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Reflecting pensions in National Accounts Work of the Eurostat/ECB Task Force

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Abstract

Demographic projections for the European Union (EU), as for many other industrialised countries, are characterised by an ageing of the population. This will also have a substantial impact on general government revenue, expenditure and debt. A declining European workforce combined with a rapidly expanding number of retirees will force up spending on pensions, health-care and long-term care, while populations may start to decrease in the coming years and tax bases may shrink.

The dynamics of general government-sponsored pension schemes are usually based on the pay-as-you-go principle whereby current contributions finance current benefits. To examine and improve the current recording of these schemes in the System of National Accounts (1993 SNA), Eurostat and the ECB have co-chaired a Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government. This Task Force has made significant input to the 1993 SNA update process for pensions, notably through the design and compilation of a mandatory "supplementary table" on pension schemes in social insurance in the 2008 SNA.

The paper provides a summary of the conclusions reached by the Task Force and reflections on the implications of this work for the future.

[1] The views expressed in this paper are those of the authors and do not necessarily reflect the views of Eurostat or of the European Central Bank.

1. Introduction

Demographic projections for the EU, as for many other industrialised countries, are characterised by an ageing of the population. This will also have a substantial impact on general government revenue, expenditure and debt. A declining European workforce combined with a rapidly expanding number of retirees will force up spending on pensions, health-care and long-term care, while populations will fall and tax bases will shrink.

The dynamics of general government-sponsored pension schemes are usually based on the pay-as-you-go principle whereby current contributions finance current benefits. To examine and improve the current recording of these schemes in the System of National Accounts (1993 SNA) Eurostat and the ECB have co-chaired a Task Force. This Task Force has made significant input to the 1993 SNA update process for pensions, notably through the design and compilation of a supplementary table on pension schemes in social insurance.

The paper provides a summary of the work of the Task Force[2] and reflections on the implications of this work for the future.

2. Background to the Eurostat/ECB Task Force

The Eurostat/ECB Task Force on pensions was established by the CMFB in June 2006 to take forward the results of extensive work on pensions-related issues in the revision of the 1993 SNA. The Advisory Expert Group on National Accounts (AEG) had agreed, in its meeting of January/February 2006 some far-reaching conclusions on the principles for the future recording of pension schemes in the national accounts, but certain issues had been identified in the application of these principles to many European countries.

The Task Force met six times between September 2006 and December 2007 with experts from the following countries and international organisations participating: Czech Republic, Germany, Spain, France, Italy, Hungary, the Netherlands, Poland, Finland, Sweden, the United Kingdom, DG ECFIN, the IMF, the OECD and the SNA Editor.

The main tasks carried out by the Task Force were (i) the design and the description of a supplementary table on pension schemes in social insurance to be part of the pension section in the updated SNA; (ii) the specification and definition of concepts related to the institutional units involved and to the stocks, transactions and other flows shown in the table; (iii) the selection and assessment of criteria to distinguish between defined-benefit government-sponsored employer pension schemes to be

[2] The final report has been posted on the CMFB website: http://www.cmfb.org/pdf/TF%20on%20Pensions%20-%20Final%20report.pdf.

recorded in the core accounts or only in the supplementary table; (iv) the stock-taking of the features of all pension schemes in social insurance (including government-sponsored employer pension schemes and social security pension schemes) in the EU Member States, based on a questionnaire; (v) the coordination of the modelling work and the estimation of pension entitlements by using national models and generic models as provided by consultants of the Research Center for Generational Contracts of the Freiburg University and of the World Bank; (vi) the presentation of the Task Force work to the CMFB in January 2007 and June 2007 and to the Eurostat Working Groups on National Accounts and Financial Accounts. It is also intended to inform the EPC – via the CMFB - and its Ageing Working Group on the work of the Task Force.

3. Main results of the Eurostat/ECB Task Force

With respect to *methodological work*, the Task Force has developed, and taken forward, an international compromise on the treatment of pension schemes in the updated 1993 SNA. This compromise particularly focused on the treatment of unfunded government-sponsored pension schemes, introducing flexibility in the recording of their entitlements. The six "basic principles" that constitute the compromise are discussed in section 4 below.

