



A National Statistics publication for Scotland



The Scottish
Government
Riaghaltas na h-Alba

ECONOMY AND LABOUR MARKET

Regional Employment Patterns in Scotland:

Statistics from the Annual Population Survey 2017

Technical Annex

Contents

1. About the Annual Population Survey	2
2. Using APS data	6
3. Confidence Intervals	8

1. About the Annual Population Survey

◆ What is the APS and what is it used for?

The Annual Population Survey (APS) combines results from the Labour Force Survey (LFS) and the English, Welsh and Scottish Labour Force Survey boosts. The boosts increase the sample size which means the APS can provide more robust labour market estimates for local areas compared to the main LFS. Thus the APS is the primary source for information on local labour markets providing headline estimates on employment, unemployment and economic inactivity. The APS is the largest annual household survey in Scotland and provides a wealth of information about individuals' personal circumstances and their work.

Information from the APS is used by the Scottish Government to inform government targets and policies. Some of the many external users of the APS include Local authorities, Scottish Enterprise, Highlands & Islands Enterprise, Skills Development Scotland, Higher & Further Education sector. Uses include monitoring targets, statistical analysis, policy development and briefing.

◆ National Performance Framework

The APS is the source of information for 2 of the Scottish Government's Purpose targets and 2 of the 50 national indicators in the Government's National Performance Framework. Information on progress against these targets and national indicators can be found on the following webpage:

<http://www.gov.scot/About/Performance/scotPerforms>

The APS is also used as a source for two of the Key Performance Indicators for Developing the Young Workforce which were developed based on recommendations from the Wood Commission.

Purpose Targets

- ◆ **Participation** - To close the gap with the top five OECD economies by 2017
- ◆ **Cohesion** - To narrow the gap in participation between Scotland's best and worst performing regions by 2017.

National Indicators

- ◆ **Improve the skill profile of the population** - Reduce number of working age people with severe literacy and numeracy problems
- ◆ **Reduce underemployment** – To decrease the number of underemployed workers in Scotland (this indicator was added as part of an update to the National Performance Framework)

KPI's for Developing the Young Workforce

- ◆ **KPI 1** - Be one of the top five performing countries in the EU for youth unemployment by reducing the relative ratio of youth unemployment to 25-64 unemployment to the level of the fifth best country in the EU by 2021.
- ◆ **KPI10** - Increase the employment rate for disabled young people to the population average by 2021

◆ **What topics are available?**

A wide range of topics are included in the survey:

- Economic Activity (present or past)
- Employment in main job and second jobs
- Working conditions (hours, work pattern etc.)
- Reasons why people are not in the labour force
- Geographical mobility
- Education and training
- Health
- Childcare
- Income
- Individual and household characteristics
- Veterans

◆ **How and when is the survey conducted?**

The Office for National Statistics (ONS) carries out the LFS and associated boosts.

The APS datasets are based on calendar quarters and are produced quarterly on a rolling annual basis (covering 12 months of data). So the four annual APS datasets produced by ONS each year cover the periods January to December, April to March, July to June and October to September.

The APS data use the existing continuous quarterly LFS in addition to annual enhancements. In the quarterly LFS, each person in a selected household is interviewed five times at 13-week intervals. In any three-month period, about a fifth of the sample are being interviewed for the first time, another fifth are receiving their second interview and so on, with 20% being interviewed for the fifth and final time. Each of these roughly equal groups is termed a wave i.e. 'wave 1' refers to those people having their first interview.

◆ **Who takes part in the survey?**

The LFS surveys individuals living at private households in the UK and is designed to be representative of the national population.

The Scottish Government funds the boost to the LFS sample in Scotland, taking the sample size from approximately 5,000 households each year to 17,000 households.

The target sample size in each local authority is 675 economically active adults except for Clackmannanshire (250); Dumfries and Galloway (700); East Dunbartonshire (700); East Lothian (600); East Renfrewshire (600); Inverclyde (600); Midlothian (600); Moray (600); Na h-Eileanan Siar, Orkney Islands and Shetland Islands (600); Stirling (600) and West Dunbartonshire (700).

