, % of GDP		Maastricht debt with net pension liabilities, % of GDP	
	rank		rank		rank		rank		rank		rank		rank		rank		rank	
Belgium	234,091	1	242,792	3	345,967	1	210,442	1	219,144	1	322,319	1	99.9	19	355.0	14	350.1	15
Denmark	223,418	2	255,964	1	257,467	8	164,162	3	196,708	3	198,211	9	33.9	5	36.8	1	36.6	1
Germany	158,826	7	169,487	6	276,210	7	137,443	7	148,104	7	254,827	6	61.9	10	324.8	10	319.8	10
Estonia	49,137	13	52,094	13	119,424	13	41,330	13	44,287	13	111,618	13	8.2	1	350.7	13	346.5	14
Ireland	118,885	11	143,279	9	217,179	10	88,427	11	112,821	9	186,720	10	62.9	11	172.6	2	171.7	2
Spain	156,766	8	160,304	8	244,132	9	140,678	6	144,215	8	228,043	8	100.4	20	425.8	17	422.8	17
France	192,776	3	192,776	4	322,637	4	168,352	2	168,352	4	298,213	3	97.8	17	468.4	20	453.4	20
Italy	162,475	5	166,202	7	281,954	5	149,205	5	152,932	6	268,684	5	134.5	21	525.7	21	519.6	21
Latvia	31,420	18	33,388	19	67,456	19	27,952	18	29,919	17	63,987	18	37.0	6	262.1	7	258.1	6
Lithuania	32,254	17	33,405	18	70,209	17	28,206	17	29,357	18	66,161	17	33.7	4	260.2	6	257.6	5
Hungary	40,324	15	40,916	15	76,904	16	37,423	15	38,015	15	74,003	16	68.7	13	327.5	11	326.4	12
Netherlands	161,377	6	247,476	2	335,984	3	113,464	8	199,563	2	288,072	4	52.4	9	249.5	4	245.5	4
Austria	174,599	4	180,877	5	342,759	2	152,955	4	159,234	5	321,116	2	74.1	16	445.4	19	441.6	19
Slovenia	62,461	12	64,163	12	143,700	12	55,674	12	57,377	12	136,913	12	70.3	14	429.5	18	425.4	18
Slovakia	38,126	16	39,975	16	101,795	14	31,169	16	33,018	16	94,838	14	49.4	8	424.0	16	421.9	16
Finland	130,913	9	132,540	11	277,660	6	99,376	10	101,003	11	246,123	7	64.8	12	407.7	15	322.1	11

Source: ECB and author's calculations.

When the social security pensions are included in the wealth typically, all the other concepts will increase except *defined contribution plans which are fully funded*. This can be seen clearest in the case of Denmark where social security pension plans make relatively small impact. In other countries, which have predominantly defined contribution plans which are fully funded, social security pension plans have larger impact on wealth. The reason is that any country does not have purely one system or another but rather several different pension schemes.

If the non-funded pension schemes are household assets, then this obligation or asset is somebody's, i.e., in practice general governments', liability. This implies that in a broader analysis, this has an impact on the government debt. In this paper the impact calculation is made to Maastricht debt. In the countries, which have non-funded pension entitlements, these entitlements increase government debt, which is shown in column *Maastricht debt with pension liabilities*. As can be seen from the column, the pension obligation multiplies the debt in several countries. As can be expected, in the countries, which have *defined contribution plans which are fully funded*, the impact is smaller. In the case of Denmark, the pension entitlements have hardly impact on the government debt and in the Netherlands, the impact is relatively small in relation to the other countries.

The second last column shows the impact of net pension liabilities. Practically, this means that social security funds assets are deducted from the pension entitlements. In most of the cases social security funds have hardly any assets – or normally only a small buffer – but in the case of countries which have *defined benefit plans which are partially funded and partially PAYG* the existing assets reduce considerably the existing debt. This is practically case only in Finland where the social security assets reduce the debt almost 100% of the GDP.

5. Conclusions

This paper discusses the treatment of the pensions in the national accounts and what is their role in the household wealth. The key targets of this paper are to review: (1.) how the pensions are treated in the national accounts; (2.) how the different pension systems are treated in the HFCS and what

their linkage is to the national accounts' household wealth; (3.) what type of pension systems are in different European countries and what is their dominating pension system at the macro level and how this impacts on the economic/statistical treatment of pension; and finally, (4.) what is the impact of different pension systems on the household wealth measures.

Concerning the national accounts, the key separation is between social security pension and other employment related pensions as the first ones are not included in the balance sheets of household sector and the latter ones are. As the key defining criteria is whether the government has control over the pension schemes and benefits, the borderline between these two is not obvious. Unfortunately, this does not have any kind of linkage to the other characteristics of pension schemes like whether they are defined contribution or benefit systems. However, the social security systems in Europe seems to be almost always defined benefit systems. This makes linking of different data sources as well as comparability of different wealth concepts complicated. The one unavoidable issue, which impacts on the comparability, is that the HFCS covers only pensions, which are not paying out the benefits as the national accounts cover all pensions (also the ones belonging to the pensioners).