As a follow up of this compromise, which was endorsed in broad terms by statistical authorities, the Task Force developed a standard supplementary table on pension schemes (see annex 1) which provides a complete accounting of pension entitlements (stocks and related flows) for all *pension schemes in social insurance*, including social security pension schemes. This supplementary table, to be compiled by all countries, will present users with an overview of pension scheme data and provides the means by which more comparable data can be achieved across countries worldwide.

In developing the supplementary table, the Task Force made the following recommendations:

- The supplementary table should include pension entitlements for survivors, and also for disability or invalidity type benefits which are provided for within a pension scheme.

- All recording in the supplementary table should be undertaken *gross of taxation and social contributions* (to ensure harmonisation of recording across regimes where pensions are treated differently).

- Pensions schemes are categorised according to structure (defined contribution and defined benefit), and also with respect to *"sponsor"*. The Task Force adopted a definition of sponsor based on the OECD pension glossary, whose main criterion for a sponsor is that it "designs, negotiates and normally helps to administer an occupational pension plan for its employees or members." The concept of sponsor is intended to be used when one unit (generally the employer) mandates another unit to operate a pension scheme on its behalf, in some cases making a commitment to make good any underfunding in the pension scheme.

- To ensure a full reconciliation for *social security pension scheme entitlements*, where no imputed employer social contribution would be appropriate, a separate row is included in the supplementary table for the "other (actuarial) increase of pension entitlements in social security pension schemes". The entries in this row might be positive or negative.

- The *distinction between transactions* and *other economic flows* should be carefully defined, since employers' imputed social contributions (part of compensation of employees) are usually calculated as a residual when completing the supplementary table. Where possible *other economic flows* should be further broken down. More specifically:

  - The impact of *changes in real wages* should be reflected in *transactions* (irrespective of the method chosen to account for wage increases – see below – where application of the ABO or the PBO approach should lead to similar levels of transactions being recorded over time), except for periodic revisions to assumptions for future real wage changes due to the general review of assumptions or major re-structuring of the workforce.

  - *Reforms to a pension scheme* which impact on already-accumulated pension entitlements should be recorded as *transactions* (capital transfers), except where the reforms have been imposed by a third party.

Following the advice of the UN Statistical Commission and of the CMFB, the Task Force worked on the possible *criteria to determine if the pension entitlements of a pension scheme should be recorded in the "core" national accounts or only in the supplementary table*. This proved to be a very challenging task given the diversity in institutional arrangements for pensions across countries, and a questionnaire of European countries revealed a wide diversity of opinions across EU Member States. The Task Force concluded that:

"The distinction between those schemes whose entitlements are carried forward to the core accounts, and those which are not, should be based on an analysis of the characteristics of the individual pension scheme. The analysis should take into account several criteria - the closeness between government employer pension schemes and social security pension schemes, for example through the legal or financial integration of the government employer pension scheme with the social security pension scheme, the funding and the risk aspects of the scheme, the nature of the contract, and the ability of governments to change the benefit formula. Whilst no single criterion may be decisive, the analysis should examine these criteria to obtain a balanced view. There should be full transparency of the reasoning for core and non-core recording."

The Task Force recognised that there is clearly further work to be undertaken on this distinction during the process of revising the ESA.

The *practical statistical estimation* of defined benefit pension entitlements (for past periods) requires model estimates of the outstanding stocks and the related transactions, revaluations and other changes in the volume of assets. In this context, various key assumptions have to be made before carrying out any empirical work. This refers predominantly to the definition of the pension entitlements to be measured as well as the determination of the discount rate, of the wage growth and the demographic assumptions. The Task Force therefore concentrated on the definition of pension entitlements[3] and also identified the key assumptions to be made in an actuarial model for a pension scheme (discount rate, wage growth and demographic data). Given the importance of developing comparable statistics on pension schemes across countries, the Task Force has agreed on the importance of comparable (but not necessarily identical) assumptions during the modelling of pension schemes. The Task Force recommended the following assumptions:

- *The discount rate* should predominantly be based on yields on central government bonds (where the market is sufficiently liquid and the instruments are sufficiently mature) or, exceptionally, high quality corporate bonds. In principle the same discount rate should be applied for all government-sponsored schemes in a country.

