

Article

Coronavirus and the effects on UK labour market statistics

How the global outbreak of the coronavirus (COVID-19) and the wider containment efforts is expected to impact upon the UK labour market, providing some of the practical challenges that the Office for National Statistics is likely to face.

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1 . Other pages in this release

- [Coronavirus and the effects on UK GDP](#)
- [Coronavirus and the effects on UK prices](#)

2 . Background

The first case of the coronavirus (COVID-19) was reported to the [World Health Organization](#) in December 2019 and was subsequently declared a Public Health Emergency of International Concern. This global pandemic is now expected to impact upon the economic outlook for some time to come.

The latest available business surveys in the UK and real-time indicators point to a significant decline in economic activity, while the initial estimates for other countries highlight the extent of the impacts so far on the real economy. The response to the coronavirus will also impact upon the ability of national statistics institutes (NSIs) in compiling estimates of gross domestic product (GDP), inflation and labour market estimates and for the economy more generally. We are responding to these challenges so that we capture the economic activity of the UK in line with the latest international guidance.

The coronavirus pandemic and the government response to its impact have had a significant effect on the UK labour market. Many businesses have ceased operating or have had to change their working practices, while recent government interventions have allowed for the furloughing of workers. In addition, the introduction of social distancing has also changed to the way individuals work or their ability to look for and find employment.

The combined effect of the impacts have not only changed the UK labour market, but also our ability to measure it. The majority of our information relies on data collected from surveys of households and businesses. The temporary closure of businesses, the increase in remote working and introduction of social distancing are having an impact on collecting survey data from households and businesses.

Our immediate response to the coronavirus pandemic, in terms of labour market statistics, was summarised in a [recent blog](#). This article provides further detail and:

- describes how we currently measure the labour market in the UK
- looks at the conceptual challenges presented by the coronavirus pandemic (including how we propose to treat the Coronavirus Job Retention Scheme (CJRS) and Self-Employment Income Support Scheme (SEISS) in labour market statistics)
- outlines some of the significant practical challenges that we expect to face in measuring the labour market in the coming months

More about coronavirus

- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- All ONS analysis, summarised in our [coronavirus roundup](#).
- View [all coronavirus data](#).
- Find out how our studies and surveys are [serving public need](#).

3 . Measuring the labour market

We use a framework for labour market statistics to describe the major concepts that exist within the labour market and their relationship to each other. The framework is based on the concepts of labour supply and demand, which together provide a comprehensive picture from the perspective of households and businesses. This approach has wide international acceptance, including by the International Labour Organization (ILO).

Labour supply in the UK consists of people aged 16 years and over who are classified to one of the following categories:

- employed - defined as doing a minimum of an hour's paid employment in the previous week and those who had a job that they were temporarily away from
- unemployed - actively looking for work and available to start work
- economically inactive - either not looking for work and/or not available to start work

Our framework distinguishes between these three categories of people, and also between the different working arrangements of those in employment (such as employees, the self-employed and those on government schemes) and the different reasons for economic inactivity (such as a long-term illness or disability). Labour supply is measured using surveys of households and the individuals in them.

Labour demand is represented by employers, who have a need for work to be done, and who offer compensation for this work (earnings) to the employees who undertake it. This work is grouped by employers to form jobs. Labour demand is measured using surveys of businesses. The surveys cover filled jobs but also where there are vacancies and businesses are actively recruiting.

People employed by businesses are compensated for their labour by wages and salaries. Information on earnings from wages and salaries are collected from both businesses and households. The information from businesses is considered more reliable and is used for the leading measures of earnings. However, the information from households is used when it provides information not generally available from businesses (such as level of qualifications).

4 . Conceptual challenges

The changes in the labour market as a result of the coronavirus (COVID-19) pandemic raise some conceptual measurement challenges. For example, there is likely to be an increase in people temporarily away from work, as a result of sickness or employment policies such as furloughing. How these temporary absences are classified could have a significant impact on the levels of employment recorded during the pandemic.

Similarly, the introduction of social distancing measures and the changes in how businesses are operating will have an impact on the ability of people to look for and find employment. This is likely to change the balance between the number of people classified as unemployed and those classified as economically inactive.

