



Accrued-to-date pension entitlements in social insurance

Regulation No 549/2013 of the European Parliament and of the Council of 21st May 2013 on the European system of national and regional accounts in the European Union (ESA 2010)¹ foresees the obligatory transmission of a supplementary pension table, which contains data on all accrued-to-date pension entitlements of social insurance.

Social insurance schemes are public and private schemes in which participants are obliged, or encouraged, by a third party to take out insurance against certain social risks or circumstances that may adversely affect their welfare or that of their dependents. In such schemes, social contributions are paid by employees or others, or by employers on behalf of their employees, in order to secure entitlement to social insurance benefits, in the current or subsequent periods, for the employees or other contributors, their dependents or survivors. Contributions to social insurance schemes can also be paid by, or on behalf of, self-employed or non-employed persons.

According to the ESA 2010 Transmission Programme, this referred table (Table 29) must be transmitted to Eurostat, the statistical office of the European Union, on a three year basis. The first transmission for the reference year 2015 was made in December 2017 and the data was validated by Eurostat earlier in 2018.

The data for the accrued-to-date pension entitlements in social insurance for the year 2015 is presented in table 1 below:

Table 1: Accrued-to-date pension entitlements in social insurance, end 2015

Type of pension scheme	€ million
Private defined contribution schemes	1.547,0
Private defined benefit schemes	1.703,9
Defined benefit schemes for general government employees(base scenario)	7.331,3
Social Security pension schemes (base scenario)	32.713,3

¹<https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32013R0549>

Private defined contribution schemes are pension schemes where the benefits are defined exclusively in terms of funds 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. The entire risk of a defined contribution scheme to provide an adequate income in retirement is borne by the employee.

Providing data on defined contribution schemes is straightforward based on pension schemes' financial statements. The pension entitlements of all defined contribution pension schemes are included in the core national accounts and are not subject to sensitivity analysis as the entitlements are equal to the current value of accumulated assets.

In the case of Cyprus, under this category are included the Provident Funds, which provide retirement benefits paid as lump sum payments. These defined contribution schemes are voluntary schemes.

Private defined benefit schemes are pension schemes where the benefits payable to the employee on retirement are determined in advanced by the use of a formula (e.g. related to salary and years of service), either alone or in combination with a guaranteed minimum amount payable. The risk of a defined benefit scheme to provide an adequate income in retirement is borne by the employer or a unit acting on his/her behalf.

In the case of Cyprus, under this category are included Pension Funds that provide a given level of pension benefits, paid as periodic payments or partially as periodic payments and partially as lump sum payments.

Defined benefit schemes for general government employees in the case of Cyprus refer to the Government Employee Pension Scheme (GEPS), while the category Social Security pension schemes refers to the Cyprus General Social Insurance Scheme (GSIS).

According to Eurostat guidelines, three different actuarial calculations were made for the defined benefit schemes for general government employees and for the Social Security pension schemes, changing each time the nominal discount rate. In the base scenario the 5% discount rate was used, while two additional scenarios were performed applying a 4% and 6% discount rates.

The results of the actuarial calculations are presented in table 2 below:

Table 2: Actuarial calculations depending on the different discount rates, end 2015

Defined benefit schemes for general government employees	€ million
Discount rate 5% (base scenario)	7.331,3
Discount rate 4%	8.357,5
Discount rate 6%	6.504,2

Social Security pension schemes	€ million
Discount rate 5% (base scenario)	32.713,3
Discount rate 4%	39.554,1
Discount rate 6%	27.499,7

It should be highlighted that statistics on pensions estimated based on the actuarial calculations cannot and should not be used for assessment of public finances stability and should not be considered part of the government debt. They only show the present value of benefits which will be paid at the time of retirement of current contributors and of remaining benefits of the current pensioners.

Annex 1 includes a note from the Actuary of the GSIS regarding the methodological aspects of reporting GSIS pension obligations and the long-term financial sustainability of the GSIS.

Annex 1

Actuarial note on reporting pension obligations of the GSIS

1. Introduction

ESA 2010 establishes a new reporting framework on pension entitlements of households or pension obligations of contributory social security pension schemes, such as the Cyprus General Social Insurance Scheme (GSIS). In accordance with the above framework, pension obligations of social security pension schemes should be presented in a supplementary pension table (Table 29)² on a prescribed method, the accrued-to-date benefits approach, and broadly based on the assumptions made by the Ageing Working Group of the Economy Policy Committee (AWG)³.