- *The Projected Benefit Obligation (PBO)* approach will be most appropriate for the treatment of the impact of *real wage changes* on pension entitlements in national accounts. The PBO approach assumes a non-zero (usually positive) future development of real wages, unlike the alternative *Accumulated Benefit Obligations (ABO)* approach which assumes zero future changes in real wages.

- *Demographic assumptions* (notably mortality) should be based as far as possible on the comparable demographic data compiled by Eurostat (EUROPOP).

The Task Force noted that the consistent application of these recommendations across all pension schemes in the economy will be very difficult, given the coverage and the broad variety of source data in the various EU Member States (individual data versus aggregated data by age, gender or type of entitlement).

Task Force members undertook a *modelling* of selected government-sponsored pension schemes, and explored the issues to be addressed when completing the supplementary table. In a few cases the World Bank's PROST software provided a helpful benchmark, although it is not expected that this

[3] The Task Force believes that the *"accrued-to-date" definition of pension entitlements* is the most appropriate for national accounts. These pension entitlements are actuarially estimated: They consist of the present value of all future pension expenditure due to current workers and pensioners (confined to those pension rights accrued to date).

software would be widely used in future national accounts compilation. In addition experts from the Research Center for Generational Contracts of the Freiburg University have worked with the Task Force to compile estimates for selected government-sponsored pension schemes (notably social security pension schemes) using the ‘Freiburg model’. A relatively broad range of estimates has already been made available for pension entitlements of social security pension schemes. Estimates have been carried out by using national models (Germany, Spain, France and Sweden), the World Bank model PROST (Germany, France and Poland) and the Freiburg model (Czech Republic, Germany, Spain, France, Hungary, the Netherlands, Poland and Sweden).

The two tables below present a summary of the preliminary results for stocks of pension entitlements obtained from the various approaches, both in national currency and as a percentage of GDP. It must be stressed that these results are only indicative and in most cases would need to be reviewed and further developed before being made available to a wider audience. Nevertheless the results show that the pension entitlements are very substantial, particularly for social security pension schemes whose entitlements may using PBO-estimates exceed 300% of GDP in some countries.

Table 1 refers to results which have been compiled nationally and with the Freiburg model for some (unfunded) government employee pension schemes in Germany, Spain, France, the Netherlands and Poland. Both, the ABO valuation method and the PBO valuation method have been applied. The data for Germany, Spain, France and Poland show the pension entitlements of general government vis-à-vis civil servants, the data for the Netherlands the pension entitlements of the military fund.

Table 1: Pension entitlements for government employee pension schemes
(column G of the supplementary table)

Country	Year	Model	Wage growth	Pension entitlements	
				in national currency	as a percentage of GDP
Germany	2006	Freiburg	ABO	942	41
			PBO	1,129	49
Spain	2006	National	PBO	223	23
France	2006	National	PBO	941	53
		Freiburg	ABO	902	50
			PBO	1,093	61
Netherlands	2006	Freiburg	ABO	20	4
			PBO	24	5
Poland	2006	Freiburg	ABO	260	25
			PBO	303	29

A relatively broad range of estimates has already been made available for pension entitlements of social security pension schemes. Estimates have been carried out by using national models (Germany, Spain, France and Sweden), the World Bank model PROST (Germany, France and Poland) and the Freiburg model (Czech Republic, Germany, Spain, France, Hungary, the Netherlands, Poland and Sweden).

The assumptions made in the Freiburg model were identical across countries (3% real discount rate, 1.5% real wage growth), whereas national models adopted different assumptions. It is clear from the modelling work that the impact of the choice between ABO and PBO approaches for the treatment of the real wage growth is substantial (PBO approaches lead to higher stocks of pension entitlements, often by a factor of 10-20%).

