Standard Report
on
Methods and Quality

for
Estimates of Irish Pension Liabilities 2015

This documentation applies to the reporting period:

2015

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1 Overview

The CSO is required, under Regulation (EU) No 549/2013 on the European system of national and regional accounts in the European Union, to compile a supplementary table on accrued-to-date pension entitlements in social insurance (Table 29). Transmission of this table to Eurostat for reference year 2015 was required by December 31, 2017. Updates are required at three year intervals thereafter.

2 General Information

2.1 Statistical Category

Estimate of Pension Liabilities in 2015 in Ireland in relation to Private Occupational Pension Schemes, Public Sector Pension Schemes and Pay-as-you-go State pension benefits.

2.2 Area of Activity

National Accounts

2.3 Organisational Unit Responsible, Persons to Contact

Economic Statistics, Government Accounts – Compilation and Outputs, Ciara O'Shea, gfs@cso.ie

2.4 Objectives and Purpose; History

Because of the importance of pensions to the economies of EU member states, this new table on pensions was adopted by the European Commission in the European System of Accounts, (ESA2010). Its main purpose is to supplement the core National Accounts and improve the recording and comparability of all pension schemes – private and public – throughout EU member states.

These estimates of Irish pension liabilities have been compiled using three main data sources:

- Pensions Authority Annual Scheme Information (ASI) and Annual Actuarial Data Return (AADR)
- Department of Public Expenditure and Reform Actuarial Review of Public Service Occupational Pensions in Ireland 2015
- Department of Employment Affairs and Social Protection Actuarial Review of the Social Insurance Fund 2015
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The methodology used in the estimates closely follows guidance from Eurostat and the European Central Bank outlined in the handbook produced for compilers and users of data on social insurance pension schemes – the Technical Compilation Guide for Pension Data in National Accounts.

2.5 Periodicity

Triennial

2.6 Client

Eurostat

2.7 Users

Eurostat, Irish Government – Department of Finance, Department of Public Expenditure and Reform, Department of Employment and Social Protection, Economists, Researchers

2.8 Legal basis

Regulation (EU) No 549/2013

3 Statistical Concepts, Methods

3.1 Subject of the Statistics

Table 1.1 Summary of important concepts to be considered when interpreting the liabilities presented in Table 2.1 of the Publication.

Gross liabilities	The liabilities in Table 2.1 are gross pension liabilities which means the estimates, in the case of funded schemes, do not take account of any assets which have been built up to pay benefits in retirement.
Accrued-to-date liability (ADL)	The measure of the liability used in Table 2.1 is called the accrued-to-date liability (ADL). It includes future pension benefits due to be paid to those already retired and in the case of current workers, it is the benefit right earned to date (based on past service) which is included. The ADL measure therefore does not include an (expected) contribution period ahead of current workers. For example, in the case of a 28 year old worker entitled to the State Pension (Contributory) at age 68, the remaining 40 year contribution period will not be incorporated in the ADL estimate in Table 2.1, only the rights built up during the individual's career to date will be considered.
Fiscal sustainability	The ADL measure of pension entitlements as they appear in Table 2.1 do not allow any conclusions to be drawn as to the sustainability of the pension scheme as the estimates do not include pension rights that will be built up in the future. In addition, the ADL measure does not take account of assets of funded schemes or future PRSI contributions which also need to be considered when measuring fiscal sustainability.
Debt	For government managed schemes appearing in columns G and H, these are not liabilities in the sense of a debt which has been borrowed and has to be repaid but in the sense that they represent the obligations which are outstanding, as defined by current pension rules and legislation.
Liabilities and entitlements	Table 2.1 is compiled using data on obligations or liabilities of pension providers in Ireland. These are also entitlements or assets of households and can be viewed as such when interpreting the statistics.
Scope	The ADL as defined in Table 2.1 comprises both state and private pensions, but does not include means-tested state benefits such as State Pension (Non-Contributory) or private savings plans such as Personal Retirement Savings Accounts (PRSAs) and Retirement Annuity Contracts (RACs).
Discount Rate	The discount rate is one of the most crucial assumptions used in the actuarial estimation of the ADL for defined benefit schemes. The accumulated impact of the rate chosen to discount projected cash-flows over a prolonged period is very high. The Eurostat Technical Guide recommends that, for government managed pension schemes, the discount rate is set at **3% in real terms** and **5% in nominal terms**.

3.2 Units of Observation/Collection Units/Units of Presentation

Pension Schemes grouped into 4 main headings and presented in 4 different columns in the reporting template and publication:

- Column A: Non-government managed (private) Occupational defined contribution schemes

- Column B: Non-government managed (private) Occupational defined benefit schemes

- Columns A to C: These schemes are included in the core national accounts and in the pensions table.
- Column G: Unfunded, government-managed occupational defined benefit schemes for government employees. These schemes are not recorded in the core national accounts and will only appear in the pensions table.
- Column H: Pay-as-you-go, government-managed state pension benefits (excluding means-tested pension-related benefits). These schemes do not appear in the core national accounts and will only appear in the pensions table.

