Research article

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

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Abstract: In the 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 as the G20 Data Gaps initiative, which sets household distributional information as a priority. The starting point of this paper is to discuss how 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 the general public in January 2024. The results cover almost the complete balance sheet of households, but one of the missing main household wealth categories is pensions. The main reason is that because pension systems vary greatly between different European countries, consistent treatment and linkage are complicated by 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 European countries, the paper additionally discusses the economic impact of different systems.

Keywords: pensions; wealth; households; national accounts; distributional wealth accounts

JEL Codes: D14, D31, E01, E21, G51

Abbreviations

AT = Austria; BE = Belgium; CY = Cyprus; DE = Germany; DB = Defined benefit; DC = Defined contribution; DK = Denmark; DWA = Distributional Wealth Accounts which are published for the first time on experimental basis by the European System of Central Banks; ECB = European Central Bank; EE = Estonia; ES = Spain; ESA 2010 = European System of Accounts 2010, which is the European application of the System of National Accounts 2008; FA = Household balance sheet of quarterly sector accounts; FI = Finland; FR = France; GR = Greece; HFCS = Household Finance and Consumption Survey which is triannual survey covering measures related to household wealth and finance collected by the European System of Central Banks. HU = Hungary; IE = Ireland; IT = Italy; LT = Lithuania; LU = Luxembourg; LV = Latvia; MT = Malta; NL = Netherlands; PAYG = Pay-as-you-go; PL = Poland; PT = Portugal; SE = Sweden; SI = Slovenia; SK = Slovakia; SNA = System of National Accounts; UK = United Kingdom.

1. Introduction

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

The ECB, together with the national central banks, has developed distributional wealth accounts (DWA)[1]. These accounts are compiled mainly by linking the results of the 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 aims 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 there is no suitable distributional information that could be used to compile distributional FA instrument breakdowns. Potential data sources to bridge this gap have not been identified, as some assets, such as currency, other accounts payable/receivable, and occupational pensions, are either only partially included or entirely missing from the HFCS. Furthermore, ongoing international discussions about altering the treatment of social security pensions for distributional account purposes pose additional challenges, which are also discussed here. However, given the diversity of national pension systems, including this component in distributional wealth accounts remains challenging.

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 point of view of national accounts, the key distinction is whether the pension is a part of social security/social assistance and whether the

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[1] When the pension estimations' development work based on this paper is completed and the results are considered adequate, the results will be published as a part of the European System of Central Bank Distributional Wealth Accounts: https://data.ecb.europa.eu/data/datasets/DWA/data-information.

[2] See: ECB (2024a), ECB (2024b). Expert Group on Linking macro and micro data for the household sector 2020.

[3] SNA 17.116.

pension system is employment-related or not. The assets of the first category are recorded on the balance sheet of the general government, and the core national accounting does not recognize future pension entitlements as assets. 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 sheets of households. The different types of additional non-employment-related pension schemes are not pensions in the sense of national accounts. However, a potential source of confusion is that the pension system is unique to each country, and small practical differences in implementation may cause differences in their recording and treatment in the national accounts.

The purpose of this paper is to take stock of different pension systems in various countries and to analyze how they are recorded in the accounting system and surveys, as well as to analyze their impact on economic measures. The paper aims to achieve the following:

1. To summarize how the different pension systems are treated in the national accounts.
2. To investigate whether there is a corresponding item in the Household Finance Consumption Survey to the national accounts and what the correspondence is.
3. To analyze the analytical implications of different pension systems for statistical comparability.
4. To analyze the economic impact of these different pension treatments.
5. To conclude and propose some way forward in harmonizing 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 between social security pensions and other employment-related pension schemes.

Social security pensions are insurance schemes in which the beneficiaries, as participants of a social insurance scheme, are obliged by the 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 the 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 only (ESA2010 5.09(f).) and not genuine financial assets. 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 the government (ESA2010 17.22.). Any contributions made by employers and any benefits of social security are recorded as distributive transactions in the non-financial accounts (ESA2010 17.25 and 17.27.).