These challenges, though, are not unique to the UK and are also being experienced in other countries with similar economies. The International Labour Organization (ILO), the body that provides the internationally agreed definitions that underpin labour market statistics, has provided a [set of guidelines](#) (PDF, 1.16MB) to help statistics offices measure the labour market in the current circumstances. The Office for National Statistics (ONS) are using these guidelines to inform their decisions.

In response to the coronavirus pandemic, both the UK government and devolved administrations have implemented a wide range of policies. The interventions that are likely to be most significant in terms of the direct impact on the labour market are the Coronavirus Job Retention Scheme (CJRS) and the Self-Employment Income Support Scheme (SEISS).

Coronavirus Job Retention Scheme

The [Coronavirus Job Retention Scheme](#) (CJRS, also referred to as "furloughing") is a scheme that is in place to help employers whose operations have been severely affected by the coronavirus, specifically with the aim to retain their employees.

If employers are unable to maintain their current workforce, they are able to "furlough employees and apply for a grant that covers 80% of their usual monthly wage costs, up to £2,500 a month, plus the associated employer National Insurance contributions and pension contributions (up to the level of the minimum automatic enrolment employer pension contribution) on that subsidised furlough pay". Furloughed employees must not work for the employer during this period but can work for other employers if their contract allows.

The CJRS payment is subject to Income Tax, National Insurance contributions and the minimum pension contributions. The CJRS payment will be paid to the employer, helping maintain the business and keep their employees on the payroll. This is an explicit condition of the CJRS.

Applying the guidance on measuring labour market statistics, employees who are furloughed will be classified as employed, but temporarily away from work. This will mean that, all things being equal, furloughed workers will not reduce the number of people in employment (or the employment rate). However, the scheme will lead to an increase in the number of employees working no hours and an overall reduction in the number of hours worked. There may be a compensating effect if employees on furlough take other employment, which can be detected from the number of people with second jobs.

It will be necessary to identify those employees on the furlough scheme (who will be receiving wages or salaries but working no hours) separately to ensure consistent measures of labour productivity and unit wage costs. There also needs to be an understanding of how labour market statistics record people on the CJRS and their treatment in the national accounts.

Self-Employment Income Support Scheme

The [Self-Employment Income Support Scheme](#) (SEISS) is for people who are self-employed or a member of a partnership in the UK and have lost income because of the coronavirus. Under the scheme it is possible to claim a taxable grant worth 80% of trading profits up to a maximum of £2,500 a month. Eligibility requires that trading profits do not exceed £50,000 and that more than half of recipients' total income is derived from self-employment. Unlike the CJRS, those in self-employment who receive the payment may continue to work in the same job.

The expected impact of the SEISS in labour market statistics is that people will remain as self-employed, but may class themselves as temporarily away from work and record no hours of employment. However, as under the terms of the scheme, they can continue to work or take on other employment, their labour market status and number of hours worked may change during the scheme's lifespan.

5 . Practical challenges

As well as the impact on the UK labour market as a whole, the restrictions and guidance in force as a response to the coronavirus (COVID-19) affect the ability of the Office for National Statistics (ONS) to collect and process data. The number of businesses who have ceased trading or working remotely presents challenges in gathering data from this area of the economy. Similarly, social distancing measures mean that at the moment we cannot collect information from households through face-to-face interviews.

As well as some of the actions taken to mitigate the risks to specific surveys and outputs, described later in this section, the ONS has also taken some wider actions to protect existing outputs and provide new information to inform decision-making. The ones that cover labour market statistics include:

- introducing new surveys and additional questions onto existing surveys to specifically measure the impact of the coronavirus; these include an online labour market survey for households and a fortnightly survey of businesses, further information is available in a [statement](#)
- working with HM Revenue and Customs (HMRC) to provide more timely indicators of employees and earnings from tax data provided by employers
- protecting our headline labour market outputs and ensuring we can respond to new demands as a direct result of the coronavirus by suspending or reducing in scope some of our less-used outputs during the current period; full details are available in a [statement](#)

The rest of this section looks in more detail at labour market statistics' data sources, outlines their current challenges and the actions we are taking to mitigate the impact.