3.3 Data Sources

Pensions Authority data for private occupational pension schemes.

A special survey undertaken by the Department of Public Expenditure and Reform and actuarial model for unfunded, government managed occupational defined benefits schemes for government employees.

Department of Social Protection data and actuarial model for Pay-as-you-go government managed state pension benefits.

3.4 Reporting Unit/Respondents

Rows of the pensions table

Row No.	
	Opening balance sheet
1	Pension entitlements (accrued-to-date liability) at the beginning of the reference year
	Changes in pension entitlements due to transactions
2	Increase in pension entitlements due to social contributions[1]
2.1	Employer actual social contributions
2.2	Employer imputed social contributions
2.3	Household actual social contributions
2.4	Household social contribution supplements
2.5	Less: pension scheme service charges
3	Other (actuarial) change of pension entitlements in social security pension schemes
4	Reduction in pension entitlements due to payment of pension benefits
5	Changes in pension entitlements due to social contributions and pension benefits[2]
6	Transfers of pension entitlements between schemes
7	Change in entitlements due to negotiated changes in scheme structure

	Changes in pension entitlements due to other flows
8	Changes in entitlements due to revaluations
9	Changes in entitlements due to other changes in volume
	Closing balance sheet
10	Pension entitlements (accrued-to-date liability) at the end of the reference

3.5 Type of Survey/Process

Not Applicable

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

Not Applicable

3.6.2 Sampling Design

Not Applicable

3.7 Survey Technique/Data Transfer

Not Applicable

3.8 Questionnaire (including explanations)

Not Applicable

3.9 Participation in the Survey

Not Applicable

3.10 Characteristics of the Survey/Process and its Results

Not Applicable

3.11 Classifications used

Not Applicable

3.12 Regional Breakdown of Results

Not Applicable

4 Production of the Statistics, Data Processing, Quality Assurance

4.1 Data Capture

Not Applicable

4.2 Coding

Not Applicable

4.3 Data Editing

Some data checking and editing of the Pensions Authority ASI data is undertaken. This editing involves a review of the value of reported variables (scheme contributions, pensions paid and value of assets). The change in the value of assets from one year to the next is assessed in light of contributions paid into the scheme, payments out of the scheme, and general change in the value of assets in that year. Edit checks are focused on the schemes with large assets. Value of assets reported in the ASI data set are also referenced against reported assets in the AADR data set where necessary. These edits checks identify obvious data entry errors (e.g. incorrect units being, e.g. millions of euro instead of euro).

4.4 Imputation (for Non-Response or Incomplete Data Sets)

Some data imputation is undertaken due to the time delay in data reporting. Where a scheme is live in the previous year but has not reported for the current year, values of assets are estimated based on the previous year's value of assets and the overall change of pension assets as reported by the industry for that year. These imputed variables are replaced with real data once it has been submitted.

4.5 Grossing and Weighting

Not Applicable

4.6 Computation of Outputs, Estimation Methods Used

Pension entitlements (accrued-to-date liability) - Row 1:
This is the accrued-to-date liability (ADL) estimated at the beginning of the period and is identical with the closing stock of the previous year. For defined contribution schemes this equates to the value of the underlying assets of the pension fund. For defined benefit schemes actuarial calculations are required to estimate liabilities. Actuarial methods involve modelling based on assumptions and for government-managed pension schemes these assumptions have been prescribed in the Eurostat Technical Guide[3] to ensure consistency across schemes and comparability across EU countries.

Employer and employee actual social contributions - Rows 2.1 and 2.3:
These rows contain the value of contributions paid by employers and employees during the period.

Employer imputed social contributions - Row 2.2:
This is calculated as balancing items in Columns B and G and therefore any changes in pension entitlements over the year, not included in the other rows, are captured here. This row also covers any 'experience effects' where the observed outcome of pension modelling assumptions (real wage growth rate, discount rate, etc.) differs from the levels assumed. By definition, there are no entries in this row for defined contribution schemes.

Household social contributions supplements - Row 2.4:
For defined contribution pension schemes, Row 2.4 denotes interest earned on assets, i.e. the investment income during the period. For defined benefit schemes, the discount rate is the rate used to convert future payments into a 'present value' at a particular date. In the case of pensions, there is a stream of payments for many years into the future which are discounted to calculate the present value. There is an effect therefore each year of the discount unwinding as those future

payment streams come one year closer to falling due and being paid. This reduction in the discounting period results in an increase in the net present value which is recorded in Row 2.4. This row relates to the property income earned on the schemes and for all defined benefit pension schemes, including social security schemes, property income is equivalent to the unwinding of the discount rate meaning that its value is equal to the discount rate times the pension entitlements at the beginning of the accounting period. For further information on the discount rate and the calculation of Row 2.4 for Column B, see the section below on Assumptions.

