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Department for Work & Pensions

Guidance

The employment of disabled people: background information and methodology

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Purpose of the statistics

Context of the statistics

In 2017, the government set a goal to see a million more disabled people in work by 2027. The command paper, Improving Lives: the future of work, health and disability, set out the government's intention to monitor progress on the goal by tracking the number of working aged disabled people in employment, as recorded by the Labour Force Survey. It was recognised that a range of statistical information is needed to give a rounded picture of employment trends among disabled people, particularly as disability status and employment status are affected by each other and may change concurrently.

Purpose of the statistics

This publication describes trends over time in employment of disabled people of working age. It looks at the characteristics of people in employment, and flows into and out of work, comparing the experiences of disabled people with non-disabled people.

These statistics allow external stakeholders to examine employment circumstances and trends among working age disabled people in more detail than has previously been publically available.

The statistics include:

- overall trends in employment of disabled people compared with non-disabled people, as measured by: numbers in work, employment rates, the disability employment gap (the difference between the employment rate of disabled people and that of non-disabled people)
- estimates of the factors underlying change in in the number of disabled people in work under different hypothetical scenarios – the components of change
- employment rates for disabled people and non-disabled people according to several individual and work-related characteristics – employment characteristics
- characteristics of people moving into or out of work by disability status

These statistics use and build upon statistics published by the Office National Statistics on the employment of disabled people, as part of its 'Labour Market Overview: UK' release (Table A08), which present overall trends. It uses complementary data sources which enable patterns to be validated, and a broad range of statistics to be presented.

Source of the statistics

The statistics in the report are based on four key data sources:

The Labour Force Survey

The Labour Force Survey (LFS) is a large-scale household survey produced by the Office for National Statistics (ONS) designed to enable monitoring of labour market issues. The sample consists of approximately 40,000 responding UK households and 100,000 individuals per quarter. Respondents are interviewed for five successive waves at three-monthly intervals with 20 per cent of the sample being replaced every quarter. As used in ONS' Labour Market Overview release, the LFS is the source recommended for employment-related statistics, such as estimates of the number of people in employment, and is the key source for trend data on different measures of disability employment.

The Annual Population Survey

The Annual Population Survey (APS) is a continuous household survey, covering the UK. The APS is produced by ONS. It is not a stand-alone survey; it uses data combined from two waves of the main Labour Force Survey (LFS), alongside a local sample boost. The APS is a recommended source for employment statistics for smaller groups of the population.

The two-year longitudinal Annual Population Survey (APS) has been used to examine movements into and out of work. Each individual in the data is interviewed at two time points, one year apart. This allows us to see the number of people changing their employment status over time.

More information on the both the APS and LFS can be found here.

The Family Resources Survey

The Family Resources Survey (FRS) is a continuous household survey which collects information on a representative sample of private households in the United Kingdom. It covers all ages of the population. The survey is an important source of information on household incomes, and disability prevalence across all ages of the population. It is produced by the Department for Work and Pensions.

The FRS is used in this release to validate trend data on disability employment observed in the LFS. However, it's smaller sample size mean it is less suitable for analysing smaller subgroups of the disabled population.

Read more about the FRS.

Understanding Society

Understanding Society (USoc), which is also known as the UK Household Longitudinal Study is, is a longitudinal survey of the members of approximately 40,000 households (at Wave 1) in the United Kingdom. Households recruited at the first round of data collection are visited each year to collect information on changes to their household and individual circumstances. The overall purpose of Understanding Society is to provide high quality longitudinal data about subjects such as health, work, education, income, family, and social life to help understand the long term effects of social and economic change, as well as policy interventions designed to impact upon the general well-being of the UK population. USoc is used in this release to corroborate estimates of movements into and out of work based on the longitudinal APS.

Read more about USoc.

Analysing components of change

The report provides estimates of changes in the number of disabled people under different hypothetical scenarios. The number of disabled people in employment can be considered as the product of the number of disabled people in the working age population and the proportion of those who are in work (their employment rate). In turn, each of these could be broken down further into another two components:

The disabled population is the product of:

- the total working age population, and
- the proportion who are disabled (the disability prevalence rate)

The employment rate of disabled people is influenced by both:

- general labour market trends – as measured by either the overall employment rate or the non-disabled employment rate – and
- how labour market trends differ for disabled people – as measured by the employment rate gap between disabled people and non-disabled peopl

To understand how each of these components might affect the overall number of disabled people in employment, 14 hypothetical scenarios were created, designed to shed more light on this issue, alongside examining actual changes in all four components. Each scenario is based on holding certain components constant at the level or rate observed in January-March 2014 (the baseline for this analysis), while allowing other components to increase in exactly the same way they did in the observed data. This means that the numbers presented are not estimates of real-world outcomes.