The conclusion which can be drawn is that the linking of household survey information and national accounts is challenging. That requires a detailed analysis for each individual country. The consistent treatment is essential for creating distributional wealth accounts, but the additional aspect is to have a consistent picture of the different aspects of the pension systems. First, the pension systems are simply different from country to country, and it is not easy to identify, how the different pension system should be treated. This is true in household surveys, where the households can easily wrongly classify the pension scheme which they are having. Secondly, in the micro statistics there are limitation to collect data as the many pension systems do not have directly available information on the future pension entitlements. The other issue is the data availability. For the social security pensions, the data availability is so limited that the practical linking or using the linkage for instance for distributional wealth accounts is impossible. For other employment related pensions, the linking is in some cases possible, but this typically requires that the pensions are then mainly ones with the account balance, i.e., typically defined contribution plans. The pensions related issues vary much between different countries and therefore, before using the linkage the country data and its coverage need to be analysed properly.

The different treatments of pensions have also an impact on several economic indicators. Therefore, it is essential to know, what is the impact of different pension treatments. This is also something, which needs to be considered before the conclusions are drawn from the economic analysis. Therefore, this paper additionally analyses which kind of pension schemes are in different countries, tries to identify dominate pension system in each country and classifies the countries accordingly and finally, analyses the impact of these arrangements on the household wealth and general government debt. The couple key takeaways concerning the different pension systems are the following: First, the countries tend to have several pension systems and even though the core employment related system would be fully funding, there are always some elements of pay-as-you-go systems. Second, most schemes in Europe does not have any funds and are defined as social security pension schemes. This implies that if these systems are not in long-term sustainable, it is likely that these pension benefits will be decreased. This would also have implications on the household wealth (assuming that these would be included in household wealth). Similarly, if these are household wealth then the other side of the coin is that these should also be government debt. Third, the different pension schemes have a considerable impact on wealth – depending how they are included in the wealth concept. This also changes countries relative positions in the wealth

comparisons. Given that the borderline between social security pensions and other pensions as well as practical borderlines in different countries are blurred, from the economic analysis point of view clear-cut decision would be reasonable: either pensions are excluded from the wealth concept or alternatively, all the pensions – social security pensions and other employment related pension schemes – are included in the wealth concept. Depending also on the purpose of the analysis, the household and public assets and liabilities could be analysed in one aggregate as household and public debt are in several cases at the macro level supplementary.

References:

- European Central Bank (2024/a), “Experimental Distributional Wealth Accounts (DWA) for the household sector”, Methodological note. 8 January 2024, https://data.ecb.europa.eu/sites/default/files/2024-01/DWA%20Methodological%20note_0.pdf
- European Central Bank (2024/b), “ECB publishes new statistics on the distribution of household wealth”, Press release, 8 January 2024, <https://www.ecb.europa.eu/press/pr/date/2024/html/ecb.pr240108~ae6f7ef287.en.html>
- European System of Accounts (ESA2010), Eurostat/European Commission, Publications Office of the European Union, Luxembourg 2013.
- Expert Group on Linking Macro and Micro Data (2016), Comparing Insurance and Pension Schemes – Conceptual Linkages. Expert meeting document, not public.
- Expert Group on Linking macro and micro data for the household sector (2020), “Understanding household wealth: linking macro and micro data to produce distributional financial accounts”, Statistics Paper Series No 37 / July 2020, <https://www.ecb.europa.eu/pub/pdf/scpsps/ecb.sps37~433920127f.en.pdf>
- Kavonius, I. K., and Honkkila, J. (2013), “Reconciling Micro and Macro Data on Household Wealth: A Test Based on Three Euro Area Countries”, Journal of Economic & Social Policy, 2013(2), [3].
- Kavonius, I. K. and Törmälehto, V-M. (2010), “Integrating Micro and Macro Accounts – The Linkages between Euro Area Household Wealth Survey and Aggregate Balance Sheets for Households”, the 31st General Conference of The International Association for Research in Income and Wealth, <http://old.iariw.org/abstracts/2010/7A/kavonius1.pdf>
- Mercer CFA Institute Global Pension Index 2023 Report, <https://www.mercer.com/insights/investments/market-outlook-and-trends/mercercfa-global-pension-index/> (Downloaded: 1.12.2023)
- OECD (2023/a): Pensions at a Glance 2023 - OECD and G20 Indicators, <https://doi.org/10.1787/678055dd-en>
- OECD (2023/b): Pensions Markets in Focus 2023, <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm>
- The System of National Accounts 2008 (SNA2008), European Commission, International Monetary Fund, OECD, United Nations and World Bank, New York 2009.

Annex 1: Pension schemes in different countries, their financial sustainability ranking (Mercier global index 2023), assets of retirement saving plans to GDP (%) (Mercier Pension report), assets of the public reserve funds to GDP (Mercier Pension report), households' life insurance and annuity entitlements assets (F62) and pension entitlement assets (F63) to GDP (%), social security future entitlements to GDP and social security funds assets to GDP (%).

