

# Pensions in the national accounts: UK Table 29 methodology (2018)

The methods and sources used to compile UK National Accounts Table 29: Accrued-to-date pension entitlements in social insurance.

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# 1 . Introduction

This methodology article presents a fact sheet for each column in Table 29: Accrued-to-date pension entitlements in social insurance for the UK for accounting year 2018. The estimates for the UK's Table 29 (2018) were compiled by the Office for National Statistics (ONS) in 2020 according to the requirements of the 2010 European System of Accounts (ESA 2010). The layout of the fact sheets was established by the European statistical agency, Eurostat. The fact sheets are presented in sections 2 to 8.

There are no fact sheets for columns that are not applicable in the UK because the type of pension scheme does not exist (Columns D and F); or for Columns C and I, which are the sum of other columns (sub-total and total respectively); or for Column J, which is the result of subtracting Column K from Column I.

## 2 . Column A fact sheet

### General description of the scheme and the calculation model

#### Coverage of the scheme

Column A comprises defined contribution (DC) pensions for private sector employees. Column A also includes some public sector employee pensions provided by insurers, which are not separately identifiable. The values reported in Column A are for pension pots building up during peoples' working lives (the accumulation phase) and for drawdown in retirement (the decumulation phase). Annuities paid out in retirement after DC pension pots have been converted to annuity entitlements are included in Column B, in line with Eurostat guidance that annuities are defined benefit (DB) type pensions.

The ONS's [Annual Survey of Hours and Earnings](#) estimates that in 2018, 62% of UK private sector employees belonged to a DC workplace pension scheme.

The UK has thousands of DC pension schemes, both occupational (trust-based) and personal (contract-based). DC occupational pension schemes include multi-employer Master Trusts set up since 2012 to provide pensions under the [auto-enrolment programme](#) where the employer does not already have a workplace pension scheme. Personal pensions are mainly provided by life insurance companies and may be Group Personal Pensions (GPPs) and related retirement products such as Income Drawdown (workplace pensions, within scope of Table 29) or Individual Personal Pensions (IPPs) and related retirement products (out of scope). For Table 29 we exclude IPPs and related retirement products.

In the core national accounts, life insurer-provided GPPs and related retirement products are reported in sub-sector S.128 Insurance Corporations. DC occupational pensions are reported mainly in sub-sector S.129 Pension Funds, but "non-autonomous" occupational pension schemes provided by life insurance firms are in S.128.

All schemes in Column A are voluntary. Even if employees are automatically enrolled into a pension scheme, membership is voluntary because people are entitled to opt out of the scheme if they wish.

#### Institutional set-up

#### Data sources and suppliers

Over the past three years we have made important improvements to our Column A estimates. The 2018 estimates are compiled in two parts aligned with the core national accounts sub-sectors S.128 and S.129:

- For S.128, we use regulatory data on GPPs and Income Drawdown (a DC retirement product) collected under the Solvency II regime by the insurance companies' regulator, the Prudential Regulation Authority. Data from Solvency II Template 9 are used for Rows 2.4 and 8 and data from Template 14 are used for the other rows. Some assumptions are made to allocate the data (see: Any other comments).
- For S.128, Row 2.5 is calculated according to the guidance for calculating life insurance output in the European System of Accounts (ESA) 2010 manual paragraphs 16.52 to 16.54.
- For S.129, Rows 1 and 10, we have replaced the method used previously with an improved method where balances are backcast from ONS's [Financial Survey of Pension Schemes \(FSPS\)](#). This is because the FSPS estimates, although only available from end-2019, include pension entitlements in DC sections of dual and multiple section hybrid schemes. Our previous estimates did not capture the DC parts of hybrid schemes.
- For S.129, contributions, benefits and net transfers are estimated using ONS's [MQ5 Pension Funds Survey](#) (the appropriate MQ5 uplift factor is used to correct for incompleteness in the sampling frame), while Row 2.5 is calculated as a proportion of Row 1, based on evidence from our surveys and secondary data sources.

## Which institution is running or managing the calculations?

Office for National Statistics (ONS)

## Any other comments

## Assumptions and adjustments

For S.128, when using the regulatory data from Solvency II, some assumptions are made. The main assumptions are:

- Template 14 data separately identifies GPPs, but Income Drawdown in the source data has both "group" (in scope) and "individual" (out of scope) elements. We split it using assumptions based on information about the accumulation phase in order to exclude the part associated with individual pensions.
- Assumptions are used to apportion Template 14 insurance premiums for GPPs and related Income Drawdown products into contributions and transfers in, and to apportion insurance claims for these products into benefits and transfers out.
- Template 9 data used for Rows 2.4 and 8 is apportioned to Column A based on share of reserves.

For S.129, adjustments are made to the source data to remove Master Trust occupational pensions provided by life insurance firms. Such schemes are reported in the S.128 life insurance data and are removed from S.129 to avoid double counting in Column A.