Labour Force Survey

The primary purpose of the Labour Force Survey (LFS) is to provide good quality estimates for various labour market outputs and related topics. Main measures include employment, unemployment and economic inactivity, all aspects of people's work, job-search for the unemployed, education and training. The sample is made up of approximately 40,000 responding UK households. The LFS is intended to be representative of the entire population of the UK over any three consecutive months.

For the LFS, people are interviewed in five consecutive quarters, with the first interview (wave 1) generally being face-to-face at a private household. During the first interview a telephone number is collected allowing the majority of subsequent interviews to move to telephone-based. A small proportion of later interviews (waves 2 to 5) remain face-to-face, if requested by the interviewee.

As an immediate response to the coronavirus, the ONS suspended face-to-face interviews in March 2020. The ONS initial response was to use telephone matching (finding a telephone number for a selected household) to move face-to-face interviews to the telephone unit and equip field interviewers to carry out telephone interviews. However, telephone matching provides relatively few matched phone numbers. A further process has been introduced where initial contact letters invite people to submit a telephone number through an online portal. Meanwhile we are making every effort to maintain as high a level of response as we can achieve in the current circumstances.

The changeover from face-to-face to telephone interviewing has, though, led to a reduced response rate for some weeks in March, particularly for wave 1. Subsequent waves have also seen a slight reduction in response, but less significant than the wave 1 impact as subsequent waves are predominantly telephone-based. This impact on response will stay with the survey as the smaller wave 1 becomes wave 2 three months later, and so on through subsequent waves. [Detailed information on LFS response rates](#) is published each quarter.

The change in collection method and the subsequent reduction in response leads to challenges in four areas: weighting the survey, imputing for non-response, seasonally adjusting the data and the quality of survey estimates.

Weighting

The different levels of response for certain weeks leads to them being underrepresented within the collective sample for a three-month period. Normal LFS weighting methodology does not differentiate between which weeks within the period that cases relate to. In order to ensure that those weeks affected by lower response are equally represented within the three-month estimates, an alternative weighting methodology has been developed, which uses the reference weeks within the calibration, allowing them to be equally represented.

Imputation for non-response

Where a previous interviewee has not responded, the data provided at the previous interview three months earlier are usually "rolled forward" to the current period. This "rolled forward" imputation only happens for one period of non-response, but not into a second or subsequent period. Normally this method works well because the overall labour market situation changes fairly gradually. In the current situation, previous responses may be less representative than normal. We are currently reviewing how we will treat non-responders, taking account of wider data sources, such as HMRC Real Time Information (RTI) data and returns from the Business Impact of Coronavirus (COVID-19) (BICS) survey.

Seasonal adjustment

The impact of the coronavirus is likely to cause some irregular movements in the estimates. Sometimes seasonal adjustment methodology will smooth this impact away by considering some of it to be a change in the underlying seasonality. We will review our seasonal adjustment approach, as weighted outputs become available, to ensure that seasonally adjusted outputs are correctly reflecting the irregular impact.

Quality

Reduction in response and achieved sample size will inevitably lead to increased sampling variability and volatility of survey estimates. This impact will be more significant for detailed breakdowns, such as estimates at a regional level. During this time it will be important for us to continue to communicate information around the quality of the estimates and to highlight issues around quality to users of the survey. Information on [how we will do this for LFS](#) results is published.

We are also looking to improve our ability to track the impacts of the coronavirus on the UK labour market, collecting wider information on how labour demand and labour supply are evolving in close to real-time.

New LFS questions

In order to understand better the impact of the coronavirus on the labour market, some new questions were introduced to the LFS from the start of April 2020. These questions are structured as supplementary to existing questions to minimise their impact on ongoing labour market measurement.

The questions focus on looking at whether particular labour market outcomes, such as working more or fewer hours than normal, were linked to the coronavirus. Further detail is sought to differentiate between more detailed reasons such as health, caring or economic drivers. The ONS will look to publish analysis from these additional questions when data are available.

Labour Market Survey (LMS)

To supplement the data collected on the LFS, the ONS has introduced an online only Labour Market Survey (LMS) from April 2020 (see the [statement](#)). The LMS has a sample size of around 20,000 households per quarter and asks similar questions to the LFS relating to the labour market, as well as some specific questions relating to the coronavirus pandemic. The ONS will publish further information as results from the LMS become available.