Interaction effects are defined as the additional impact on the number of disabled people in work, caused by two or more components of change, over and above the impact of changing each component one at a time.

The 15 different scenarios respectively consider:

Change in one component

1. Disability prevalence only

2. Employment rate gap only

3. Non-disabled employment rate only

4. Working age population numbers only

Interactions between two components of change

5. Both disability prevalence and employment rate gap

6. Both disability prevalence and non-disabled employment rate

7. Both disability prevalence and working age population numbers

8. Both employment rate gap and non-disabled employment

9. Both employment rate gap and working age population numbers

10. Both non-disabled employment rate and working age population numbers

Interactions between three components of change

11. Disability prevalence, non-disabled employment rate and employment rate gap

12. Disability prevalence, non-disabled employment rate and working age population

13. Disability prevalence, employment rate gap, and working age population

14. Non-disabled employment rate, employment rate gap, and working age population

Actual changes in all four components

15. Disability prevalence, non-disabled employment rate and employment rate gap, working age population numbers

For example, scenario 1 models what happens if the disability prevalence rate were to increase to the Jan-Mar 2019 level of 18.5%, while other components remained at their Jan-Mar 2014 levels. Excluding people whose disability status in unknown, in this scenario we have

40.3 million working age population (at Jan-Mar 2014 level)

multiplied by 18.5% disability prevalence (at Jan-Mar 2019 level)

equals 7.4 million working age disabled people (a);

and

78.0% non-disabled employment rate (at Jan-Mar 2014 level)

minus 33.8 percentage points employment rate gap (at Jan-Mar 2014 level)

equals 44.2% disabled employment rate (b).

Multiplying (a) and (b) results in a hypothetical 3.3 million disabled people in work in Jan-Mar 2019, around 325,000 more than in Jan-Mar 2014, as a result of the observed increases in the disability prevalence rate alone.

Considering interactions, for example in scenario 5, the impact of the interaction between the disability prevalence rate and the employment rate gap is calculated from the combined impact of those two components minus the impact of prevalence alone (scenario 1) and impact of the gap alone (scenario 2).

Interaction effects between the non-disabled employment rate and the employment rate gap are zero, because these two components operate independently of one another in this analysis.

The scenarios give a broad idea of the scale of impact from each component. They should not be interpreted as what would have happened in practice, not least because not all interactions between components of change will be captured by this sort of analysis. Nor do the results measure a direct causal relationship between the components of change and the number of disabled people in employment. For example, an increase in disability prevalence could impact on the disability employment gap, even without any changes in employment, if prevalence increased faster among those already in employment than among those out of work.

This analysis is based on annual rather than quarterly intervals in order to avoid sampling and seasonal variations associated with short-term changes. It uses a Q1 (Jan-Mar) baseline so that future releases can include the latest data. However, for this first release it does not yet include the three most recent quarters of data shown in Table 1.1. 2014 was chosen as the baseline because it is the earliest year for which comparable Q1 data is available. Shorter-term comparisons would be more susceptible to sampling error and short-term movements.

Examining movements into and out of employment

The method used to examine movements into and out of employment by disability status, follows that used in previously published statistics, in Annex D of Improving Lives: the future of work, health and disability. It uses the two-wave longitudinal APS, where each individual is interviewed twice, one-year apart. Individuals aged 16 to 64 in both years were selected and their disability and employment status in both of the years were recorded. Observations with missing disability status in the first period were excluded from this analysis.

The analysis registers the disability and employment status in the first interview and the employment status in the second interview, one year later. In other words, it does not measure changes in disability status, but purely changes in the employment status of people who started off disabled or started off not disabled.

The analysis is based on relatively small sample sizes so, to increase robustness, two datasets were analysed, before taking an average of the two sets of estimates. Therefore, the results for 2016-2018 relate to single-year changes that individuals experienced during that two-year time period.

This analysis gives an indication of the relative rates at which disabled people and non-disabled people move in or out of work from one year to the next and there are several caveats to consider, noted below in the section on limitations.