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

It could be argued that pension schemes function like life insurance schemes and that they should be treated as savings schemes of individual households. In the SNA, there are three reasons 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 post-retirement. 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.). Moreover, many pension plans also have other characteristics of contingent assets rather than genuine financial assets. There are several examples where, due to government fiscal sustainability, either the pension benefits have been cut, or the accumulated assets have been withdrawn for some other purposes.[4]

Other employment-related pension schemes are contractual insurance schemes, either compulsory by law or encouraged by the 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 economic accounting, we next go through the accounting of these different pension systems. In the core national accounts, social security pensions are recorded as pay-as-you-go (PAYG) pension systems. PAYG contributions in a period are used to finance the benefits in the same period. There is no saving element involved, whether for the general government, 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 possess 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, the employer pays a pension contribution, which is received by the employee in the allocation of the primary income account. In the secondary distribution of income account, the household pays the social security pension received from the employer as well as its 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 reality, they do not receive the employers' part in their accounts. In the secondary distribution of income account, the social security institutions also pay pension benefits to retired employees.

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[4] For instance, Madeira (2024) reported that at least 31 countries allowed some pension withdrawals to support distressed households during the COVID-19 pandemic. Madeira (2022) also reported that pension withdrawals diminished the future savings of households. Withdrawals can be seen as a substitute way for governments to provide emergency funds for households. the author reported the fiscal costs of such decisions in Chile. Similarly, Olivera (2023) reported the impact of a similar package in Peru.

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 scheme is a DC or DB scheme. A DC 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 DC scheme to provide an adequate income in retirement is borne by the employee. A DB 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 DB scheme to provide an adequate income in retirement may be borne by the employer or a unit acting on his behalf, but it may also be the case that neither the employer nor other institutions have a legal commitment to provide additional funds in case of funding shortfalls, and the initial DBs may be adjusted.

Moreover, there are notional DC schemes and hybrid schemes, which are grouped in national accounts as DB schemes. A notional DC scheme is similar to a DC scheme but with a guaranteed minimum amount payable. In a notional DC 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 revised annually to catch up with a measure of the standard of living.

Hybrid schemes are those schemes with both a DB and a DC element. A scheme is classified as *hybrid* either because both DB and DC provisions are present or because it embodies a notional DC scheme and, at the same time, a DB or DC 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 of providing an adequate income in retirement is shared between the employer and the employee under notional contribution schemes and hybrid schemes.

The fundamental difference in accounting for a DB pension scheme as compared to a DC pension scheme is the following: for the DB 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; for the DC 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 DC scheme, the benefits for the participants in a DB scheme are estimated actuarially.

Table 2. Accounts for pension benefits payable under a DC scheme.

Uses					Account and	Resources				
Employer	Pension fund	Households	Other	Total	transaction	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

Uses					Account and transaction	Resources				
Employer	Pension fund	Households	Other	Total		Employer	Pension fund	Households	Other	Total
		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.61SC)		−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 DC scheme. If we start from the production account, the output of a pension fund is equal to the social insurance service charges, which are 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 pay 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 the employer, although in the real world this income flow is deducted directly from the employers' payments. For households, the 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 the original contributor is employer or household, 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 savings, as these savings are not included in the concept of disposable income. In the financial accounts, the savings increase households' pension entitlement assets and, correspondingly, pension funds' liabilities.

Table 3. Accounts for pension benefits payable under a DB scheme.

| Uses | | | | | Type of account | Resources | | | | |
Employer	Pension fund	Households	Other	Total	and transactions	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

Continued on next page

Uses					Type of account and transactions	Resources				
Employer	Pension fund	Households	Other	Total		Employer	Pension fund	Households	Other	Total
		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.61SC)		–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 DB schemes. Regarding non-financial transactions, their recording is similar to the DC schemes. The key difference in the financial accounts is that the non-funded part is recorded as pension fund claims for the employer and an asset of the pension fund. It is also important to note that this recording applies only to the non-social security pensions even though they are also mainly DB schemes.

Additionally, the ESA 2010 includes a new supplementary table (Table 29) for accrued pension entitlements and alternative breakdowns for the core pension, as shown in Table 4. This table can help break down the pension system into DB and contribution systems and further characterize them under general government or financial corporations. This could help to connect national accounts with other data sources, but the key issue remains the availability of data. Countries must report this data in three-year intervals, with a two-year time lag for data starting from 2012. The most recent relatively complete reference period for these data is 2021, which was published in February 2024 in the Eurostat 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						
DC schemes	DB schemes and other (1) non-DC schemes	Total	DC schemes	DB schemes for general government employees (2)			Social security pension schemes		
				Classified in financial corporation	Classified in general government	Classified in general government (3)			
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 questionnaire includes questions concerning pensions. The core questionnaire includes questions related to the existence of a pension plan and whether the pension plan has a balance related to its accumulated entitlements. This typically covers the DC plans that have a balance but, theoretically, also the DB plans, although these should not typically have a balance. Thus, it is unclear how well DB pensions 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. The structure of the questions is different in HFCS waves 1 and 2 from waves 3 and 4. Table 5 shows the linkage for waves 1 and 2 and Table 6 for waves 3 and 4. In practice, questions are structured differently but 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 with the national accounts' classification. However, the practical coverage of these