Business surveys

To measure labour demand and earnings information, the ONS produces a number of outputs based on business surveys. These are:

- Workforce Jobs (WFJ) - a quarterly measure of the number of jobs in the UK and the preferred measure of jobs by industry; it is a compound source that draws on a range of employer surveys, household surveys and administrative sources
- Public Sector Employment (PSE) - a quarterly measure of the number of employees in the UK public sector by government sector and industry
- Vacancies - a monthly survey of businesses that asks how many job vacancies a business had in total (on a specified date) for which they were actively seeking recruits from outside their organisation
- Average Weekly Earnings (AWE) - the ONS's lead indicator of short-term changes in earnings; it is calculated from returns to the Monthly Wages and Salaries Survey (MWSS), the MWSS captures information about each company's total wage bill and the number of people paid in the reference period; , having been weighted to the Great Britain level, the total wage bill is then divided by the number of employees to give average weekly earnings
- Annual Survey of Hours and Earnings (ASHE) - an annual survey of earnings and hours with information provided by employers for a sample of employees taken from the tax system; ASHE provides information about the levels, distribution and make-up of earnings and hours paid for employees by sex, and full-time and part-time working, estimates are available for various breakdowns including industries, occupations, geographies and age groups within the UK, it is conducted in relation to the pay period covering a reference date, which in 2020 is 22 April
- Business Register and Employment Survey (BRES) - publishes employee and employment estimates at detailed geographical and industrial levels; the reference date for BRES is in September each year

While the various surveys cover different aspects of the labour market, they are all affected by the impact of the coronavirus (with the exception of BRES where data collection for the 2019 estimates has been completed) and face similar issues. This section looks at the issues affecting all the surveys. More detailed information about individual surveys is in Annex A.

The measures introduced in the UK to ensure social distancing has meant that a number of businesses have ceased trading (temporarily or permanently) and those that continue to trade may be running at reduced capacity or have staff working partly or totally remotely. This means that it may be harder to obtain responses to business surveys and initial information indicates that this will be the case. Also, the changes in how businesses are operating, and the policies implemented by government (for example, the Coronavirus Job Retention Scheme (CJRS)) means that responses to surveys may not be typical for this period.

The combined effect of lower responses and changes in trading conditions presents challenges in achieving and validating responses, estimating information for non-responders and weighting the responses to produce aggregate estimates.

Achieving sample response

Response rates for business surveys for labour market are generally above 80%. The majority of monthly and quarterly surveys were already using online data collection, which is less affected by businesses working remotely. The outstanding surveys (the construction industry element of Workforce Jobs and Vacancies) were moved to online collection in April and May.

The ASHE reference period is in April and the data collection process started at the end of April 2020. ASHE uses electronic data collection for the larger businesses who are asked for information about multiple employees.

This year, the ONS has increased the proportion of data that is collected electronically, meaning that most respondents asked to return data this way will be able to access the data return process from wherever their office is. However, data for smaller companies are collected via paper forms sent out by post and we anticipate substantial issues with response from these smaller businesses. We are investigating feasibility of transferring as many of the "paper" cases as possible to electronic mode, but there will be challenges in trying to contact them to provide access to the electronic route.

Validating reported information

For all business surveys, returned information is run through a validation process. Information from each company is classified either as "Clean" (the employee numbers and pay are in line with expectations based on recent returns from that company and current returns from similar companies) or "In error" (they are out of line with expectations). "In error" cases are investigated via contacting the company, and most are either confirmed or amended, classified as "Clean". However, the remaining "In error" cases are imputed.

In the coming months there are two potential challenges. Firstly, that company returns initially classified as "Clean" are actually inaccurate, for example, the company has failed to incorporate staff or pay changes this period, and secondly that companies classified as "In error" actually reflect true changes. The latter is expected to be a particular challenge in the coming months.

To help address this we have issued an information flyer to accompany all survey invitations, prompting respondents to provide any information about how the coronavirus has affected their business. While this will not be suitable for quantitative analysis, it will provide qualitative information for use in validating returns.