## Transfers out of Column A

Net transfers in Column A are negative. This is partly because of transfers out to Column B at retirement, when pension pots are sold in order to buy annuities (a Column B transfer in). However, pension entitlements of workplace DC schemes in Column A may also be transferred out of scope of Table 29 either to an individual personal pension or to an overseas (non-UK) pension scheme, contributing to a negative figure in Column C.

## Comparisons with the core national accounts

The Solvency II data used for Table 29 enables us to separate transfers out from benefit payments in Column A and Column B, Part B. This is not possible with the data feeds currently used for the core accounts, producing an overestimate of pension benefits (D622) provided by insurance companies.

In theory, the D8 adjustment for the changes in pension entitlements in the core accounts, which feeds into the calculation of household savings and the household saving ratio, should be equal to Row 5 in Table 29. However, as D6121 (Column B, Part A) and D622 (Column A and Column B, Part B) in the core accounts differ from Rows 2.2 and 4 respectively in Table 29, the D8 adjustment in the core accounts is not consistent with Table 29, Row 5.

The ONS is working on a project to introduce the improvements included in Table 29 into the core national accounts. This requires redevelopment of the systems for S.12. Until the improvements have been implemented in the core accounts, there will be differences between the core accounts estimates and the Table 29 estimates based on the new sources and methods described here.

## 3 . Column B, Part A, fact sheet

### General description of the scheme and the calculation model

#### Coverage of the scheme

The UK had around 5,400 defined benefit (DB) funded pension schemes for private sector employees in 2018. These are voluntary schemes that are regulated by The Pensions Regulator (TPR) and pay levies to the Pension Protection Fund (PPF). The PPF is a statutory fund set up to provide compensation to members of private sector DB pension schemes when the sponsoring employer becomes insolvent and there are insufficient assets in the scheme to meet its liabilities.

The ONS's [Annual Survey of Hours and Earnings](#) estimates that in 2018, 8% of UK private sector employees belonged to a DB workplace pension scheme. Although active membership of such schemes is relatively low and declining because of closures to new members and existing member contributions, these schemes still have a large "legacy" membership of pensioners and deferred members with entitlements to pensions that will be paid at retirement. The [Occupational Pension Schemes Survey](#) (OPSS) estimates that in 2018 there were only 1.1 million active members of private sector DB schemes but these schemes had 5.1 million DB pensions in payment and 6.1 million deferred (or preserved) DB pension entitlements.

In the core national accounts, DB occupational pensions are reported in sub-sector S.129 Pension Funds.

#### Institutional set-up

#### Data sources and suppliers

It is not possible to compile estimates on a scheme-by-scheme basis because of the large number of schemes (around 5,400) in the UK. Therefore, we use aggregate data feeds from two sources: administrative data from the Pension Protection Fund (PPF), and estimates from the ONS's MQ5 [Pension Funds Survey](#).

The PPF aggregate data feeds are produced using data collected from the schemes, which was originally calculated by their actuaries using scheme-specific models, formulae and assumptions. However, as we can only see the aggregate results, we only have partial information about the models, formulae and assumptions.

## Which institution is running or managing the calculations?

Office for National Statistics (ONS)

## Major formulas

### Benefit formula

Scheme-specific, on final salary and career average bases.

### Indexation of benefits

Inflation or a fixed percentage; specific arrangements vary depending on the rules of the scheme, the period when the entitlements were built up and whether the scheme was “contracted out” of the state earnings-related Additional Pension before April 2016. See [The Pensions Advisory Service](#) for details.

### Type and structure of the calculation model

The full buy-out measure of pension liabilities published in the PPF’s [Purple Book](#) is used by the ONS to produce figures for Rows 1 and 10 of Column B Part A. The full buy-out measure is an actuarial estimate of liabilities based on a “risk-free” rate, so it meets the requirement for discount rates to be used in Column B of Table 29.

The full buy-out liability figures are modelled by the PPF to convert them from the basis on which schemes supply the data (the “s179” basis). When supplying the data, scheme actuaries follow general [regulatory guidance](#). The PPF provides more specific guidance for submission of s179 valuations (see for example, the [current s179 guidance](#), which sets out the use of various market-based yield methods). In the source data, discount rates vary because they depend on the advice of each scheme actuary at the time of compiling the scheme’s accounts.

Full buy-out estimates are only published by the PPF for the financial year. To estimate them at the end of each calendar year, the ONS uses the Purple Book figures to calculate the ratio of full buy-out liabilities to s179 liabilities at the end of the financial year. This ratio is applied to the figure for s179 liabilities at the end of the calendar year, which is published in the PPF’s [7800 index](#).