Table 2: Pension entitlements for social security pension schemes
(column H of the supplementary table)

Country	Year	Model	Wage growth	Pension entitlements	
				in national currency	as a percentage of GDP
Czech Republic	2006	Freiburg	ABO	5,231	162
			PBO	6,474	200
Germany	2004	National	ABO	4,169	186
			PBO	5,669	253
	2005		ABO	4,136	185
			PBO	5,268	235
	2006	Freiburg	ABO	5,386	232
			PBO	6,464	278
	2005	World Bank		6,710	289
Spain	2006	National	PBO	2,349	240
		Freiburg	ABO	1,969	201
			PBO	2,333	238
France	2005	National	PBO	5,623	327
	2006	Freiburg	ABO	4,225	247
			PBO	5,248	293
		World Bank		5,721	319
Hungary	2006	Freiburg	ABO	54,272	228
			PBO	65,220	275
Poland	2006	Freiburg	ABO	2,695	255
			PBO	3,037	287
		World Bank	PBO*	2,579	243
			PBO**	464	44
Sweden	2002	National	ABO	5,729	242
	2003			5,984	243
	2004			6,244	243
	2005			6,461	242
	2006			6,703	236
		Freiburg	ABO	4,760	168
			PBO	5,620	198

* FUS: Social Insurance Fund
** FER: Disability and pension Fund (farmers)

4. Reflections on issues raised in the Task Force for implementing the updated 1993 SNA and the revised 1995 ESA

It is perhaps helpful to reflect on the motivations for changes to the treatment of pension schemes in national accounts.

The issue of the recording of pension entitlements was identified very early in the 1993 SNA update process as a major topic to be addressed. The 1993 SNA recognises unfunded pension obligations neither as liabilities of unfunded employer retirement pension schemes, operated by governments or corporations, nor as financial assets of the beneficiaries. This is done so because unfunded pension obligations are not seen as liabilities in a strict sense. However, the 1993 SNA is not so explicit on this issue. It only mentions that "the scope of counterparts…does not cover entitlement to contingent benefits or collective services. Such benefits are generally uncertain or not quantifiable, or both."[4]

There were mainly three reasons for changing the treatment of unfunded employer retirement pension schemes in the 1993 SNA. First, the different accounting for funded and unfunded schemes leads to different 'effects' on key variables like income, saving, financial assets or liabilities. Second, unfunded employer pension schemes are particularly significant for the general government and the public sector. In the light of demographic developments and the foreseeable fiscal burden from ageing populations in almost all developed economies, there is a well-founded interest in having available more comprehensive statistical information on commitments of governments. This also refers to the impacts of pension reforms being undertaken and/or being at the political agenda in many countries. Third, the convergence of the international statistical standards and the international accounting standards (IAS) is aimed at, and the treatment of unfunded employer retirement pension schemes in the 1993 SNA deviates from the IAS and from the International Public Sector Accounting Standards (IPSAS). These accounting standards recognise unfunded employer retirement pension obligations as liabilities.

Even for funded schemes, increasing concern about under-funding meant that it was desirable to examine the consequences of liabilities without matching assets throughout large parts of the corporate sector in some countries. It thus seemed appropriate to examine the consequences of any degree of under-funding including the complete absence of funding in the System.

Accordingly, the current treatment of unfunded employer retirement pension schemes in the 1993 SNA was criticised and it was argued that, for reasons of comparability, obligations that seem to be liabilities should be reflected in the core accounts of the 1993 SNA. Furthermore, the reporting of unfunded pension liabilities as memorandum items, as recommended by the 1993 SNA, has not been applied in practice. Therefore it was proposed that the updated SNA should record the financial assets and liabilities of all pension schemes regardless of the degree of funding, if any.