variables varies from country to country. This is discussed in greater depth in the next section, where the national pension systems are discussed. National accounts include the household's non-life and life insurance financial assets as well as occupational pension entitlements as part of the financial accounts, while social security pensions are considered 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 harmonized, 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 how many years they have contributed and what they may 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 standardized 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., DB 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 policyholder an agreed minimum sum or an annuity at a given date or upon the death of the policyholder, if this occurs earlier.
F63	*Pension entitlements.* Includes non-social security employment-related pensions (DC and DB).	*PF0600* *PF0700*	*Has occupational pension plan.* *Current value of all occupational pension plans that have an account.* Includes employment-related pensions for which benefits have not yet been received, excluding employers considered "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 a plan is asked. *Current value of all occupational plans that do not have an account*

Table 6. Insurance, pension, and standardized 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 $x
N/A	N/A in the FA core accounts. Supplementary data (Table 29 of the ESA Transmission Programme)	PNF0720	Non-core variable on employment-related pension plans without an account balance (i.e., DB plans) (only wave 4).
F62	Life insurance and annuity entitlements. Includes non-employment-related voluntary pension schemes. May also include insurance against disability and incapacity for employment.	PFA020$x PFA080$x	Type of pension plan $x 3: Voluntary pension scheme 4: Whole life insurance Current value of pension plan $x Includes non-employment-related voluntary pension schemes and life insurances where the insurer guarantees to pay the policyholder an agreed minimum sum or an annuity at a given date or at the death of the policyholder, if this occurs earlier.
F63	Pension entitlements. Includes non-social security employment-related pensions (DC and DB).	PFA020$x PFA080$x	Type of pension plan $x 2: Occupational Current value of pension plan $x Includes employment-related pensions for which benefits have not yet been received, excluding employers considered "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 a 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"). 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 FI and NL 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 that 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 to all respondents older than 15 years, regardless of whether or not they 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.

Concerning the valuation of the data, financial accounts are typically based on actuarial information on technical reserves reported by insurance corporations and reflect the present value of life insurance. In the HFCS, the value of accounts is measured as the current value, i.e., "how much they are 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 income accounts, all pension funds have similar structures. The income flows are otherwise similar, but social security pension funds typically do not have property income from the funds allocated to the households. In the HFCS, there is only one income-related item in pension contributions, which is the monthly contributions to the plan (PFA050$x). This is the only item that could be linked with the financial flows of other employment-related pensions. This item has the same limitations as 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 income received 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 separate social security pensions.

3.2. Data in practice: F63 Pension entitlements

Employment-related but non-government-controlled schemes are recognized as "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 DB or DC.

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 the pensions of individuals who are already receiving such benefits.

Pension plans can be divided into DC plans, DB plans, and hybrid plans (i.e., those that have characteristics of the two). For the DB 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 DB plans is the actuarial value, which is based on the insurance companies' balance sheet data. According to ESA, this value represents the expected future benefits (including but not confined to declared bonuses) minus 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 a survey in 2016 concerning the coverage and linkage of different concepts. Concerning the question of whether the countries included any DB plans in their

HFCS survey variable, the replies were the following:

- Concerning the first HFCS wave, four countries (AT, BE, FR, and SI) indicated that they included some DB plans. 10 countries replied that the DB plans were not included in the survey variable on occupational pensions.

- In the second wave, 13 countries replied that DB plans were not included in the HFCS. HU and LT indicated that they did not have occupational DB plan schemes. LU also emphasized that they did not know whether there were any DB plans that had an account balance. Similar indications are included in some "no" replies. DE commented that all pension plans that had an account balance were included and, if there were any occupational-related DC plans, these would also have been included. Moreover, SK informed they did not have occupational plans with an account balance.

Table 7a shows that the issue of DB schemes is a relevant question, as several countries in the core accounts have them in their pension entitlements (F63). Table (7b) shows the actual amounts in 2021 in various pension schemes. As all the countries have DB 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 DB plans in their HFCS item.