In respect of Rows 2 to 9 of Table 29, Column B Part A:

- Row 2.4 of Table 29 (household contribution supplements) is calculated as Row 1 multiplied by discount rate – the ONS uses a representative market-based nominal discount rate based on yields on 15-year fixed interest gilts (UK government bonds), which is compiled each year from published indices; in 2018, this representative rate was 1.6%, down from 2.2% in 2015 and 4.4% in 2010.
- the other “transactions” rows (except Row 2.2, which is the residual in the model - see final bullet point) are compiled using data from the ONS’s MQ5 Pension Funds Survey; the appropriate MQ5 uplift factor is used to correct for incompleteness in the sampling frame.
- the “other flows” rows are compiled by estimating: for Row 8, year-to-year changes in the discount rate and other financial assumptions; and for Row 9, changes in the PPF’s valuation assumptions, which pension schemes are required to use when reporting s179 estimates (mainly life expectancy) and an estimate of annual write-offs associated with the reduced entitlements of deferred members of schemes moving into the PPF (see: Adjustment for schemes in the PPF).
- Row 2.2 “employer imputed social contribution” is the balancing item, calculated as a residual after taking into account all other changes.

## **Adjustment for schemes in the PPF**

If pension schemes have moved or are likely to move into the PPF because the sponsoring employer has become insolvent, their liabilities are not captured in the Purple Book or MQ5 Pension Funds Survey estimates. However, the PPF annual reports contain estimates for the value of these schemes’ transactions and balances, and the 2018 Column B estimates have been adjusted to include them. If the scheme has moved into PPF, the entitlements of pensioner members are fully covered by the PPF arrangements; for deferred (preserved) members, entitlements fall to around 90% of their previous value.

## **Assumptions and methodologies applied**

### **Discount rate**

There is no single rate used to compile the accounts of the 5,400 private sector DB schemes: each actuary uses an appropriate rate at the time of compiling the accounts, following regulatory requirements (see Type and structure of the calculation model). To calculate Row 2.4, the ONS uses market-based nominal discount rates based on 15-year fixed interest gilt yields; these are representative discount rates compiled by the ONS each year from published indices.

### **Wage growth**

Depends on scheme actuary’s decision, taking into account scheme characteristics.

### **Valuation method: ABO or PBO**

All DB entitlements that are estimated using data from employee schemes incorporate the PBO approach because this is the standard approach used by scheme actuaries in the UK.

## **Data used to run the model**

## **Mortality tables**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## **Entitlement statistics; other relevant statistics**

Not applicable.

## **Reforms incorporated in the model**

Some of the 5,400 schemes in Column B had negotiated changes in scheme structure, but no data are available.

## **Specific assumptions**

### **How are careers modelled?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

### **How are survivor pensions calculated?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

### **How is the retirement age modelled over time?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## **Other specific features of the model**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## **Any other comments**

### **Transfers out of Column B, Part A**

Net transfers of Column B, Part A, were large and negative in 2018. Transfers out were predominantly the result of [buy-in and buyout deals](#) made between DB occupational pension schemes and life insurance firms to transfer risk from the pensions schemes to the life insurers. These amounts are also recorded as bulk purchase annuity transfers in to Column B, Part B, and therefore cancel each other out for Column B as a whole. However, individual DB pension entitlements may be transferred out of S.129 via Cash Equivalent Transfer Value (CETV) transfers. Money transferred out in this way may be invested in a UK pension, which may be employment-related (in scope of Table 29) or an individual personal pension (out of scope). It may also be transferred abroad via a [Qualifying Recognised Overseas Pension Scheme](#) (QROPS).

## Comparisons with the core national accounts

Row 2.2 is calculated for Table 29 using the “first best” method, in which this row is the balancing item. The results are different from those currently appearing in Row D6121 of the core accounts, which is calculated using a “second best” method permitted under the European System of Accounts 2010 (ESA 2010).

In theory, the D8 adjustment for the changes in pension entitlements in the core accounts, which feeds into the calculation of household savings and the household saving ratio, should be equal to Row 5 in Table 29. However, as D6121 (Column B, Part A) and D622 (Column A and Column B, Part B) in the core accounts differ from Rows 2.2 and 4 respectively in Table 29, the D8 adjustment in the core accounts is not consistent with Table 29, Row 5.

The ONS is working on a project to introduce the improvements included in Table 29 into the core national accounts. This requires redevelopment of the systems for S.12. Until the improvements have been implemented in the core accounts, there will be differences between the core accounts estimates and the Table 29 estimates based on the new sources and methods described here.

## 4 . Column B, Part B, fact sheet

### General description of the scheme and the calculation model

#### Coverage of the scheme

For Table 29, annuities paid out by life insurance companies in S.128 in respect of workplace pensions are treated as defined benefit (DB) pensions and reported in Column B because the life insurer assumes the risk and retirees receive a defined pension benefit. Column A comprises only pension entitlements relating to the accumulation phase of defined contribution (DC) schemes and related retirement products such as Income Drawdown.