Limitations of the statistics

Breaks and fluctuations in the LFS time series on disability employment

While LFS trend data on disability employment have been available since 1998, the disability questions on the LFS have undergone several changes since 2010, making comparisons over time difficult. Two sets of changes in particular that have resulted in discontinuities in time series:

- in January 2010, a rewording of the introduction to the section of the survey covering disabilities
- in April 2013, changes to the wording of the disability questions in order to bring the LFS more into line with the definitions and questions used in other household surveys in the UK (see Table 1, below)

Consequently, estimates of or based on disability employment rates of levels from 2010 onwards are not directly comparable with those for previous years.

In addition, from 2010 onwards it has been possible to produce estimates for women aged 16-64, after the definition of working age was changed due to state pension age equalisation between men and women. Prior to 2010, estimates for women were only available for those aged 16-59, when women's state pension age was 60.

Quarterly LFS time series statistics on disability employment rates, levels, and the disability employment rate gap are subject to short-term fluctuations, due to seasonal variations and random sampling variation. This includes some unexplained quarterly changes, such as an apparent discontinuity in the number of disabled people recorded in the LFS between Q2 and Q3 2017, which was investigated by the producers of the data, ONS. ONS concluded that while the timing of variation could not be explained, comparisons based on longer-term were valid, and recommended that a more reliable picture of change can be gained from considering longer-term trends.

Read more about Analysis of the large increase in the Labour Force Survey disability data: April to June 2017 to July to September 2017.

All figures are not seasonally adjusted

As noted above, there can be seasonal fluctuations in employment and disability, so any trend data should be interpreted with caution. Same-quarter comparisons between different years are recommended to enable meaningful interpretation of change over time.

Limitations of longitudinal analyses on movements into and out of work

As analyses of movements into and out work are based on longitudinal survey data, from the APS and USoc, the precision and accuracy of these estimates can be affected by response errors, sampling errors and attrition bias.

The analysis does not capture any movements before or after this annual period, or any short-term moves that may have been reversed between the two snapshot interviews. The data gives an indication of the size of the flows into and out of work, from one year to the next.

Due to sample rotation and non-response, the sample sizes of the two-wave longitudinal datasets are smaller than the regular Annual Population Survey. This means that the results from the longitudinal Annual Population Survey differ somewhat from the regular Annual Population Survey, and the results should be treated with some caution.

In addition, in order to capture the labour market experience of all disabled people, the method used to examine movements into and out of work by disability status does not account for changes in disability status. The analysis registers the disability and employment status in the first interview and the employment status in the second interview, one year later. In other words, it holds constant the disability status of the first period. Some people might change their disability status between years one and two. This analysis does not enable us to explore the reasons for any transition into or out of work, or the sequencing between any changes in employment or disability status.

General limitations of survey-based statistics

More generally, estimates in this publication are subject to potential limitations inherent in all surveys, including:

- Survey design: For example, the LFS uses a rotational sampling design, whereby a household, once initially selected for interview, is retained in the sample for a total of five consecutive quarters. The interviews are scheduled to take place exactly 13 weeks apart, so that the fifth interview takes place one year on from the first.
- Sampling error: The fact that only a sample of the population has been selected and a different sample would probably produce a different estimate. This will vary to a greater or lesser extent depending on the level of disaggregation at which results are presented
- Non-response error: Systematic bias due to non-response by households selected for interview. In an attempt to correct for differential non-response, estimates are weighted
- Survey coverage: The error which arises because some units are either excluded or duplicated on the sampling frame used to identify members of the population of interest
- Measurement error: Made up of four types:
  - interviewer error arising from both conscious and unconscious differences in the way interviewers administer a survey, and also from the reactions of respondents to different types of interviewers
  - respondent error arising from the inability or unwillingness of a respondent to produce a correct answer
  - instrument error which reflects the effect of question wording, response categories and form design on responses, and
  - mode error which describes the effect of different methods of administering a questionnaire on the recorded responses
- Processing error: This consists of systems error and data handling error. Systems errors are errors in the specification or implementation of systems needed to carry out surveys and process results; system errors on the LFS can creep in when derived variables are specified and/or amended. Data handling errors are errors in the processing of survey data
- Sample size: Although the APS and LFS have a relatively large sample sizes for a household survey, small sample sizes for particular breakdowns may mean that specific analysis is not robust enough to report

Comparisons between the statistics

As previously noted, these statistics use and build upon statistics published by the Office National Statistics on the employment of disabled people, as part of its Labour Market Overview: UK release (Table A08), which present overall trends.