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

Pension type	Applicable countries
Private DB schemes	BE, DK, DE, IE, ES, IT, CY, LV, LU, NL, AT, PT, FI, and SE
DB schemes for general government employees classified in financial corporations	DK, DE, CY, NL, PT, and SE
DC schemes of general government (core accounts)	LT, SI, and SE
DB schemes for general government employees classified in general government (core accounts)	SE
DB 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. Different pension schemes reported by countries in 2021. The data are based on Table 29 of the ESA Transmission Programme, EUR million.

	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 pensions is drawn in a symmetric/similar 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, blurring the line between social security pensions and other pensions. As a practical delineation, one applied criterion is whether the government controls the pension plan beyond its role as a supervisory body or employer, i.e., whether the government can change the conditions of the 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 they are participating in. However, in national questionnaires, the names of pension plans are often collected. In a questionnaire 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 were 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 the reply blank (LU). BE and DE indicated that government decisions can affect all pension systems, i.e., all pension systems are subject to pension laws. LU made the same point but also emphasized 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 did not include any government-controlled plans.

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

4. The implications of different pension systems on household wealth

4.1. Different pension systems in Europe

As discussed earlier in this paper, the current SNA/ESA draws the line between different pension systems on the basis of whether the system falls under social security or not. The criterion for this is whether the government has control over the assets and actual pension programs. The key issue for distributional wealth projects 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 that pension systems that are defined as social security in the national accounts are not necessarily always identified as such in 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 by non-government, "private sector" pension funds. The part provided by the general government is called social security, and the part provided by employers is called employment-related schemes other than social security. The division between pensions that are provided by social security and those provided by other employment-related schemes varies considerably from country to country, resulting in varying coverage and national perceptions of what the term "social security" designates. To make the recommendations in the SNA clear, it is necessary to consider the types of coverage provided in different countries (SNA 17.118.).

This section attempts to give a general characterization of broadly applied pension systems in different countries. As one country often has several different pension systems, this is a broad categorization and indicates what is typical in a country. The analysis is based on reported national accounts' data.

Pension schemes can be classified into three categories according to how the systems are recorded in the national accounts. This aims to distinguish how the pension system is constructed and thus how it is recorded in the national accounts; it has a direct impact on economic indicators, i.e., in which sectors are wealth and indebtedness accumulated. The second aspect concerns the comparability of pensions in different data sources: this makes a large practical difference in linking different data sources. In the context of national accounts, pensions are strictly related to employment, and thus it is difficult to recognize and draw the line between which are the pensions in this sense and which are not. The third issue is that the line between social security pensions and other employment-related pensions impacts the economic sector that holds the actual assets.

The rough classification/generalization of these systems is based on the data described above; the detailed analysis is presented in Table A.1 (Annex). Pensions are classified into four categories according to how they are recorded in the national accounts and whether they are actual pensions or not. It should be noted that the classification and description are done on the basis of what is described in the OECD pension data sources and Mercer data. As the descriptions vary between countries, the classification in some countries may not be fully correct; therefore, the table should be taken as tentative.

The first system is the basic minimum pension. This is the basic social security (social assistance) pension, which exists in some form in all countries. One way of implementing it is a basic state pension that is paid completely or partly if employment-related pensions are not sufficient. In some countries, this is a minimum pension, and employment-related pensions are paid on top of this. These are always paid directly from the government's budget and are typically not employment-related and thus also not considered to be pensions but rather basic social assistance. However, in some countries where such pensions are universal, they are not necessarily separated from the actual employment-related pensions in the case of working households, even though in theory they should be. Typically, in the case of the national accounts as well as wealth surveys, they are, in practice, recorded as social assistance even though they are often referred to in legislation as pensions (e.g., basic pension).

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

1. DB PAYG system: 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 systems considered to be private), and social security fund assets are almost non-existent (unlike the partially funding PAYG DB systems). The Mercer Global Pension Index does not consider these systems very financially sustainable. The reason is that to maintain the system in the long run, either the contributions or the government payments will likely need to be increased or the future benefits decreased.

•   These are not recorded as households' assets in the core national accounts, but the payments are recorded as social transfers. Future entitlements are available in the satellite table (see Table 4). If these were considered household assets, 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 wealth surveys (like the HFCS) may vary from country to country. If there is a nominal account value for the pensions (e.g., social security pension for

employees and civil servants in Germany), these might include variables like "public pensions". However, in several cases, such account values do not exist, as these are pure DB systems.