In the UK, pension annuities represent a significant proportion of S.128 Insurance Corporations reserves and benefit payments. Specifically, they comprise:

- decumulation phase entitlements of what were originally (in the accumulation phase) DC pensions provided by insurers
- entitlements originally relating to occupational pension schemes, which have been transferred to insurers to be paid as annuities in the decumulation phase

#### Institutional set-up

#### Data sources and suppliers

Over the past three years we have made important improvements to our Column B, Part B, estimates using regulatory data on bulk purchase annuities and individual pension annuities collected under the Solvency II regime by the insurance companies' regulator, the Prudential Regulation Authority.

Data from Solvency II Template 9 are used for Rows 2.4 and 8 and data from Template 14 are used for the other rows. Some assumptions are made to allocate the data (see: Type and structure of the calculation model).



Row 2.5 is calculated according to the guidance for calculating life insurance output in the European System of Accounts (ESA) 2010 manual paragraphs 16.52 to 16.54.

## **Which institution is running or managing the calculations?**

Office for National Statistics (ONS)

## **Major formulas**

### **Benefit formula**

Calculated for each beneficiary individually by the insurance company using annuity rates and other factors.

### **Indexation of benefits**

Depends on type of annuity chosen by the retiree – may be indexed or not.

## **Type and structure of the calculation model**

Pension annuities are provided as individual products by insurers, so the figures for DB pensions in S.128 cannot be produced using a DB pension scheme actuarial model. Instead, they are calculated using the aggregated regulatory data for life insurers' bulk purchase pension annuity and individual pension annuity business.

For S.128, when using the regulatory data from Solvency II, some assumptions are made. The main assumptions are:

- Solvency II Template 14 data separately identifies bulk purchase annuities. We assume that all bulk purchase annuities come from workplace pensions.
- Individual pension annuities, on the other hand, may have originated from “group” (in scope) or “individual” (out of scope) pensions; we split the data using assumptions based on information about the accumulation phase in order to exclude the element coming from individual pensions.
- Insurance premiums relating to pension annuities in Template 14 are treated as being transfers in because it is not possible to make contributions to annuities; similarly, insurance claims relating to pension annuities are treated as benefits because it is not possible to transfer out of annuities.
- Template 9 data used for Rows 2.4 and 8 is apportioned to Column B, Part B, based on share of reserves.

Adjustments are made to Rows 1 and 10 to remove reserves relating to buy-ins to avoid double counting of household pension entitlements. This is because buy-ins involve a deal between entities in S.128 (a life insurer) and S.129 (a pension scheme/fund) where the pension scheme pays a premium to the insurer, which includes the assets backing the liabilities for a group of members. This premium is added to S.128 liabilities and recorded in S.128 reserves, but the liability of S.128 in respect of the buy-in is towards the pension scheme trustees in S.129, not towards households. The legal responsibility for paying the pensions to households remains with S.129. For the purposes of estimating household pension entitlements in Table 29 we should only count the S.129 liability, not the internal arrangement within S.12 between the insurer and the pension fund. It should be noted that this adjustment is only required for buy-ins, not for buyouts where the liabilities are transferred completely from the pension fund in S.129 to the insurer in S.128 and no relationship remains between the two sides.

It should also be noted that:

- as the approach taken here is not based on an actuarial model, Row 2.4 is a proportion of investment income rather than Row 1 multiplied by discount rate
- Row 8 is revaluations as recorded by life insurers, not changes in financial assumptions (not a balancing item)

The following lines are not populated for Column B Part B:

- Rows 2.1 to 2.3 because it is assumed that there are no contributions to annuities
- Rows 7 and 9 because although we are treating annuities as DB, there are no actuarial calculations

## **Assumptions and methodologies applied**

### **Discount rate**

Not applicable

### **Wage growth**

Not applicable

### **Valuation method: ABO or PBO**

Not applicable

## **Data used to run the model**

### **Mortality tables**

Not known – calculations are done by the insurance companies

### **Entitlement statistics; other relevant statistics**

Not known – calculations are done by the insurance companies

## **Reforms incorporated in the model**

Not applicable

## **Specific assumptions**

## **How are careers modelled?**

Not applicable

## **How are survivor pensions calculated?**

Not known – calculations are done by the insurance companies

## **How is the retirement age modelled over time?**

Not applicable

## **Other specific features of the model**

Not applicable

## **Any other comments**

### **Transfers into Column B, Part B**

Net transfers into Column B, Part B were large and positive in 2018. Individual transfers from Column A, when pension pots are sold at retirement in order to buy annuities, accounted for part of the transfers in to Column B, Part B. However, almost 90% related to buy-ins and buyouts which appear as transfers in to life insurers' bulk purchase pension annuities. These group or bulk transfers come from Column B, Part A, and cancel each other out in the estimates for Column B as a whole.