Pension scheme service charges - Row 2.5:
This row records the cost of running the pension schemes. Eurostat's guidance in relation to government-managed schemes is that a zero should be entered if the costs are financed through sources such as general taxation. The service charge for the Social Insurance Fund is deemed payable out of contributions receipts (unless there is a shortfall of social insurance contributions to expenditure in which case a subvention is paid). Therefore the service charge is recorded for Column H.

Other (actuarial) change of entitlements in social security pension schemes – Row 3:
This is calculated as a balancing item in Column H and therefore any changes in pension entitlements over the year, not included in the other rows of this column, are captured here. It should be noted that, for social security pension schemes, 'experience effects' are also recorded in Row 3.

Reduction of pension entitlements due to payment of pension benefits - Row 4:
This shows the payment of pension benefits during the period.

Changes in pension entitlements due to social contributions and pension benefits – Row 5:
This is a formula calculated as (sum (Rows 2.1 - 2.4) - Row 2.5 + Row 3 – Row 4).

Transfers of pension entitlements between schemes - Row 6:
This shows the transfers of pension entitlements between schemes.

Change in entitlements due to negotiated changes in scheme structure - Row 7:
This contains an estimate of changes in past service cost due to legislation enacted during the year in question. These reforms might be a change in the retirement age, the indexation rules or the benefit formula or it may be a shift from a defined benefit scheme to a defined contribution scheme. It is important to underline that two criteria must exist in order to classify to this row: 1) the reform must be enacted and 2) the reform must be negotiated and agreed upon by all parties involved.

Changes in entitlements due to revaluations - Row 8:
This shows any changes in entitlements due to changes in the financial assumptions - the discount rate, the wage rate and the inflation rate, or in the case of defined contribution schemes it includes market price changes.

Changes in entitlements due to other changes in volume - Row 9:
This shows changes in entitlements due to changes in other model assumptions such as life expectancy. This row may also include non-negotiated reforms which do not appear in Row 7.

Pension entitlements (accrued-to-date liability) – Row 10:
This is the accrued-to-date liability (ADL) estimated at the end of the period. As stated in Row 1 above, for defined contribution schemes this equates to the value of the underlying assets of the pension fund. For defined benefit schemes actuarial calculations are required to estimate the liabilities.

4.7 Other Quality Assurance Techniques Used

Assumptions used in the calculation of the accrued-to-date liability (ADL)

The accrued-to-date liability (ADL) is calculated on an actuarial basis for defined benefit pension schemes including those in the private sector (Column B), public service schemes (Column G) and state pension schemes (Column H).

In its Technical Guide, Eurostat sets out prescribed assumptions to be used and approach to be taken in deriving the actuarial estimates in order to maintain consistency across pension schemes and comparability across countries.

Discount Rate

The discount rate is the rate used to convert future payments into a 'present value' at a particular date. In the case of pensions, there is a stream of payments for many years into the future which are discounted to calculate the present value.

As the ADL is calculated in present value terms, a suitable discount rate needs to be chosen in order to calculate the current value of future payments of pension benefits. The discount rate is one of the most crucial assumptions since the accumulated impact of the rate chosen to discount back projected cash-flows over a prolonged period is very high. For example, a reduction in the discount rate of 1% could result in a 25% increase in the value of the ADL. The impact of a +/- 1% change in the discount rate used for government-managed schemes in Columns G and H can be seen in the sensitivity analysis in Chapter 4.

The Eurostat Technical Guide recommends that, for government-managed pension schemes, the discount rate is set at 3% in real terms and 5% in nominal terms. It is generally agreed that central government debt securities provide a suitable basis for the discount rate. At the time of setting and agreeing the assumptions to be used, a real discount rate of 3% corresponded closely to interest rate of euro government bonds. The Ageing Working Group (AWG) also agreed with Members States a real discount rate of 3% p.a. for its long-term projections.

Although the Guide recommends that the choice of discount rate should be reviewed regularly, and despite discussions at the Eurostat Working Group on Pensions, no change was made to the Guide to reduce the recommended choice of discount rate for the 2015 estimate. This will be considered for future versions of the pensions table and estimates of the ADL.

Table 6.4 summarises the approach and assumptions used in compiling the estimates for Irish pension obligations. A nominal discount rate of 5% was applied to the actuarial calculations which appear in Columns G and H. For Column B, the Funding Standard values reported in the Annual Actuarial Data Return (AADR) are calculated in accordance with prescribed guidance issued by the Society of Actuaries in Ireland and guidance issued by the Pensions Authority.