Following concerns raised by many European countries, where pension provision has traditionally been delivered predominantly through social security type pension schemes, a compromise was elaborated and agreed. The six "basic principles" were as follows:

(i) All employer pension-related flows and stocks, including pension entitlements, provided by private schemes are recorded in the core accounts, even if they are unfunded. In this context a private scheme

[4] See 1993 SNA, paragraph 3.20.

is any for which the government is not directly responsible (as noted in point (vi), even schemes for which government is responsible are included if they are mainly funded);

(ii) The updated SNA will include a supplementary table on pensions which will become a standard requirement in the updated SNA. In this table, all flows and stocks of all pension schemes (autonomous pension funds, segregated non autonomous employer schemes, pension part of social security, etc.) will be shown. This table will thus include details of pension flows and stocks that are recorded in the core accounts plus those that are not included in the core accounts also giving a complete view of households' pension "assets";

(iii) It is suggested that this supplementary table would be compulsory for EU member states through ESA regulation.

Concerning government sponsored systems:

(iv) Pension entitlements of unfunded, pay-as-you-go government sponsored systems which provide the basic social safety net type of provision, sometimes referred to as pillar one type provision, will be only recorded in the supplementary table (but not in the core account);

(v) The recommendation of the new SNA regarding the recording of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government's own employees) will be flexible. Given the different institutional arrangements in countries, the updated SNA will permit recording only some of these pension entitlements in the core accounts. However, it will be a requirement that a set of criteria be provided to explain the distinction between those schemes carried forward to the core accounts, possibly where the pension promise is of sufficient strength, and those recorded only in the supplementary table. Providing a single set of internationally recognized criteria for this distinction should be on the long-term SNA research agenda; and

(vi) Pension entitlements of funded systems sponsored by the government will be recorded in the core accounts. The updated 1993 SNA will include a specific section on pensions in its Chapter 17. Given the close cooperation between the SNA Editor and the Task Force, the existing draft Chapter 17 is broadly consistent with the Task Force's work (even if in some areas it is naturally more general, and for some specific issues takes a different viewpoint).

Within the EU, the intention is to produce a specific section on pensions in the revised 1995 ESA which, in line with the general revision policy of ESA, will follow the revised SNA. Given the administrative uses of national accounts in the EU, it can be expected that the guidance for recording of pension schemes in the new ESA would need to be more detailed than that of the updated 1993 SNA, possibly including a discussion of the appropriate modelling assumptions to be made. In order to implement the supplementary table on pensions in social insurance, it will be necessary to draw up a common data transmission process as part of a future ESA transmission programme.

Eurostat and the ECB have agreed to establish a "Contact Group" for pensions amongst EU countries to exchange good practice and practical ideas, through documentation and seminars. This recognises that the implementation of the revised approach to recording pension schemes in national accounts will not be at all straightforward in practice. Countries are being encouraged to commence work as soon as possible on preparation, notably be forming a closer working relationship with public pension experts and pension regulators.

5. Linkages with other work

The work of the Eurostat/ECB Task Force has benefited enormously from the ongoing work in the EU on sustainability issues relating to public finances, notably from the work of the "Ageing Working Group". It is well known that the population of the EU is ageing rapidly and this will place a major strain on public finances in the decades to come (particularly from pensions and healthcare). The work undertaken to analyse this effect has led to a major effort to model public pension systems across all EU countries[5], which has greatly raised the profile and improved accessibility to primary data sources for pensions.

Whilst the work in national accounts is focused on pension entitlements accrued to date (a so-called "closed system" approach), the sustainability work of economists looks at the ongoing flows relating to pensions (the so-called "open system" approach). This requires a complete modelling system and a detailed understanding of national pension systems, including timetabled future reforms.[6] Nevertheless many of the modelling aspects are shared, including the need for key assumptions.

The expected availability of more detailed and actuarially-based data on pensions in national accounts will represent a major step forward in drawing pensions-related issues into the context of macroeconomic data. At present these data are dispersed in different statistical datasets, often not on the same recording basis, and therefore the job of piecing them together is a challenge for researchers. Many governments are seeking to engage with their citizens about the challenges to provide future pension funding, and national accountants will naturally have to reflect how best to present the new data coming on-stream.