### **Comparisons with the core national accounts**

The Solvency II data used for Table 29 enables us to separate transfers out from benefit payments in Column A and Column B, Part B. This is not possible with the data feeds currently used for the core accounts, producing an overestimate of pension benefits (D622) provided by insurance companies.

In theory, the D8 adjustment for the changes in pension entitlements in the core accounts, which feeds into the calculation of household savings and the household saving ratio, should be equal to Row 5 in Table 29. However, as D6121 (Column B, Part A) and D622 (Column A and Column B, Part B) in the core accounts differ from Rows 2.2 and 4 respectively in Table 29, the D8 adjustment in the core accounts is not consistent with Table 29, Row 5.

The ONS is working on a project to introduce the improvements included in Table 29 into the core national accounts. This requires redevelopment of the systems for S.12. Until the improvements have been implemented in the core accounts, there will be differences between the core accounts estimates and the Table 29 estimates based on the new sources and methods described here.

## **5 . Column E fact sheet**

### **General description of the scheme and the calculation model**

## Coverage of the scheme

Column E comprises estimates for funded defined benefit (DB) pension schemes where the “pension manager” has been classified to central government (S.1311) or local government (S.1313) by the Office for National Statistics (ONS) [Economic Statistics Classifications Committee](#). For 2018, the following schemes are included:

- Local Government Pension Scheme, or LGPS (England and Wales, Northern Ireland and Scotland)
- Transport for London Pension Scheme
- BBC Pension Scheme
- National Museum Wales Pension Scheme
- National Library Wales Pension Scheme
- Mineworkers’ Pension Scheme
- British Coal Staff Superannuation Scheme
- Audit Commission Pension Scheme
- Bradford and Bingley Pension Scheme
- Northern Rock Asset Management Pension Scheme
- (Sections of the) Railways Pension Scheme

Column E schemes are mainly for public sector employees, but include a small proportion of private sector employees, particularly in the case of schemes where local government is the pension manager.

These schemes are contributory (although some are “frozen” schemes that no longer receive contributions) and membership is voluntary. They are provided by employers as a way of encouraging pension saving. This form of pension provision is in addition to the State Pension, although in the past some of the benefits were seen as replacing the state earnings-related Additional Pension (AP) through the mechanism of “contracting out”, which allowed non-State Pension schemes to reduce contributions to the AP if they provided members with a pension at least as good as they would have got by remaining in the AP.

These schemes provide old age pensions and, subject to specific scheme rules, pensions for survivors and early retirement pensions in cases of ill health.

## Institutional set-up

## Data sources and suppliers

The methodology for producing estimates is complicated. It is based on the results of actuarial modelling for each scheme’s triennial valuations and annual resource accounts, with adjustments made to meet the specifications of Table 29 (in particular, conversion of liabilities from a scheme-specific discount rate basis to the common discount rate basis used for government-managed pension schemes).

Data are compiled from schemes' accounts and valuations on a scheme-by-scheme basis. Although we have data for the largest scheme in this column – the LGPS England and Wales – and for some of the other schemes, there are a number of data gaps, particularly in relation to the actuarial estimates, which affect our estimates of liabilities in Rows 1 and 10 and “other flows” in Rows 8 and 9.

## **Which institution is running or managing the calculations?**

Office for National Statistics (ONS)

## **Major formulas**

### **Benefit formula**

Scheme-specific, on final salary and career average bases.

### **Indexation of benefits**

Consumer Prices Index (CPI) inflation

## **Type and structure of the calculation model**

There are three approaches used to produce the estimates:

- where schemes have triennial valuations
- where schemes have annual resource accounts
- where schemes have limited data

Where schemes have triennial valuations: the UK Government Actuary's Department has assisted with compiling a “roll forward” method (documented in [articles published in 2011 to 2012](#)), which takes the figures from triennial scheme valuations and produces annual estimates. This method uses a combination of:

- information from the scheme's most recent triennial valuation (total liabilities, Standard Contribution Rate, pensionable pay and important financial assumptions)
- information collected annually (employer and employee contributions, benefits payable and transfers)

Where schemes have annual resource accounts: this method takes figures from the accounts for contribution rates, benefits and transfers and uses financial assumption relationships to derive consistent estimates for liabilities and imputed employer contributions.

Where schemes have limited data: this method takes estimates from any available sources such as resource accounts, annual reports and survey information to compile the transaction lines such as contributions, benefits and transfers. Other lines are modelled.

For schemes that have triennial actuarial valuations, liabilities (Rows 1 and 10) can be converted onto the “common discount rate” basis (2% real, 4% nominal). For schemes without such valuations, conversions to the common discount rate rely on simplified assumptions and uplifts.

## **Assumptions and methodologies applied**

### **Discount rate**

Column E uses a 4% stable nominal discount rate (the common discount rate for government-managed pension schemes in Table 29). The discount rate can be varied for sensitivity analysis and this has been done to produce results for Table 2901 (base case discount rate minus 1%, that is, 3% nominal) and Table 2902 (base case discount rate plus 1%, that is, 5% nominal).