◆ **Revision of estimates**

Estimates for the APS for Jan-Dec 2012 to Jan-Dec 2015 were reweighted based on latest mid-year estimates in June 2016. Consequently, this has had some impact on historical estimates and the estimates for these years may differ from previously published results. Further reweighting of the survey will occur annually, although not all years will be reweighted.

◆ **How reliable are the results?**

As survey results, these are subject to a degree of error and implied changes between years which may not be significant and instead be within a given error range. Confidence limits for estimates should be taken into account, especially for changes over time. Annex B provides more information and confidence limits are included in the web tables for each indicator.

◆ **Interaction of labour market statistics**

The three main labour market indicators - employment, unemployment and economic inactivity – are all inter-related. Increases in employment rates are likely to result in corresponding decreases in either or both unemployment and economic inactivity rates (as an increase in employment means there should be less unemployed or inactive people). However, more subtle interactions exist. It is possible for a shift in people between employment and inactivity to change the unemployment rate, even though there has been no change in the actual number of people unemployed. This is because the unemployment rate is based against the economically active population (those in employment plus those unemployed) as opposed to the total relevant population. The same effect does not occur for employment and inactivity rates because they are based against the total relevant population.

◆ **Residence, Households and Workplace based statistics**

The information and data presented in this publication is predominantly based on residence based statistics – that is, the statistics relate to the characteristics of residents of a geographical area. These statistics do not give information about the number of jobs or people employed within a local area as this will be different to the number of employed people living within the same area (due to people commuting in and out of the area for work). This is covered briefly in the section on Commuting patterns in the Employment chapter.

Workplace based statistics are available from the APS. These are freely available from Nomis at:

<http://www.nomisweb.co.uk/>.

Employer surveys, such as the Business Register Employment Survey (BRES) and Workforce Jobs are workplace based, relating to an employer's specific business locations. These surveys do not gather any corresponding residence based data (unlike the APS).

Household surveys differ from individual surveys in that the main unit of measure is the household. These surveys can be used to gather information about the different household characteristics within the country, especially in regards to working and workless households. This report does not publish household estimates. These are available from Nomis at:

<http://www.nomisweb.co.uk/>.

◆ **Hours and Earnings statistics**

The APS records self-reported hours and earnings data (including usual and actual hours worked, usual and actual pay, gross and net income, overtime and bonuses). However, the data is self-certified (there is no check with employer or HMRC to check the data is accurate), and the respondent can choose not to answer these questions.

The LFS and APS are the official sources for usual and actual hours worked. These statistics are presented in ONS's monthly first releases for the UK (sourced from the LFS) and for the regions of the UK (sourced from the APS)

The official source for data on earnings is the **Annual Survey of Hours and Earnings** (ASHE). Data for ASHE is available from:

<http://www.nomisweb.co.uk/>.

<http://www.gov.scot/Topics/Statistics/Browse/Labour-Market/AnalyticalPapers/ASHESGAnalysis>

<http://www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/annual-survey-of-hours-and-earnings/index.html>

2. Using APS data

◆ How data are displayed in Tables

In this publication, all levels are rounded to the nearest hundred (excluding estimates of NEET, which are rounded to the nearest thousand, due to small sample sizes). Proportions and changes in proportions over time are calculated on unrounded figures and are rounded to the first decimal place. Totals may not equal the sum of individual components due to rounding. All results are based on the area of residence unless otherwise stated.

* indicates data are suppressed as estimates are below the reliability threshold.

◆ Data Access

STATISTICS.GOV.SCOT

We are currently working to make selected Scotland and local authority level Annual Population Survey data available free of charge from the Scottish Government's Open Access website:

<http://statistics.gov.scot/>

The site also holds data from a wide range of Scottish Government surveys.