- The following countries have this as a dominant plan: AT, BE, FR, DE, HU, LU (also DC), NO (also DC), PT, ES, SI, and SK.

2. DB plans that are partially funded and partially PAYG: this is a relatively rare system. The future pension entitlements are considerably larger than the funds recorded as government assets. If the pension contributions are not structurally sufficient to finance 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 as relatively financially sustainable.

- The accumulated assets are not recorded as households' assets in the core national accounts and the payments are recorded as social transfers. 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 therefore be 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 is dominant in FI. The old Estonian and Swedish pension schemes had certain similarities with this one.

3. DC plan that is fully funded. These systems have individual pension accounts, and the future pensioner often has some degree of control over the investment. These are typically quasi-mandatory or voluntary. The assets belong to the households. In these countries, there are often (not always) also relatively small basic pensions, which is a PAYG system. The Mercer Global Pension Index classifies these systems as very financially sustainable.

- The assets of these schemes are already recorded as assets of the households in the core national accounts. This, of course, raises a certain comparability issue vis-à-vis those countries that have DB schemes.

- The assets of these types of funds belong to households, and the part that is funded should also be covered in wealth surveys.

- These systems are currently in DK (obligatory), EE (2021 onward), IE, NL (quasi-voluntary), UK (voluntary), and US (voluntary).

4. The notional DC system is, in many ways, like the PAYG pension scheme. For everyone, the amount added to a pot is appreciated by a rate of return. However, this rate is only a 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 financial sustainability depends on whether there are accumulated funds.

- The national recording varies depending on whether there are underlying assets. As these are mostly completely nominal systems, i.e., there are no underlying assets, these also do not appear in the national accounts core system.

- In the case of wealth surveys, households may declare that they have public pension schemes, but in these systems, they are normally their accumulated future pensions.

- These systems are currently in GR (from 2015 onward, not funded), IT (not funded), LT (not fully funded), LV (partially funded), and SE [notional PAYG system and additionally a mandatory DC scheme (classified as household assets)].

The third type of scheme involves voluntary additional pensions that have been taken by the beneficiary or their employer and must be employment related. These are typically funding DC 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 DC plans but are always voluntary, i.e., not obligatory or quasi-voluntary. In several countries, there are quasi-public fully funded DC plans, and these might be the 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 of pension is voluntary saving plans or programs that do not, strictly speaking, have anything to do with employment. Even though these might be called pensions and might include some tax benefits, they are not pensions but rather regular savings in the sense of national accounts. In the national accounts, these should be recorded as a look-through, i.e., as if households directly owned the various 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?

The inclusion of pensions in the wealth concept and in distributional wealth accounts raises several issues. As already seen earlier in this paper, these can be categorized into two categories: the issues that cause problems in the comparability of wealth concepts between the countries, and the issues related to the comparability between different data sources and their practical implications, for instance, in the distributional accounts.

The first issue with regard to comparability is related to whether the pensions described in the second category in the previous section are classified as social security pensions or other employment-related pensions. The issue in this regard is two-fold: first, the key criterion is the legal control of the assets, which appear as an own pension account, and some personal 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, realize them. It instead means that the responsibility for possible losses or gains (typically, DC schemes) is carried by the household. However, the critical issue is that if the household misses this control and the assets are pooled, is there actually an economic reason that pensions should be included in the household wealth in the first case and excluded in the second? The treatment of pensions also has a broader implicit impact on economic measurement, which is discussed in greater detail in the following section. Second, it could also be argued that 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., future cuts to pension benefits are obvious but simply not yet implemented, how much does this describe the economic reality? Due to these issues and different interpretations of wealth concepts, all pensions are often simply left out of wealth comparisons.

As discussed earlier, concerning the second issue of comparability of different data sources—in this case, between the HFCS and national accounts—there are at least four open issues to which the answers vary from country to country. Therefore, there is no one answer to this question but rather separate answers for each individual country. The first open issue is 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 a 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 of public pensions. 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 there are both DB and DC plans in other employment-related pensions. In household surveys like the HFCS, the existence of all plans can still be captured, but since DC plans have account balances and DB plans do not, it is difficult to capture DB plans in the HFCS. Given the large role played by DB plans (see Table 7b), the linkage between wealth survey and national accounts regarding other employment-related pensions is not necessarily good. The quality of linkage varies from country to country, depending first on how predominant the DB plans are in the other employment-related pensions and whether the local wealth study has been able to capture the DB plans. This is something that needs to be checked country by country.