### **Wage growth**

Depends on scheme actuary’s decision, taking into account scheme characteristics.

### **Valuation method: ABO or PBO**

All DB entitlements that are estimated using data from employee schemes incorporate the PBO approach because this is the standard approach used by scheme actuaries in the UK.

## **Data used to run the model**

### **Mortality tables**

Depends on scheme actuary’s decision, taking into account scheme characteristics.

### **Entitlement statistics; other relevant statistics**

Not applicable

## **Reforms incorporated in the model**

The main negotiated change in scheme structure reported in 2018 was for the BBC Pension Scheme, which made changes to terms and conditions for retirement benefits, resulting in a credit for years of service already given.

## **Specific assumptions**

### **How are careers modelled?**

Depends on scheme actuary’s decision, taking into account scheme characteristics.

## **How are survivor pensions calculated?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## **How is the retirement age modelled over time?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## **Other specific features of the model**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## **Any other comments**

Some figures in Column E are currently estimated and may be adjusted following publication of the next set of triennial valuations.

# **6 . Column G fact sheet**

## **General description of the scheme and the calculation model**

### **Coverage of the scheme**

Unfunded defined benefit (DB) employee pension schemes in the UK cover pension schemes for government employees, of which the main schemes are those for: civil servants, teachers, National Health Service employees, members of the Armed Forces, police officers, firefighters, the judiciary, members of the security services (MI5 and MI6), UK Atomic Energy Authority employees, DFID overseas employees and those working for the Research Councils. The Royal Mail Statutory Pension Scheme is recorded in Column G from 2012.

These schemes are contributory, and membership is voluntary. They are provided by employers as a way of encouraging pension saving. This form of pension provision is in addition to the State Pension, although in the past some of the benefits were seen as replacing the state earnings-related Additional Pension (AP) through the mechanism of "contracting out", which allowed non-State Pension schemes to reduce contributions to the AP if they provided members with a pension at least as good as they would have got by remaining in the AP.

These schemes provide old age pensions and, subject to specific scheme rules, pensions for survivors and early retirement pensions in cases of ill health.

### **Institutional set-up**

### **Data sources and suppliers**

Data are compiled from the schemes' published annual resource accounts on a scheme-by-scheme basis, except in the case of the police and firefighters' pension schemes, which do not consistently publish such accounts.

Actual contributions and benefits lines (Rows 2.1, 2.3 and 4 of Table 29) come from a direct data feed from Her Majesty's Treasury.

## **Which institution is running or managing the calculations?**

Office for National Statistics (ONS)

## **Major formulas**

### **Benefit formula**

Scheme-specific, on final salary and career average bases.

### **Indexation of benefits**

Consumer Prices Index (CPI) inflation – the same inflation assumption is used in all resource accounts (for example, at 31 March 2018 it was 2.45%).

## **Type and structure of the calculation model**

The Government Actuary's Department have advised on a "resource accounts" method (documented in [articles published in 2011 to 2012](#)), which takes the figures from the schemes' annual resource accounts and converts them from the resource accounts discount rate onto the common discount rate basis (2% real, 4% nominal) used in Table 29. The resource accounts discount rate varies from year to year but is the same for all resource account schemes (for example, at 31 March 2018 it was 0.1% real for all schemes).

For the police and firefighters' pension schemes the data (other than actual contributions and benefits) are unavailable or incomplete, so we use an uplift for Table 29 Rows 1, 2.5, 6 to 9 and 10. These schemes accounted for an estimated 12% of total entitlements at end-2018.

## **Assumptions and methodologies applied**

### **Discount rate**

Column G uses a 4% stable nominal discount rate (the common discount rate for government-managed pension schemes in Table 29). The discount rate can be varied for sensitivity analysis and this has been done to produce results for Table 2901 (base case discount rate minus 1%, that is, 3% nominal) and Table 2902 (base case discount rate plus 1%, that is, 5% nominal).

### **Wage growth**

The same assumption is used by all "resource account" schemes (for example, at 31 March 2018 it was 3.95% nominal, 1.5% real).



## **Valuation method: ABO or PBO**

All DB entitlements that are estimated using data from employee schemes incorporate the PBO approach because this is the standard approach used by scheme actuaries in the UK.

## **Data used to run the model**

### **Mortality tables**

Depends on scheme actuary's decision, taking into account scheme characteristics.

### **Entitlement statistics; other relevant statistics**

Service charge: some Column G schemes have started to calculate administration and management charges. Where these are recorded in the scheme accounts as being met from employer contributions, we have included them in Row 2.5 of Table 29.

## **Reforms incorporated in the model**

The figure reported in Row 7 in 2018 relates mainly to amounts recognised in the resource accounts in relation to the McCloud and Sargeant legal cases, which claimed that transitional protection arrangements of some schemes were discriminatory. After the Supreme Court ruled that there was some unlawful discrimination, Column G schemes were required to remedy differences in treatment.