The countries with grey colour are countries which have pre-dominantly social security defined benefit pay-as-you-go (PAYG) schemes which have little funds or no funds. The countries with darker blue are the ones which have social security defined benefit schemes which are partly funded and partly PAYG. The countries with yellow are funded either obligatory or voluntary defined contribution schemes which are also fully funded. The countries with white are notional defined contributions PAYG schemes. *It should be noted that this categorization is rough and based on the available information and statistical data. The pension systems between countries are not fully comparable and therefore, these types of classifications are very indicative.*

	Basic plan	Additional occupational pension plan	Additional (voluntary) systems	Additional (voluntary) insurances (technically not pensions)	Sust. ranking (Mercier global index)	Assets of retirement saving plans, % of GDP (2020)	Assets of public pension reserve funds, % of GDP (2020)	F62_F63 (hh)/GDP (1q/2023)	social security future entitlements/GDP (%) (2018)	social security funds assets / GDP (%) (2022)
AT	DB public pension system with low income top-up		Voluntary private plans (DC)		47	6,6 x		24	403	3,6
BE	Safety net for low income households	Public occupational DB scheme	Private pension schemes (DC)		39	40,4 x		47	376	4,4
CY								23	298	40,0
DK	Public basic scheme (disadvantaged pensioners)	Obligatory fully funded DC (almost universal) (ATP)	Fully funded DC schemes to collective agreements (85% of work force)		3	229,4 x		135	3	0,2
EE	Flat rate basic pension	Voluntary DC (2021 onwards, before mandatory DB for people born after 1983)						1	367	3,5
FI	Basic state pension (withdrawable 100% to other pension)	Statutory earning related DB schemes (partially funded)	voluntary individual saving/pension schemes		11	64,1	33,6	21	355	92,2
FR	Targeted minimum benefit (Allocation de solidarité aux personnes âgées, ASPA)	Earning related public DB/POINTS pension with minimum	voluntary occupational pensions (DC)		38	12,2	6,7	72	366	15,7
DE	Safety net for low income households	Earning based pay as you go (POINTS) DB	Professional pension for self-employed professionals such as doctors, pharmacists, lawyers	Voluntary private pensions (Riester and Rürup pensions)	35	8,2	1,2	57	301	4,4
GR	National pension (PAYG)	Earning related public PAYG DB, 2015 onwards notional DC						6		17,0
HU	Minimum pension	Earning related mandatory DB						7	367	0,9
IE	Flat-rate basic social security for low income pensioners	Basic contributory pension system	Voluntary pension plans which are partially defined contribution and partially defined benefit systems		24	35,5 x		40	144	0,6
IT	Minimum social assistant benefit	Notional DC scheme for workers	Voluntary supplementary occupational schemes (DC)		46	12,7	5,4	54	447	6,9
LV	Safety net pension	Notional DC						18	255	5,6
LT	Flat rate contributory benefit	DC (POINTS), funded						10	341	5,7
LU	Social assistance	Basic flat rate, EUR 513 after 40 years contribution	Earning-related pension system (in addition to flat rate) (DB, DC)					19	354	35,8
MT								18	267	
NL	Flat-rate public pension (AOW)	Quasi-mandatory earnings-related occupational pensions linked to industrial agreements (funded) (DC)	Individual saving schemes (DC)		4	212,7 x		164	241	6,0
NO	Earning related public pension with minimum (DB)	Mandatory occupational pensions plans (private sector to supplement basic plan, DC funded)	Voluntary arrangements (DC)		18	12,3	7,5	...	287	
PT	Earning related public pension with minimum (DB)	Voluntary personal and occupational pension schemes (DC)			41	22	8,5	23		14,4
ES	Earnings-related public pension (including means tested minimum pension) (DB)	Voluntary personal and occupational pension schemes (DC)			44	14,5	0,2	24	464	3,2
SI	Minimum pension	Earning related public pension DB (POINTS)						13	442	4,1
SK	Social assistance	Voluntary DC						17	220	2,6
SE	Minimum guaranteed pension	Earnings related pay as you go with notional accounts (DC)	Mandatory DC pension system (funded)		6	108,9	31,8	113		31,5
UK	Minimum social assistant benefit	Voluntary personal and occupational pension schemes (DB, DC)			15	126,8	1,8	...	0	
US	Social security with as progressive life-time earnings based benefit formula	Personal and occupational top-up benefits and voluntary private pensions (DB, DC)			16	169,9	13,4	...		

Sources: Mercer CFA Institute Global Pension Index 2023. OECD Pensions at a Glance 2023. OECD Pensions Markets in Focus 2023. Eurostat.

It should be noted that the pension assets reported by Mercer and the national accounts pension assets are conceptually different. The Mercer data cover all assets of retirement saving plans and public pension reserve funds. Life insurance and annuity entitlements assets (F62) and pension entitlement assets (F63) cover the assets held by households as the Mercer data cover everything.

The ultimate owner of these assets can not only be household but also rest-of-the-world or even in some cases corporation.