The Accrued-to-Date Liability (ADL) method of the ESA 2010 pension framework does not allow the assessment of the financial sustainability of social security schemes, which are typically financed on a PAYG (pay-as-you-go) basis, such as the GSIS. As it is stipulated in the EU regulations⁴, “accrued-to-date pension entitlements in social insurance are not as such a measure of the sustainability of public finances”. Instead, the ESA 2010 framework primarily provides a tool for economic analysis of households’ pension wealth, including pension entitlements.

The main aims of this note are to:

- Provide a comparison of pension obligations of the GSIS with the respective figures of other EU social security schemes for Table 29 reporting purposes;
- Present key methodological considerations with respect to reporting GSIS pension obligations; and
- Provide alternative calculations of pension obligations of the GSIS consistent with its financing approach, in accordance with international actuarial standards, together with a discussion on long-term sustainability of the GSIS.

² The liabilities of social security pension schemes are not shown in core national accounts and therefore are not considered to be part of government debt by national accounts.

³ EU commonly agreed assumptions are jointly developed by the AWG and European Commission on a 3-year cycle and are presented in the [Ageing Report: Underlying Assumptions and Projection Methodologies](#).

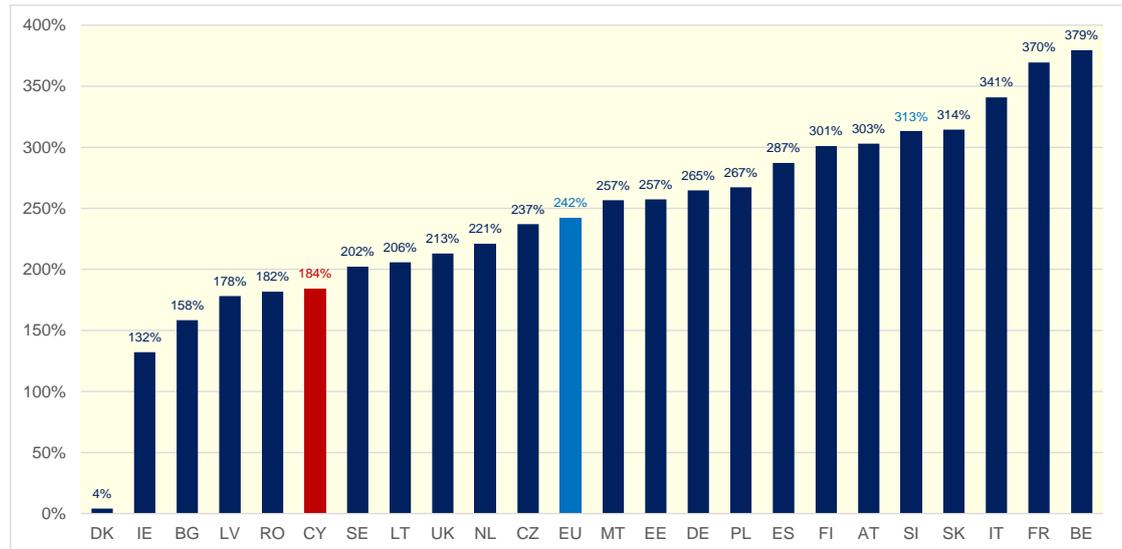
⁴ Refer to recital (21) of the EU regulation 549/2013.

2. Pension obligations of social security schemes – an EU comparison

Chart 1 shows how the size of the pension obligations of the GSIS compares with those of other EU social security pension schemes (SSPSs)⁵ as at 31 December 2015, estimated using the ADL method as per ESA 2010 framework, with respect to 23 in-scope Member States (MS)⁶. All ADL figures are expressed as a percentage of GDP.

Chart 1

SSPS obligations (ADL) as percentage of GDP – 31 December, 2015



Source: GSIS Actuary's estimates based on the ADL results published by MS⁷.

Note: The size of SSPS obligations for DK is virtually zero, given that its social security pension system is not covered by the Eurostat exercise because it is considered as "social assistance".

Following are the main points from Chart 1:

- There is a great variation in the size of the SSPS obligations among the MS, ranging from 1.3 times the GDP in Ireland (IE) to 3.8 times the GDP in Belgium (BE);
- The EU average size of the SSPS obligations is 2.4 times the GDP; and
- The size of the GSIS pension obligations in Cyprus (CY), which is estimated to 184% of GDP, is rather low compared to other MS, primarily due to the lower population ageing effect and the stage of maturity of the supplementary part of the GSIS.

⁵ The SSPSs represent the 1st pillar of the national pension system and refer to the contributory SSPS which are recorded under column H of Table 29 ("Social Security Pension Schemes"), as well as under column G of Table 29 ("Classified in general government") in MS where a separate SSPS exist for government employees.