A small part of the figure in Row 7 relates to changes to the Guaranteed Minimum Pension (GMP). GMP refers to a system in place between 1978 and 1997 under which DB pension schemes could be "contracted out" of the state earnings-related Additional Pension (AP) if they provided members with a pension at least equivalent to what they would have got by remaining in the AP.

The government announced in March 2016 that GMPs would be fully indexed in line with the Consumer Prices Index (CPI) for a transitional cohort, following the end of AP in April 2016. Although there has been no final agreement on how to recognise the schemes' obligations to index and equalise pension entitlements of those with a GMP entitlement, interim adjustments have been made by scheme actuaries.

## **Specific assumptions**

### **How are careers modelled?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

### **How are survivor pensions calculated?**

Depends on scheme actuary's decision, taking into account scheme characteristics.

## How is the retirement age modelled over time?

Depends on scheme actuary's decision, taking into account scheme characteristics.

## Other specific features of the model

Depends on scheme actuary's decision, taking into account scheme characteristics.

## Any other comments

Although the method used to compile Column G does not rely on triennial valuations, it may be possible to improve the estimates for Rows 2.2, 8 and 9 following publication of the next set of triennial valuations.

# 7 . Column H fact sheet

## General description of the scheme and the calculation model

### Coverage of the scheme

In the UK, Column H covers all State Pension schemes, specifically: the Basic State Pension (BSP), the Additional State Pension (AP), the legacy Graduated Retirement Benefit Scheme (GRAD) and the new State Pension (nSP) for people retiring from 6 April 2016. Together, these schemes provide “the State Pension”.

The BSP and nSP are based on qualifying years accumulated by individuals through payment of mandatory National Insurance (NI) contributions. In certain circumstances, such as unemployment and caring for others, qualifying years may be “credited” although no NI contributions have been paid. AP is an earnings-related contributions-based pension for some employees under the system in place up to 5 April 2016.

In theory, coverage of the State Pension is universal or near-universal. However, some people receive only a partial State Pension and there are a small number of cases where no State Pension is received. In such cases, individuals may qualify for social assistance programmes, including [Pension Credit](#), which are beyond the scope of Table 29.

### Institutional set-up

### Data sources and suppliers

The data used in the Department for Work and Pensions' (DWP's) models are a combination of DWP administrative records and data from Her Majesty's Revenue and Customs' (HMRC's) NI Recording System. Further details are provided in Sections 9 to 13 of the article [Pensions in the national accounts: UK Table 29 methodology](#).

To compile the actual contributions lines (Rows 2.1 and 2.3), data from HMRC on NI contributions paid by employers and employees in respect of State Pensions are used.

## Which institution is running or managing the calculations?

DWP and the Office for National Statistics (ONS): the estimates in this column are produced by the DWP State Pension models with the exception of the actual contributions lines, which are compiled by the ONS using NI contributions data from HMRC.

## Major formulas

### Benefit formula

For people retiring before 6 April 2016:

- BSP provides a flat-rate pension; full BSP is £134.25 per week for a single person in financial year ending April 2021 – from 6 April 2010, people required 30 qualifying years to receive the full amount, with partial BSP paid as “1/30th of the full rate multiplied by number of qualifying years” for those with fewer than 30 years
- AP is an additional, earnings-related State Pension that could be built up by employees (for details of how entitlements are modelled as accruing in relation to earnings, see [December 2011 state pensions methodology article](#))
- GRAD was a forerunner of AP to which it was possible to contribute between 1961 and 1975
- people could choose to defer receipt of their State Pension and might choose to receive a deferral lump sum payment

The Pensions Act 2014 introduced the nSP from 6 April 2016. The full rate of the nSP was £175.20 per week in financial year ending April 2021. Under the new system, people need at least 10 qualifying years to receive any State Pension. Those with no NI record before 6 April 2016 will receive the full amount if they have 35 years of NI contributions when they reach State Pension age (SPA). Partial nSP is paid at a rate of 1/35th of the full amount for each qualifying year for those with more than 10 but fewer than 35 years. Under the nSP system, there are no deferral lump sum payments available.

There are transitional arrangements in place for those with NI contributions from before 6 April 2016. For people reaching SPA on or after 6 April 2016, a “starting amount” calculation is used to work out a person’s entitlement to the nSP from their NI record up to 6 April 2016. With effect from 6 April 2016, the amount that the individual would have received under the existing State Pension rules is calculated (including BSP, AP and predecessor arrangements).

The amount they would have received if the nSP had been in place at the start of their working life is also calculated (as 1/35th of the full nSP amount for each qualifying year, minus any contracted-out deduction).

The higher of these two amounts is the individual’s starting amount for the nSP. Where a person’s starting amount is higher than the full amount of the nSP, they will receive the full nSP amount plus a Protected Payment; this is the excess of their “starting amount” above the full weekly rate of nSP.