Scottish Government

The Labour Market Statistics Branch at the Scottish Government publishes data from the LFS and APS and other related surveys on their website –

<http://www.gov.scot/Topics/Statistics/Browse/Labour-Market>

Alternatively, tabulations are also available on request:

Labour Market Statistics Branch
Office of the Chief Economic Advisor: Economic Strategy and Policy
Scottish Government
3rd Floor, 5 Atlantic Quay,
150 Broomielaw,
GLASGOW,
G2 8LU
Tel: (0131) 244 6773
Email: lmstats@gov.scot

NOMIS

APS data (including confidence limits) for the whole of the UK and other government office regions are available free of charge from the Nomis[®] website - <http://www.nomisweb.co.uk/>.

The Nomis website also holds data on claimants of benefits, vacancies and employees.

UK Data Archive

APS micro data are available to users through the Data Archive at Essex University. Access to these data is through a 'Special Licence' scheme, which allows access to detailed data provided that the research use is fully described and strict conditions of access are adhered to. More detail is available on the Data Archive website - <http://www.data-archive.ac.uk>.

Office for National Statistics

ONS publish monthly regional labour market statistical which includes a range of labour market indicators for local areas across the UK. The reports can be accessed on their website at:

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/guide-to-tables-in-regional-labour-market-statistical-bulletin>

Headline national and regional statistical bulletins are produced monthly (based on LFS data) and can be accessed from the ONS website at:

<http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Labour+Market>

3. Confidence Intervals

One of the benefits of the boosted data is more reliable estimates for local authority areas. Prior to the boost the reliability threshold in all areas was 6,000. This was to prevent unreliable data being used. Thresholds are calculated so that they are approximately equivalent to suppressing if the standard error of an estimate is greater than 20% of the estimate itself. With the boost, different areas have different thresholds as some areas have larger samples and more variability in results than others (see Table 1).

Table 1: Local authority area reliability thresholds

Local Authority	Reliability Threshold
Aberdeen City	3,000
Aberdeenshire	3,000
Angus	1,000
Argyll & Bute	1,000
Clackmannanshire	1,000
Dumfries & Galloway	2,000
Dundee City	2,000
East Ayrshire	1,000
East Dunbartonshire	1,000
East Lothian	1,000
East Renfrewshire	1,000
Edinburgh, City of	5,000
Falkirk	2,000
Fife	4,000
Glasgow City	5,000
Highland	2,000
Inverclyde	1,000
Midlothian	1,000
Moray	1,000
North Ayrshire	1,000
Na h-Eileanan Siar	1,000
North Lanarkshire	4,000
Orkney Islands	1,000
Perth & Kinross	2,000
Renfrewshire	2,000
Scottish Borders	1,000
Shetland Islands	1,000
South Ayrshire	1,000
South Lanarkshire	4,000
Stirling	1,000
West Dunbartonshire	1,000
West Lothian	3,000

As survey results, these are subject to a degree of error and implied changes over the years may not be significant and instead be within a given error range. Confidence limits can be used to assess the range of values that the true value lies between. The web tables include 95% confidence limits for each indicator.

What does the 95% confidence limit mean?

If, for example, we have an APS estimate and confidence limit of 63% +/- 0.27%, this means that 19 times out of 20 we would expect the true rate to lie between 62.73% and 63.27%. Only in exceptional circumstances (1 in 20 times) would we expect the true rate to be outside the confidence interval around the APS estimate. Thus the smaller the confidence limits, the more reliable the estimate.

The confidence limits use a design factor of 1, which may not be likely in some cases but given the lack of further information an average design factor of 1 is assumed to be reasonable. Further information on estimating confidence intervals can be found in the LFS manuals¹.

Using confidence intervals to assess change (statistical significance).

Confidence intervals can be used to assess whether there has been a significant change between two estimates over time. The methodology for determining if a change is statistically significant is detailed in the Methodology Glossary on the Scottish Government web-site within the Tier 2 – Confidence Intervals document, available at: <http://www.scotland.gov.uk/Topics/Statistics/About/Methodology/Glossary>

If the difference between two estimates is said to be statistically significant, it means that only in exceptional circumstances (1 in 20 times) would we expect the true difference to be not significant. It should be noted that statistical significance is a tool used to help detect real change in estimates; it does not say anything about the importance of the change, which needs to be assessed by the user of the statistics in question.

¹ <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=1537&Pos=&ColRank=2&Rank=544>