The third issue is how private voluntary pension systems, i.e., the schemes 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 the pension fund, but the situation might be different in the wealth surveys. This information is something that is asked of households, and thus the correct reply requires that the household can identify whether the scheme that they hold is a pension scheme. As such systems are referred to as pensions in the public discussion and even sometimes government policies, the households often also consider them as such in their replies.

The fourth issue is how the difference between social security pensions and other employment-related pension schemes is actually recognized in the macro statistics and whether the borderline is the same as in micro statistics. In macro statistics, recognizing and classifying units is somewhat easier than in micro statistics. Like in non-employment-related saving schemes, individuals do not necessarily recognize whether their employment-based pensions are social security or not.

After exploring the issue of the comparison of pensions, we should consider whether pensions could be linked in the wealth surveys—in this case the HFCS—and national accounts. This conceptual and practical linking is essential in, for instance, compiling distributional accounts. This issue should be separated into two 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 social security pensions, the HFCS core questionnaire does not cover these pensions in principle. In the case that these are hybrid schemes and thus also have some kind of account value, some of these pension systems are collected under the heading of "public pensions". For instance, some social security pensions are collected under this item in Germany and Ireland, but how representative this collection is should be investigated in country-specific cases. However, most countries that conduct this survey do not have anything recorded under this item.

The so-called non-core variable list, which is not obligatory, also includes social security pensions, which do not have an account. In theory, the linkage of this variable would be straightforward, but the key issue is that this variable is collected only by Finland and the Netherlands, and for those countries

only twice. Given that the Table 29 data on national accounts, which includes social security pensions, is also available only for the years 2015, 2018, and 2021 for most countries, in practice, due to an overall lack of data, there is no possibility of linking these two data sets.

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

If we are aiming for the most comparable wealth concept, pensions complicate this comparison. Including some pensions and excluding some employment-related pensions might indicate institutional differences in the pension systems more than differences in actual wealth. From another perspective, we might ask how sensible it is to include any value for the pay-as-you-go pension, which is not financially sustainable in the long term, and for which 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 for this promise of future payment to also be worth nothing. Attanasio and Brugiavini (2003) showed that the Italian pension reform of their pay-as-you-go system had an impact on households' saving behavior, which indicates that households valued these contingent assets as their assets, at least at a certain level. Attanasio and Rohdwedder (2003) pointed out that in the U.K., each decade has seen at least one substantial pension reform, and as a result, entitlements to the future exhibit a fair amount of variation over time. They note that these changes have an impact on discretionary savings. The other extreme is the DC employment-related pension schemes, which have their own personal account balance allocated to an individual. Here, the accumulated assets are attached to a person who also carries the risk of investment up to a certain point. The different treatment of these systems has a fundamental impact on the economic measures of household wealth and government assets. This is discussed in greater detail in the following section.

4.3. The impact of different pension systems on wealth

The different treatments of the various pension schemes also affect the different macroeconomic indicators. The purpose of this section is to focus on what the impact is on household wealth and how the ranking changes in international comparison. This analysis presents five different wealth concepts and their impact on household wealth and government debt in the international comparison. The reason why general government debt is taken into account in this comparison is that if non-funded social security pension entitlements are considered to be household wealth[5], then by the same token, these need to be considered to be general government obligations, i.e., general government debt. Ayuso et al. (2016) and Bravo et al. (2021) emphasized in this context that increasing longevity has implications

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[5] D'Albis and Moosa (2015) estimated the life-cycle transfers, which also cover unfunded pensions. The principle here is similar but the fundamental difference here is that D'Albis and Moosa (2015) estimated current values of the future transfers (pensions), as the future pension entitlements cover only the current discounted value of pensions rights to which are earned today. D'Albis et al. (2015) analyzed the lifecycle deficit in France and concluded that, largely due to the (pay-as-you-go) pension system, the cumulative deficit of over 60-year-olds is large.

for future pension entitlements and increases the pressure on the level of pension benefits. The different concepts of wealth and indebtedness used in this analysis are as follows (Table 8):

- HH assets per capita describe the household financial and non-financial assets per capita without pension wealth and non-financial business wealth. This is nearest to the ESCB distributional wealth accounts' wealth concept.