## Indexation of benefits

For the 2018 accounts, the assumptions used for indexation (“uprating”) of BSP and nSP pension benefits come from the Office for Budget Responsibility (OBR)’s Economic and Fiscal Outlooks of [March 2019](#) (medium-term assumptions up to financial year ending 2025) and [March 2020](#) (long-term assumptions from financial year ending 2026). The long-term uprating assumption was 4.07% each year from the financial year starting in April 2025, which represented earnings plus a “triple lock premium” of 0.36% (reflecting the government’s policy of uprating State Pension benefits by whichever is higher of earnings, Consumer Prices Index (CPI) inflation or 2.5%).

AP is uprated in line with CPI inflation from SPA.

## Type and structure of the calculation model

The estimates for Column H come from DWP’s State Pensions forecasting models, which comprise:

- the model used for the pre-2016 State Pension, comprising BSP, AP, GRAD and lump sum payments
- the model used for the “new State Pension” (nSP), introduced by the Pensions Act 2014

Both the pre-2016 State Pension model and the nSP model are used to produce the estimates for 2018. These models are used for DWP’s long-term expenditure projections, which feed into the OBR’s [Fiscal Sustainability Reports](#), and for DWP’s impact assessments. However, they are adapted to produce estimates for Table 29, which requires accrued-to-date (closed system) estimates rather than fiscal sustainability (open system) estimates.

As the accrued-to-date approach does not take into account pension entitlements that will be built up in future by today’s workers and future contributors, the results are not directly comparable with those published in the OBR’s Fiscal Sustainability Reports and DWP’s impact assessments, which take future accruals into account.

Sections 9 to 13 of the article [Pensions in the national accounts: UK Table 29 methodology](#) provide a full description of the compilation of Column H, including the DWP models.

## Assumptions and methodologies applied

### Discount rate

The discount rate used in the DWP model is 4% nominal (the common discount rate for government-managed pension schemes in Table 29). The discount rate can be varied for sensitivity analysis and this has been done to produce results for Table 2901 (base case discount rate minus 1%, that is, 3% nominal) and Table 2902 (base case discount rate plus 1%, that is, 5% nominal).

### Wage growth

Wage growth in the DWP model is based on the assumptions used for the government’s fiscal sustainability forecasts.

## **Valuation method: ABO or PBO**

Not applicable – see sections 9 to 13 of [Pensions in the national accounts: UK Table 29 methodology](#)

## **Data used to run the model**

### **Mortality tables**

Based on [ONS 2018-based national population projections](#).

### **Entitlement statistics; other relevant statistics**

See sections 9 to 13 of [Pensions in the national accounts: UK Table 29 methodology](#)

## **Reforms incorporated in the model**

None in 2018; for other years, see Section 10 of article [Pensions in the national accounts, a fuller picture of the UK's funded and unfunded pension obligations: 2010 to 2015](#).

## **Specific assumptions**

### **How are careers modelled?**

Not applicable – see Sections 9 to 13 of [Pensions in the national accounts: UK Table 29 methodology](#)

### **How are survivor pensions calculated?**

In the pre-2016 state pension model, initial amounts of state pension are adjusted for changes in pensioners' lives after SPA including those which give rise to survivor pensions, see [December 2011 state pensions methodology article](#). Survivor pensions do not exist in the nSP model because every individual qualifies for state pension entitlement in their own right.

### **How is the retirement age modelled over time?**

The retirement age is modelled as legislated at the time of each set of accounts. The precise dates of the changes associated with the 1995, 2011 and 2014 Pensions Acts are shown [here](#).

### **Other specific features of the model**

See sections 9 to 13 of [Pensions in the national accounts: UK Table 29 methodology](#)

## Any other comments

The state pension does not include disability benefits, which are provided by social assistance programmes.

## 8 . Column K fact sheet

### General description and the calculation model

#### Coverage of the scheme

Calculations are made in respect of all other columns: C (A plus B), E, G and H.

#### Institutional set-up

#### Data sources and methods

This column is estimated using proportions based on data from the following sources:

- for Columns A, B, E and G: overseas membership of private sector and public sector occupational pension schemes as reported in ONS's [Occupational Pension Schemes Survey \(OPSS\)](#)
- for Column H: the value of pensions paid to people living outside Great Britain as a proportion of the total from the Department for Work and Pensions' (DWP's) [Benefit expenditure tables](#); and secondary sources (independent research reports)

#### Which institution is running or managing the calculations?

Office for National Statistics (ONS).

## 9 . Related publications

[Pensions in the national accounts, a fuller picture of the UK's funded and unfunded pension obligations: 2018](#)

Article | Released 8 February 2021

End-2018 estimates of the total entitlement of households in the UK and abroad to pensions provided by UK government, pension funds and insurance companies.