⁶ At the time of writing this note, there were 23 MS which published their Table 29 results at national level.

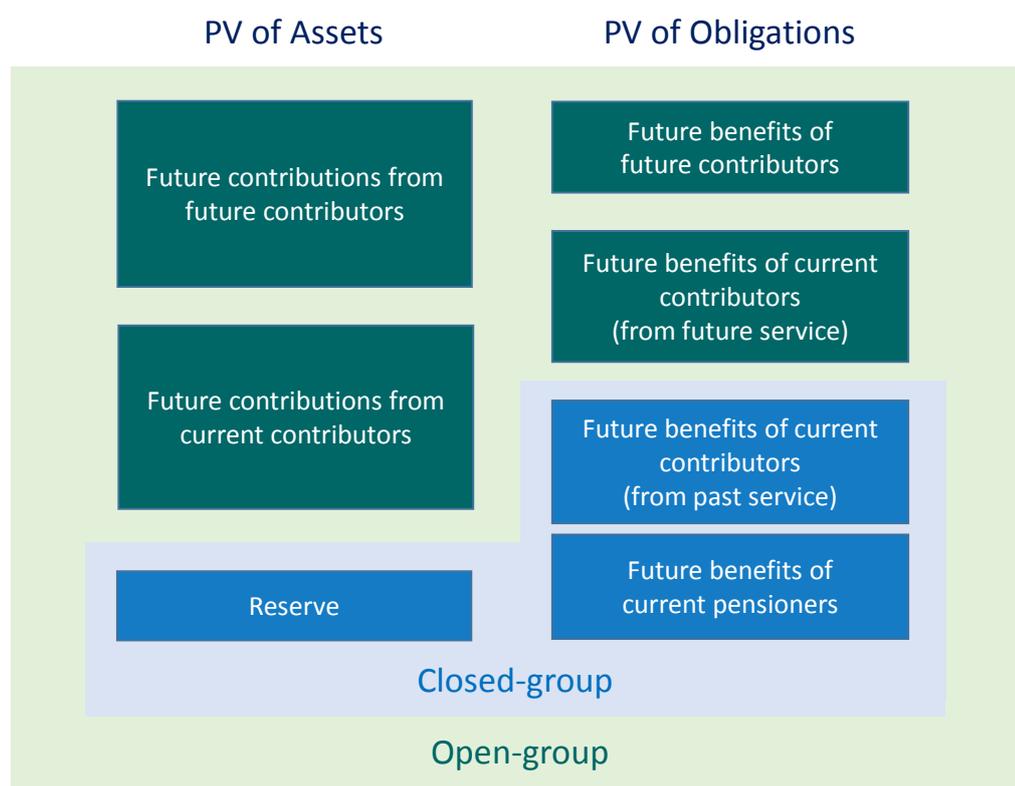
⁷ [National reporting of MS on Table 29 pension data.](#)

3. Key methodological considerations

The ESA 2010 pension exercise, which as mentioned above is undertaken based on the ADL method, is consistent with the closed-group approach. By contrast, the triennial actuarial valuation exercises of the GSIS, as required by the Social Insurance Law, as well as the AWG pension exercise⁸, which is primarily used to analyse the sustainability of public finances in MS with respect to age-related expenditure including public pension expenditure, are undertaken based on the open-group approach.

Chart 2 compares graphically the two approaches, through the means of a balance sheet. A comprehensive description of the above approaches is provided in a recent publication of the Social Security Committee of the International Actuarial Association (IAA)⁹.

Chart 2
Closed versus Open group approach



Note: PV refers to Present Value

⁸ The results of the AWG exercise are presented in the triennial [Ageing Report: Economic & Budgetary Projections](#) and [Fiscal Sustainability Report](#).

⁹ The 2018 IAA paper on [Measuring and reporting actuarial obligations of social security systems](#), [Social Security Committee of the International Actuarial Association](#).

In the context of assessing the financial status of the GSIS, the closed-group approach, as it is illustrated graphically in Chart 2, provides an incomplete financial picture, primarily because it only reflects the performance of the GSIS in the past. In particular, it includes only current GSIS pensioners and contributors, with no future entrants (contributors) taken into account and no future accrual of new benefits. It completely ignores future contributions, which represent GSIS' largest assets.