Information on the Characteristics of disabled people in employment: April to June 2017 has previously been published by DWP.

Analysis of flows into and out of work, were presented in Annex D of Improving Lives: the future of work, health and disability, showing a similar pattern to the current release. In addition, the 2017 Stevenson/Farmer review of mental health and employers contained similar analysis that showed around 300,000 moves out work, from one quarter to the next, among people with a long-term mental health condition. The difference in the approach used in that source is described in Annex D of Improving Lives.

The estimates of employment flows in this release also differ from the 'employment retention' rates published in Health in the workplace: patterns of sickness absence, employer support and employment retention in 2019. The latter focused purely on people whose disability status did not change from one year to the next, whereas this release offers a more complete picture of the disabled population as a whole.

Comparing Family Resources Survey to Labour Force Survey estimates

The FRS uses the same GSS harmonised questions and definition of disability that the LFS has been using since April 2013, and the same definition of employment. However, the estimates published in the Family Resources Survey report cover people below the contemporary State Pension age at the time of interview, which for women has been increasing over time. In contrast, LFS estimates since 2010 have covered all people aged 16-64, for consistency over time. This release analyses FRS data for 16-64 year-olds, for consistency with LFS estimates. The FRS analysis does still exclude dependent children aged 16-19 (defined as those who live with their parents, are not married and are in full-time education), but the impact on comparisons with LFS estimates should be small.

Comparing Understanding Society to longitudinal Annual Population Survey estimates

Understanding Society uses a similar definition of disability to the APS and LFS, but based on different questions.

From April-June 2013, the Labour Force Survey and Annual Population Survey define respondents as disabled if they answer 'yes' to the following two questions:

- Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?
- Does your condition or illness reduce your ability to carry out day-to-day activities?

Understanding Society defines respondents as disabled if they answer yes to the following two questions:

- Do you have any long-standing physical or mental impairment, illness or disability? By 'long-standing' I mean anything that has troubled you over a period of at least 12 months or that is likely to trouble you over a period of at least 12 months.
- Does this/Do these health problem(s) or disability(ies) mean that you have substantial difficulties with any of the following areas of your life?

1 Mobility (moving around at home and walking)

2 Lifting, carrying or moving objects

3 Manual dexterity (using your hands to carry out everyday tasks)

4 Continence (bladder and bowel control)

5 Hearing (apart from using a standard hearing aid)

6 Sight (apart from wearing standard glasses)

7 Communication or speech problems

8 Memory or ability to concentrate, learn or understand

9 Recognising when you are in physical danger

10 Your physical co-ordination (e.g. balance)

11 Difficulties with own personal care

12 Other health problem or disability

Understanding Society uses a similar definition of employment to the APS and LFS, following International Labour Organisation guidelines, but again based on different questions. Details of LFS questions can be found at the link provided above. The Understanding Society analysis counts people as in employment if they respond to the question 'Which of these best describes your current employment situation?' with any of 'paid employment (full-time or part-time)', 'self-employment', 'government training scheme', 'unpaid, family business', 'on maternity leave' or 'on apprenticeship'.

Understanding Society data includes weights to account for non-response bias and sample attrition, but they do not scale up to population levels. The analysis in this release scales the estimates to the total population of individuals aged 16-64 in two consecutive years, as estimated from the longitudinal Annual Population Survey. This total is lower than the 16-64 population in a single year. For consistency with Annual Population Survey data, the scaling is applied before excluding cases who did not report their disability status.

Definitions and terminology within the statistics

Disability

The Government Statistical Service (GSS) harmonised standard definition of disability is used for estimates from Apr-Jun 2013 onwards. In summary the core definition covers people who report: current physical or mental health conditions or illnesses lasting or expected to last 12 months or more; and the conditions or illnesses reduce their ability to carry out day-to-day activities.

DDA-disabled

All people with a long term health problem or disability that limits their day-to-day activities. This applies to any estimates prior to Apr-Jun 2013.

Disability employment gap

The difference between employment rates of non-disabled and disabled groups.

In employment or in work

People of working age who either: did paid work in the reference week (as an employee or self-employed); had a job that they were temporarily away from; were placed with employers on government-supported training and employment programmes; or doing unpaid family work.