It is worth noting that in relation to the discount rate for Column B, details of scheme-specific discount rates were not available on the AADR and an assumption had to be made on the average discount rate applied in the calculation of the ADL in order to estimate the value of the Household Social Contribution Supplements (Column B, Row 2.4). This row relates to the property income earned on the schemes. For all defined benefit pension schemes covered in Column B, property income is equivalent to the unwinding of the discount rate, meaning that its value is equal to the discount rate times the pension entitlements at the beginning of the accounting period.

The average 'representative' discount rate was calculated using the actuarial liability weighted by type - active, deferred and pensioner - and applying the relevant discount rate/annuity rate to each category. The result is an estimated overall nominal discount rate of 3.6% for defined benefit schemes appearing in Column B.

Summary of actuarial assumptions used to estimate the liabilities of defined benefit schemes

Table Column	**B: Defined Benefit funded occupational pension schemes**	**G: Defined Benefit occupational pensions of public service workers**	**H: Social Security pension schemes**
Source	Pensions Authority defined benefit AADR data	D/PER Actuarial Review of Public Service Pensions	DEASP Actuarial Review of the Social Insurance Fund
Accrued-to-Date Liability	Yes	Yes (general increase in wages taken into account)	Yes
Projected Benefit Obligation (PBO)	Accumulated Benefit Obligations (ABO) approach	Yes (general increase in wages taken into account)	Yes
Nominal Discount Rate	3.6% average	5% (3% real)	5% (3%real)
Wage Growth Assumptions	Salary escalation not considered	Ageing Working Group assumptions	Ageing Working Group assumptions
Demographic Assumptions	Mortality assumptions per Prescribed Guidance v1 (issued by the Pensions Authority)	Mortality assumptions per Prescribed Guidance v2 (issued by the Pensions Authority)	Eurostat mortality assumptions
Inflation	2%	2%	2%

5 Quality

5.1 Relevance

National Accounts, Fiscal planning and estimates of financial sustainability of social protection systems

5.2 Accuracy and Reliability

5.2.1. Sampling Effect & representivity

Not Applicable

5.2.2. Non-Sampling Effects

Not Applicable

5.2.2.1 Quality of the Data Sources used (other than survey register)

Not Applicable

5.2.2.2 Register Coverage

Not Applicable

5.2.2.3 Non-response (Unit and Item)

Not Applicable

5.2.2.4 Measurement Errors

Not Applicable

5.2.2.5 Processing Errors

Not Applicable

5.2.2.6 Model-related Effects

Not Applicable

5.3 Timeliness and Punctuality

5.3.1 Provisional Results

Not Applicable

5.3.2 Final Results

Table 29 transmitted to Eurostat in December T+2.
National Publication in April T+3

5.4 Coherence

Not Applicable

5.5 Comparability

Use of Eurostat "Technical Compilation Guide for Pension Data in National Accounts" ensures comparability with other EU Member States.

https://ec.europa.eu/eurostat/documents/3859598/5922461/KS-RA-11-027-EN.PDF/7a18e53d-8ffa-4397-ad03-04450bb35b02

Some variables that appear in the table are not yet consistent with similar variables in the Core National Accounts (e.g. imputed pension contributions of employers in Table 29 are compiled using actuarial data). Other areas of National Accounts are reviewing how best to incorporate data provided by Table 29 in their data compilation systems.

5.6 Accessibility and Clarity

5.6.1 Assistance to Users, Special Analyses

Not Applicable

5.6.2 Revisions

Not Applicable

5.6.3 Publications

CSO Publication:
Estimates of Irish Pension Liabilities, 2015
Department of Public Expenditure and Reform Publication:
Actuarial Review of Public Service Occupational Pensions in Ireland as required by EU Regulation 549/2013 (2017)

5.6.3.1 Releases, Regular Publications

Not Applicable

5.6.3.2 Statistical Reports

Not Applicable

5.6.3.3 Internet

Eurostat Database: https://ec.europa.eu/eurostat/web/pensions/data/database

CSO Statbank : Estimates of Irish Pensions by Item, Year and statistic:

https://www.cso.ie/px/pxeirestat/Database/eirestat/Estimates%20of%20Irish%20Pension%20Liabilities/Estimates%20of%20Irish%20Pension%20Liabilities_statbank.asp?SP=Estimates%20of%20Irish%20Pension%20Liabilities&Planguage=0

5.6.4 Confidentiality

Not Applicable

6 Additional documentation and publications

Pension Fact Sheet - Ireland
https://ec.europa.eu/eurostat/cache/metadata/Annexes/nasa_10_pens_esms_an13.pdf