Handling of non-responders

A challenge will be encountered in relation to those companies that do not respond to the surveys.

Usually, information is imputed based on their most recent previous response and/or the pattern of responses for similar companies who did respond. However, in a period when these employee numbers and pay are likely to be unusual, this imputation would produce inaccurate results and therefore we will introduce actions to remove the inaccurate impact of these non-responding companies. This will be through either removal of cases or changing the approach to imputation; consideration is being given to both approaches.

To help inform the approach to the handling of non-responders, a series of non-response follow-up surveys are taking place to establish the reasons for non-response and the characteristics of non-responding businesses.

Producing aggregate estimates

Information from responders to the survey is weighted using Inter-Departmental Business Register (IDBR) frozen employee numbers. These IDBR figures are based on information that is calculated with a time lag. We will consider evidence within our surveys and other sources of employee numbers by sector and may revise the employee numbers that we calibrate to ("employee weights") accordingly.

We are also looking to improve our ability to track the impacts of the coronavirus on the UK labour market, collecting wider information on how labour demand and labour supply are evolving in close to real-time.

Business Impact of Coronavirus (COVID-19) Survey (BICS)

The ONS has established BICS as a new online survey. This has a representative sample of around 17,800 businesses and runs on a fortnightly basis. The survey covers changes in employment, turnover and business expectations.

The first survey went into the field on 23 March 2020, and results are published as part of the [Faster indicators](#) release. The information from this survey provides an insight into the effects of the coronavirus pandemic on businesses and is being used to validate the responses to existing surveys and indicate where adjustments to data or methods may be needed.

Pay As You Earn Real Time Information (PAYE RTI)

Since December 2019, the ONS and HMRC have been jointly publishing monthly estimates for employment and earnings from the PAYE RTI system. The estimates have been available around six to seven weeks after the end of the month. In response to the coronavirus pandemic, since April 2020, HMRC provide a ["flash" estimate of employment](#) within three weeks of the end of the month. From May 2020, a "flash" estimate of median earnings will also be available to the same timescale.

Administrative data

In addition to the survey information, the ONS also publishes aggregate information from administrative data sources in government. The two sources are benefits data relating to unemployment (Claimant Count) and employees who pay tax through the Pay As You Earn scheme (PAYE).

Claimant Count

The Claimant Count is a measure of the number of people claiming benefits principally for the reason of being unemployed. The Claimant Count is based on a tabulation of monthly extracts from the Department for Work and Pensions administrative systems. Currently the Claimant Count is a composite of the number of people claiming Jobseeker's Allowance (JSA) and those claiming Universal Credit (UC) who are required to seek work to qualify for their benefits.

The Claimant Count does not attempt to measure unemployment, which is a concept defined by the International Labour Organization (ILO) as all those who are out of work, actively seeking work and available to start work. However, since the people claiming benefits are generally a particular subset of the unemployed, the Claimant Count can provide a useful indication of how unemployment is likely to vary between areas and over time and can provide more granular breakdowns as it has complete coverage of the specific benefit claimants.

Under UC, a broader span of claimants are required to look for work than under JSA. These claimants have the effect of increasing the Claimant Count and affecting the reliability of the Claimant Count as an economic indicator. During the transition to UC, the Claimant Count is not classed as a [National Statistic](#). To help interpretation, the Department for Work and Pensions publishes an [Alternative Claimant Count](#), which adjusts the Claimant Count to include these extra claimants in a consistent way since 2013, and provide a reliable indicator of the number of claimants over time.

As has widely been reported, the UC system has seen a [surge in new declarations](#). It is important to note that some of those figures related to initial declarations submitted to the UC online portal, rather than the number of claims that had gone through all the stages to become part of the UC caseload. Not every declaration will become part of the UC caseload used within the Claimant Count. Also, those that would become part of the Claimant Count may take time to go through the UC system to become a live claim. Consequently, not all claims submitted through the online portal prior to the count date would be live at that date.

Even allowing for the final caseload being a subset of initial claims submitted and the time it will take for some of those claims to progress through the system, it is likely that the Claimant Count will show significant increases. Such rapid changes in Claimant Count levels may give challenges to the seasonal adjustment of the series. This will be reviewed as data become available.