- HH assets with n.a. pension per capita describe the households' financial and non-financial assets with pension wealth that are included in the core national accounts' pensions.

- HH assets with all pensions per capita include, as above, all core national accounts, core financial and non-financial assets (excluding non-financial business wealth), and 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 n.a. pensions per capita describes the households' financial and non-financial assets with pension wealth that 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 including the social security pension liabilities.

- Maastricht debt with net pension liabilities refers to the standard Maastricht debt concept including 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 pension schemes.

Table 8 shows these concepts above and the country rank for each individual indicator. The purpose is to illustrate how the different treatments of pension schemes appear in wealth. It is useful to look at the table by using different groupings of pension system characteristics, which are presented in section 4.1. The countries that predominantly have the DB PAYG system are indicated in light blue in Table 8. Typically, in these cases, household wealth increases relatively little when the national accounts' core pensions are included in the household wealth. The increase depends typically on additional pensions taken by either employers or employees to complement the social security pension system. The situation is typically the same in the DB plans that are partially funded and partially PAYG and in the notional DC systems. In the DC plans, which are fully funded, the wealth in the core national accounts' pensions is considerable. This also depends on how old the system is and thus how many assets have been accumulated in the schemes/funds. In DK and the NL, the increase is particularly large. In the case of EE, the numbers still reflect the situation before the pension reform, when they had a partially funded DB 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, EUR.

	HH assets per capita	rank	HH assets with n.a. pensions per capita	rank	HH assets with all pensions per capita	rank	HH net wealth per capita	rank	HH net wealth with n.a. pensions per capita	rank
Belgium	234,091	1	242,792	3	345,967	1	210,442	1	219,144	1
Denmark	223,418	2	255,964	1	257,467	8	164,162	3	196,708	3
Germany	158,826	7	169,487	6	276,210	7	137,443	7	148,104	7
Estonia	49,137	13	52,094	13	119,424	13	41,330	13	44,287	13
Ireland	118,885	11	143,279	9	217,179	10	88,427	11	112,821	9
Spain	156,766	8	160,304	8	244,132	9	140,678	6	144,215	8
France	192,776	3	192,776	4	322,637	4	168,352	2	168,352	4
Italy	162,475	5	166,202	7	281,954	5	149,205	5	152,932	6
Latvia	31,420	18	33,388	19	67,456	19	27,952	18	29,919	17
Lithuania	32,254	17	33,405	18	70,209	17	28,206	17	29,357	18
Hungary	40,324	15	40,916	15	76,904	16	37,423	15	38,015	15
Netherlands	161,377	6	247,476	2	335,984	3	113,464	8	199,563	2
Austria	174,599	4	180,877	5	342,759	2	152,955	4	159,234	5
Slovenia	62,461	12	64,163	12	143,700	12	55,674	12	57,377	12
Slovakia	38,126	16	39,975	16	101,795	14	31,169	16	33,018	16
Finland	130,913	9	132,540	11	277,660	6	99,376	10	101,003	11

	HH net wealth with all pensions per capita	rank	Maastricht debt, % of GDP	rank	Maastricht debt with pension liabilities, % of GDP	rank	Maastricht debt with net pension liabilities, % of GDP	rank
Belgium	322,319	1	99,9	19	355,0	14	350,1	15
Denmark	198,211	9	33,9	5	36,8	1	36,6	1
Germany	254,827	6	61,9	10	324,8	10	319,8	10
Estonia	111,618	13	8,2	1	350,7	13	346,5	14
Ireland	186,720	10	62,9	11	172,6	2	171,7	2
Spain	228,043	8	100,4	20	425,8	17	422,8	17
France	298,213	3	97,8	17	468,4	20	453,4	20
Italy	268,684	5	134,5	21	525,7	21	519,6	21
Latvia	63,987	18	37,0	6	262,1	7	258,1	6
Lithuania	66,161	17	33,7	4	260,2	6	257,6	5
Hungary	74,003	16	68,7	13	327,5	11	326,4	12
Netherlands	288,072	4	52,4	9	249,5	4	245,5	4
Austria	321,116	2	74,1	16	445,4	19	441,6	19
Slovenia	136,913	12	70,3	14	429,5	18	425,4	18
Slovakia	94,838	14	49,4	8	424,0	16	421,9	16
Finland	246,123	7	64,8	12	407,7	15	322,1	11

Source: ECB and author's calculations.