Long-term health condition (LTHC)

An individual is defined as having a long-term health condition if they reported having a physical or mental health condition or illness that lasts, or is expected to last, 12 months or more.

Health conditions

Types of health condition are self-reported by LFS respondents by selecting any number of conditions from the list below, before indicating which one they consider to be their main health condition:

1. problems or disabilities (including arthritis or rheumatism) connected with your arms or hands

2. …legs or feet

3. …back or neck

4. difficulty in seeing (while wearing spectacles or contact lenses)

5. difficulty in hearing

6. a speech impediment

7. severe disfigurements, skin conditions, allergies

8. chest or breathing problems, asthma, bronchitis

9. heart, blood pressure or blood circulation problems

10. stomach, liver, kidney or digestive problems

11. diabetes

12. depression, bad nerves or anxiety

13. epilepsy

14. severe or specific learning difficulties

15. mental illness or suffer from phobias, panics or other nervous disorders

16. progressive illness not included elsewhere (e.g. cancer not included elsewhere, multiple sclerosis, symptomatic HIV, Parkinson's disease, Muscular Dystrophy)

17. other health problems or disabilities

Mental health (MH) condition

This is a group of conditions including depression, bad nerves and anxiety (common mental health problems) and manic depression, schizophrenia and other serious mental health problems.

Musculoskeletal (MSK) condition
This is a group of conditions including back pain, neck and upper limb problems and other musculoskeletal problems.

Working age
For estimates from 2010 onwards, this refers to people aged between 16 and 64 years old. Prior to 2010, it was defined as men aged 16-64 and women aged 16-59.

Longitudinal surveys
Longitudinal surveys have repeated observations of the same variable over a period of time interviewing the same cohort of people

Out of work
This refers to people who do not meet the definition of 'in employment above'. In other words, they are either ILO unemployed or economically inactive.

Disability Prevalence
Disability Prevalence is the proportion of the working age population who have a disability. People who do not report whether or not they have a disability are excluded from the calculation.

Industry
Industry: is based on respondent's main job and is classified according to the Standard Industrial Classification (SIC) 2007.

Occupation
Occupation: is based on the respondent's main job and is classified according to the Standard Occupational Classification (SOC) 2010.

Full-time or part-time employment
Full-time or part-time employment: is not defined according to a fixed number of hours worked, but is self-reported by survey respondents.

Quarters
Labour Force Survey data is based on three-month periods known as quarters. For each year, the first quarter is based on January-March (Q1), followed by April-June (Q2), July-September (Q3) and October-December (Q4).

Reporting of the statistics

Unless otherwise stated, all the differences reported are statistically significant at the 95% level.

Percentages may not add to 100 per cent due to rounding.

Graphs and figures are based on unrounded figures.

Revisions to the statistics

These Official Statistics use are based on data from the Labour Force Survey (LFS) and Annual Population Survey (APS) produced by the Office of National Statistics (ONS), Family Resources Survey (FRS) produced by DWP; and Understanding Society led by the Institute for Social and Economic Research, University of Essex. Any revisions made to the survey by data producers will be included in the next release.

Status of the statistics

Official statistics

These statistics are official statistics and have been produced in compliance with the Code of Practice for Statistics.

Quality statement

The analysis in this statistical publication is mainly based on data taken from the LFS and APS which are closely monitored for their methodology and quality. Read more about the Labour Force Survey performance and quality monitoring.

Data from the Family Resources Survey have been used to corroborate trends in employment rates for disabled people seen in the LFS. Analysis of USoC was used to validate estimates of movements into and out of work based on the APS.

These statistics have been developed using guidelines set out by the UK Statistics Authority in the Code of Practice for Official Statistics. This details the necessary principles and practices to produce statistics that are trustworthy, high quality and of public value. More details are given in the 'statement of compliance' at the end of the main release.

Feedback

We welcome feedback

Please let us know what you think of the presentation and content of our statistical release by emailing: team.workandhealthanalysis@dwp.gov.uk.

Useful links

Employment of disabled people report and associated data tables

A08: Labour market status of disabled people

Labour market overview, UK

Family Resources Survey

Insights 2019-20: Findings from the UK Household Longitudinal Study

Characteristics of disabled people in employment: April to June 2017

Disability and employment, UK: 2019

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