In principle, the GSIS operates on a pay-as-you-go basis, representing implicit social contracts under which current pensioners' benefits are covered by contributions from current contributors, who in turn are supported by the solidarity of future contributors. It follows that the most appropriate assessment of the financial sustainability¹⁰ of the GSIS is achieved under the open group approach which explicitly accounts for the above intergenerational societal commitments, while the closed group approach does not reflect those commitments.

In essence, the open-group approach provides a complete financial and forward-looking picture of the GSIS. As shown in Chart 2, it takes into consideration all current pensioners and contributors as well as future contributors of the GSIS, including their future contributions and associated benefits, to determine whether current scheme's reserve and future contributions (assets) will be sufficient to pay for all future benefit expenditures (obligations).

The choice of the methodology used to produce a SSPS's actuarial balance sheet is determined by the scheme's financing approach. The consistency of the methodology used to measure the assets and obligations of a social security program with its financing method is also clearly stated in the International Standard of Actuarial Practice 2 (ISAP 2) of the IAA¹¹, as well as in Guideline 38 "Compliance with requirements of national and international statistical reporting" of the ISSA-ILO Guidelines on Actuarial Work for Social Security¹².

¹⁰ A measure of the ability of GSIS to raise financial resources necessary to meet all of its future pension costs.

¹¹ ISAP2 - [Financial Analysis of Social Security Programs](#).

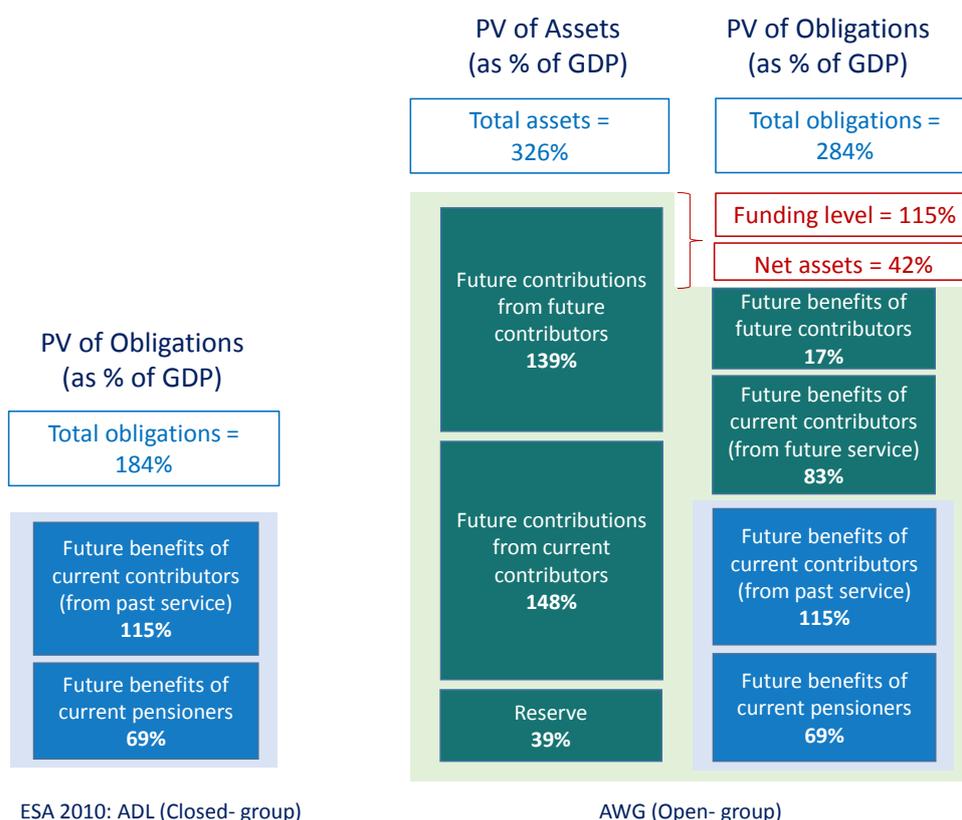
¹² ISSA-ILO [Guidelines on actuarial work for social security](#).

4. **Assessing the GSIS long-term financial sustainability: alternative calculations**

Chart 3 illustrates the appropriateness of the open-group approach in assessing the long-term financial sustainability of the GSIS.

Chart 3

GSIS - ESA 2010: ADL (closed-group) versus AWG (open-group) as at 31 December, 2015



Source: GSIS Actuary's estimates.

It follows from Chart 3 that the GSIS is financially sustainable in the long-term with a funding level (ratio of assets over obligations) of 115% under the AWG framework (open-group) as at 31 December 2015, while the corresponding ADL figure of 184% of GDP under the ESA 2010 framework (closed-group) does not say much about the financial status of the GSIS.