[5] See http://www.ec.europa.eu/economy_finance/publications/publication_summary9493_en.htm and earlier publications on pension issues of the European Commission.
[6] See part II section 2.3 of the 2007 Public Finance Report from the European Commission at http://www.ec.europa.eu/economy_finance/publications/publication338_en.pdf

6. Conclusions

*Looking to the futur*e, the SNA research agenda will probably include an item on the distinction between recording of pension schemes in the “core” national accounts and in a mandatory supplementary table where further guidance will be needed by countries. There will certainly be a general investigation of the recognition of social security pension entitlements as liabilities. As the models of pension schemes evolve, due to reforms and financial innovation, there will also be a need to ensure the continued relevance of the national accounts’ standards (particularly as regards the accounting of reform measures and hybrid pension schemes).

Given that the proposed supplementary table will cover all pension schemes in social insurance, and therefore countries will be expected to publish actuarially-based estimates (whether in the core accounts or alongside them), over time one can expect the accumulation of experience. This will be helpful for both improving the quality of estimates for government unfunded pension schemes and for investigating the possible recognition of social security pension entitlements as liabilities (since pensions form a large proportion of these entitlements). The availability of these data to users will also potentially provoke further developments.

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Annex:

Supplementary table developed by the Task Force

Rela-tions	SNA code	*Row No.*	Recording / Sponsor / *Column number*	Core national accounts: Non-general government: Defined con-tribution schemes	Core national accounts: Non-general government: Defined benefit schemes and other[1] non-defined contribution schemes	Core national accounts: Non-general government: Total	Core national accounts: General government: Defined contribution schemes	Core national accounts: General government: Defined benefit schemes for general government employees[2]: Classi-fied in finan-cial cor-pora-tions	Core national accounts: General government: Defined benefit schemes for general government employees[2]: Classi-fied in general govt	Not in the core accounts: General government: Defined benefit schemes for general government employees[2]: Classi-fied in general government	Not in the core accounts: General government: Social security pension schemes	Total pen-sion sche-mes	Counter parts: Pension entitle-ments of resident house-holds[4]
			Column number	A	B	C	D	E	F	G	H	I	J
			Opening balance sheet										
	F63	1	Pension entitlements										
			Changes in pension entitlements due to transactions										
Σ 2.1 to 2.4	D5201	2	Increase in pension entitlements due to social contributions										
	D5201	2.1	Employer actual social contributions										
	D5211	2.2	Employer imputed social contributions										
	D5231	2.3	Household actual social contributions										
	D5241	2.4	Household social contribution supplements[5]										
		3	Other (actuarial) change of pension entitlements in social security pension schemes										
	D5321	4	Reduction in pension entitlements due to payment of pension benefits										
2 + 3 - 4	D7	5	Changes in pension entitlements due to social contributions and pension benefits										
		6	Transfers of pension entitlements between schemes										
		7	Changes in pension entitlements due to pension scheme reforms										
			Changes in pension entitlements due to other economic flows										
		8	Changes in entitlements due to revaluations[6]										
		9	Changes in entitlements due to other changes in volume [6]										
			Closing balance sheet										
1+ Σ 5 to 9	F63612	10	Pension entitlements										
			Related indicators										
	P1	*11*	*Output*										
		12	*Assets held at the end of the period to meet pensions[7]*										

1) Such other non-defined contribution schemes, often described as hybrid schemes, have both a defined benefit and a defined contribution element (see chapter 17 of the updated SNA).
2) Schemes organised by general government for its current and former employees.
3) These are non-autonomous defined benefit schemes whose pension entitlements are recorded in the core accounts.
4) Counterpart data for non-resident households will only be shown separately when pension relationships with the rest of the world are significant.
5) These supplements represent the return on members' claims on pension schemes, both through investment income on defined contribution schemes' assets and for defined benefit schemes through the unwinding of the discount factor applied.
6) A more detailed split of these positions should be provided for columns G and H based on the model calculations carried out for these schemes.
7) This row includes financial and non-financial assets held for the sole purpose of paying future pensions, excluding claims by the pension scheme on its sponsor; an explanation should be provided of which assets have been included.
The cells shown as █ are not applicable; the cells in ▒ will contain different data from the core accounts.