Pay As You Earn Real Time Information

HM Revenue and Customs' (HMRC's) Pay As You Earn (PAYE) Real Time Information (RTI) system covers every employee who pays tax through a PAYE scheme. As the system covers all employees it is not subject to sampling variability and provides a comprehensive estimate of employment and earnings.

Since December 2019, the ONS and HMRC have been jointly publishing monthly estimates for employment and earnings from the PAYE RTI system, as described in the previous Business survey section.

6 . Conclusion

The latest expectations point to a significant decline in economic activity in the first half of this year at least, reflecting how the coronavirus (COVID-19) pandemic has led to a reduction in the demand for goods and services and the impact upon the ability of businesses to supply those products as well as many businesses ceasing operating. The UK labour market statistics provide a consistent framework to understand these impacts and we have looked to explain how we might expect this to affect estimates of employment, unemployment and earnings this year.

National statistics institutes (NSIs) will face significant practical challenges in measuring the labour market this year. We have explained the main issues that we expect to encounter and some of the steps that we are taking to help better understand and, where possible, tackle these challenges. We will continue to work with other NSIs and international organisations in looking to implement best practice in response to these challenges. However, it is clear that the compilation of labour market statistics will need close monitoring during this period as we look to ensure that we are able to capture labour market activity in the UK

7 . Annex – Survey-specific impact of the coronavirus for labour market statistics

Labour Force Survey

The primary purpose of the Labour Force Survey (LFS) is to provide good quality estimates for various labour market outputs and related topics. Main measures include employment, unemployment and inactivity, all aspects of people's work, job-search for the unemployed, education and training. The sample is made up of approximately 40,000 responding UK households. The LFS is intended to be representative of the entire population of the UK over any three consecutive months.

The LFS also forms the basis of the Annual Population Survey (APS), which is a continuous household survey, covering the UK, with the aim of providing estimates between censuses of main social and labour market variables at a local area level. The APS is not a stand-alone survey, but uses data combined from two waves of the main LFS with data collected on a local sample boost. Apart from employment and unemployment, the topics covered in the survey include housing, ethnicity, religion, health and education. The datasets comprise 12 months of survey data and are disseminated quarterly. The achieved sample size is approximately 320,000 respondents.

For the LFS, people were previously interviewed in five consecutive quarters, with the first interview (wave 1) generally being face-to-face at a private household. During the first interview a telephone number is collected allowing the majority of subsequent interviews to move to telephone-based. A small proportion of later interviews remained face-to-face, if requested by the interviewee.

Changes to collection

As an immediate response to the coronavirus, the Office for National Statistics (ONS) suspended face-to-face interviews in March 2020. The ONS initial response was to use telephone matching to move face-to-face interviews to the telephone unit and equip field interviewers to carry out telephone interviews. However, telephone matching provides relatively few matched phone numbers. A further process is being introduced where initial contact letters invite people to submit a telephone number through an online portal.

Response rates

The changeover from face-to-face to telephone interviewing has led to a reduced response rate for some weeks in March, particularly for wave 1. Subsequent waves have also seen a reduction in response, but less significant than the wave 1 impact.

Weighting

The different levels of response for certain weeks leads to them being under-represented within the collective sample for a three-month period. Normal LFS weighting methodology does not differentiate between which weeks within the period that cases relate to. In order to ensure that those weeks affected by lower response are equally represented within the three-month estimates an alternative weighting methodology has been developed which uses the reference weeks within the calibration, allowing them to be equally represented.

Imputation for non-response

Where a previous interviewee has not responded, the data provided at the previous interview three months earlier will be "rolled forward" to the current period. This "rolled forward" imputation will only happen for one period of non-response, but not into a second or subsequent period. Normally this method works well because the overall labour market situation changes fairly gradually. In the current situation, previous responses may be less representative than normal. We are currently reviewing how we will treat non-responders, taking account of wider data sources, such as HM Revenue and Customs (HMRC) Real Time Information (RTI) data and returns from the Business Impact of Coronavirus (COVID-19) (BICS) Survey.