Typically, when the social security pensions are included in wealth, all other concepts will increase except DC plans that are fully funded. This can be seen most clearly in the case of DK, where social security pension plans have a relatively small impact. In other countries that have predominantly DC plans that are fully funded, social security pension plans have a larger impact on wealth. The reason is that no country has 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 liability, i.e., in practice, the general government. This implies that in a broader analysis, this has an impact on government debt. In this paper, the impact calculation is made on the Maastricht debt. In countries that have non-funded pension entitlements, these entitlements increase government debt, which is shown in the column of Maastricht debt with pension liabilities. As can be seen from this column, the pension obligation multiplies the debt in several countries. As can be expected, the impact is smaller in countries that have DC plans that are fully funded. In the case of DK, the pension entitlements have hardly any impact on the government debt, and in the NL, the impact is relatively small in relation to other countries.

The second-to-last column shows the impact of net pension liabilities. Practically, this means that social security fund assets are deducted from pension entitlements. In most cases, social security funds have hardly any assets or normally only a small buffer. However, in the case of countries that have DB plans that are partially funded and partially PAYG, the existing assets reduce the existing debt considerably. This is the case only in FI, where social security assets reduce debt by almost 100% of GDP.

5. Conclusions

This paper discusses the treatment of pensions in national accounts and their role in household wealth. The key targets of this paper are to review:

1. how pensions are treated in national accounts;
2. how various pension systems are treated in the HFCS and what their linkage is to the national accounts' household wealth;
3. what types of pension systems exist in different European countries and what is their dominant pension system at the macro level, and how this affects the economic/statistical treatment of pension; and finally,
4. the impact of different pension systems on household wealth measures.

Concerning national accounts, the key distinction is between social security pensions and other employment-related pensions, as the former is not included in the balance sheets of the household sector, and the latter is. As the defining criterion 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 DC or DB systems. However, social security systems in Europe seem to almost always be DB systems. This makes it challenging to link different data sources and compare different wealth concepts. The one unavoidable issue that impacts the comparability is that the HFCS covers only pensions that are not paying out benefits as the national accounts cover all pensions (also those belonging to the pensioners).

The conclusion is that linking household survey information and national accounts is challenging and it requires a detailed analysis of each individual country. 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, pension systems are simply different from country to

country, and it is not easy to identify how the different pension systems should be treated. This is true in household surveys, where the households can easily wrongly classify the pension scheme that they fall under. Second, in micro statistics, there are limitations to collecting data as many pension systems do not have directly available information on future pension entitlements. The other issue is data availability. For the social security pensions, data availability is so limited that practical linking or using such linkage, for instance for distributional wealth accounts, is impossible. For other employment-related pensions, linking is possible in some cases, but this typically requires that pensions mainly have an account balance, i.e., typically DC plans. The pensions-related issues vary greatly between countries; therefore, before using the linkage, country data and its coverage need to be analyzed properly.

The different treatments of pensions also have an impact on several economic indicators. Therefore, it is essential to know the impact of various pension treatments. This must also be considered before conclusions can be drawn from the economic analysis. Therefore, this paper additionally analyzes which kinds of pension schemes exist in different countries, tries to identify the dominant pension system in each country and classify the countries accordingly, and finally analyzes the impact of these arrangements on household wealth and general government debt. The key takeaways concerning the different pension systems are the following: first, countries tend to have several pension systems and, even though the core employment-related system might be fully funded, there are always some elements of PAYG systems. Second, most schemes in Europe do not have any funds and are defined as social security pension schemes. This implies that if these systems are not sustainable in the long term, it is likely that these pension benefits will be decreased. This would also have implications on household wealth (assuming that these would be included in household wealth). Similarly, if these are part of household wealth, then the other side of the coin is that these should also be government debt. Third, the various pension schemes have a considerable impact on wealth, depending on how they are included in the wealth concept. This also changes countries' relative positions in wealth comparisons. Given that the borderline between social security pensions and other pensions, as well as practical borderlines in different countries, are blurred, a clear-cut decision would be reasonable from the point of view of economic analysis: either pensions are excluded from the wealth concept or all 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 analyzed in one aggregate, as household and public debt are supplementary in several cases at the macro level.

Use of AI tools declaration

The authors declare that they have not used Artificial Intelligence (AI) tools in the creation of this article.

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Conflict of interest

The author declares no conflict of interest in this paper.

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