Seasonal adjustment

The impact of the coronavirus is likely to cause some irregular movements in the estimates. Sometimes seasonal adjustment methodology will smooth some of this impact away by considering some of it to be a change in the underlying seasonality. We will review our seasonal adjustment approach, as weighted outputs become available, to ensure that seasonally adjusted outputs are correctly reflecting the irregular impact.

Workforce Jobs (including Public Sector Employment)

Workforce Jobs (WFJ) is a quarterly measure of the number of jobs in the UK and is the preferred measure of the change in jobs by industry. It is a compound source that draws on a range of employer surveys, household surveys and administrative sources.

WFJ is the sum of employee jobs measured primarily by employer surveys (predominantly the Short-Term Employment Surveys (STES) and the Quarterly Public Sector Employment Survey (QPSES)), self-employment jobs (SEJ) from the Labour Force Survey (LFS), and government-supported trainees (GST) and Her Majesty's Forces (HMF) from administrative sources and LFS. A variety of outputs by industry, region, sex and full-time or part-time status are produced for a range of publications and users.

Challenges faced in producing WFJ estimates in 2020:

Achieved sample and handling of non-responders

WFJ is produced from responses to STES, PSE, LFS, and data from the devolved administrations. STES has a selected sample size of approximately 37,100 businesses.

STES includes the Monthly Business Survey (MBS) with an employment sub-sample of approximately 18,500, Quarterly Business Survey (QBS) with a sample of approximately 10,600 and Construction with a sample of approximately 8,000. MBS and QBS are collected using online surveys and usually achieve response rates around 80%. The response rate for Construction has been slightly lower than MBS and QBS, but from April 2020 the data collection for Construction has moved from paper forms to an online questionnaire.

However, a new challenge will be encountered in relation to those businesses that do not respond. In STES, such businesses have their employment information imputed based on their most recent previous response and the pattern of responses for similar businesses. This imputation is being reviewed, and actions may be taken to account for any impact of these non-responding returns.

Information collected

The STES reference date for the next publication in May 2020 was 13 March 2020. Respondents may report information that does not reflect the reference date. This would be problematic if it happened in volume, so we will instruct respondents to return information for the reference date and contact the responder where the return is out of line with expectations.

Validating reported information

In STES processing, returned information is run through a validation process. Information from each responder is classified either as "Clean" (the employment numbers are in line with expectations based on recent returns from that responder and current returns from similar responders) or "In error" (they are out of line with expectations). "In error" cases are investigated via contacting the responder, and most are either confirmed or amended, classified as "Clean" and used in the estimation. However, the remaining "In error" cases are imputed.

Given the size and nature of the shock, returns initially classified as "Clean" could be inaccurate and returns classified as "In error" could reflect true changes in the coming months. To help address this we have issued an information flyer to accompany all survey invitations, prompting respondents to provide any information about how the coronavirus has affected their business. While this will not be suitable for quantitative analysis, it will provide qualitative information for use in validating returns and reviewing imputations. Alternative data sources and external reports will also be used to validate the results.

Calibration to external employee information

The returned sample is weighted to Inter-Departmental Business Register (IDBR) frozen employment totals, and estimates of "regional industries" are derived by apportioning to the IDBR current local unit universe. These IDBR figures are based on information with a time lag. We will consider evidence within WFJ and other sources of changed employee numbers by sector and may revise the employee numbers that we calibrate to accordingly.

Providing contextual information

The ONS is developing surveys and outputs to assess the [impact of the coronavirus](#) and this includes our new online Labour Market Survey (LMS), which provides information on the labour market aligned to the LFS but with additional detail, and a new fortnightly business survey asking about the impact of the coronavirus on businesses for topics such as turnover, materials, trade and workforce. We will seek to reference contextual information from these surveys to supplement our WFJ estimates.

Public Sector Employment (PSE)

PSE is a quarterly measure of the number of employees in the UK public sector and the series provides estimates of PSE by government sector and industry. Public sector employment has a sample size of approximately 900 respondents and has time series data available from 1999 on a seasonally adjusted basis, and 1991 on a non-seasonally adjusted basis. The PSE sample frame consists of complete coverage of local government and the Civil Service and has coverage of public bodies with 20 or more employees.

Challenges faced in producing PSE estimates in 2020:

Achieved sample, and handling of non-responders

PSE is produced from responses to the Quarterly Public Sector Employment Survey (QPSES), data collected from local authorities in England and Wales, government departments, agencies and public bodies in Great Britain.

Approximately 900 respondents provide data, which provides complete coverage of local government and the Civil Service and coverage of public bodies with 20 or more employees. Public bodies with fewer than 20 employees are not surveyed. The bodies not sampled employ approximately 500 people, and this is not considered to affect the overall survey estimates.

The data collected from QPSES is supplemented by external sources, such as NHS employee data, to reduce duplication and burden. The response rate for the Local Authorities Survey and Public Bodies Survey is usually over 90% and for the Civil Service Survey and other sources is usually 100%.

A new challenge will be encountered in relation to those sampled who do not respond. In PSE such responders have their employment information imputed based on their most recent previous response and the pattern of responses for similar responders. This imputation will be reviewed, and actions may be taken to account for any inaccurate impact of these non-responding returns. For data provided by external sources where possible we will agree any imputations with the contributing organisations.

Information collected

The Local Authorities Survey reference date for the next publication in May 2020 is 13 March 2020. The reference date for the Civil Service and Public Bodies Surveys is the last day of the calendar quarter. It was agreed by the cross-departmental PSE steering group that the last day of the calendar quarter should be the default reference date; however, for well-established existing surveys (such as the Local Authorities Survey) the reference dates should not be changed. This decision was made to maintain consistency with other ONS business surveys. Responders may report information that does not reflect the reference date. This would be problematic if it happened in volume. We will instruct respondents to return information for the reference date and contact the responder where the return is out of line with expectations.

Validating reported information

In PSE processing, returned information is run through a validation process. Information from each responder is classified either as "Clean" (the employment numbers are in line with expectations based on recent returns from that responder and current returns from similar responders) or "In error" (they are out of line with expectations). "In error" cases are investigated via contacting the responder, and most are either confirmed or amended, classified as "Clean" and used in the estimation. However, the remaining "In error" cases are imputed.

In the coming months returns initially classified as "Clean" could be inaccurate and returns classified as "In error" could reflect true changes. To help address this we have issued an information flyer to accompany all survey invitations, prompting respondents to provide any information about how the coronavirus has affected their business. While this will not be suitable for quantitative analysis, it will provide qualitative information for use in validating returns and reviewing imputations. Where possible, discussions with the contributing organisations on imputations will also take place to validate the results.

Calibration to external employee information

This is not an issue as no weighting is undertaken on the survey estimates.

Vacancies

The Vacancy Survey is a statutory, monthly survey of businesses. The survey asks a single question: how many job vacancies a business had in total (on a specified date) for which they were actively seeking recruits from outside their organisation.

Results from the survey cover all sectors of the UK economy and all industries, with the exception of employment agencies and agriculture, forestry and fishing. The headline series are based on three-month moving averages, by type of industry and by employment count. The total sample is approximately 6,100 businesses per month, with approximately 1,400 large businesses included every month and the remaining 4,700 consisting of smaller enterprises randomly sampled on a quarterly basis.

Challenges faced in producing vacancy estimates in 2020:

Achieved sample, and handling of non-responders

Vacancy estimates are produced from responses to the Vacancy Survey, which has a selected sample size of approximately 6,100 businesses each month. The response rate for the Vacancy Survey is usually above 80%.

The data collection method is currently an automated Telephone Data Entry system (TDE). Businesses return their data to us using key presses on a telephone, with instructions issued via paper. From May 2020, the data collection will be via an online questionnaire.

However, a new challenge will be encountered in relation to those businesses who do not respond.

For businesses with employment (as recorded on the IDBR) above a threshold that varies by industry, non-response is imputed for.

For businesses that have no previous return, a construction is calculated from a ratio (calculated from other respondent values in the same strata) being applied to the employment held on the IDBR.

For businesses that have a previous return, their vacancies information is imputed based on their most recent previous response and the pattern of responses for similar businesses.

For businesses with employment (as recorded on the IDBR) below a threshold that varies by industry, the design weights are adjusted using the ratio model where employment held on the IDBR is the auxiliary variable (ratio estimation) to account for the non-responding businesses.

This imputation will be reviewed, and actions may be taken to account for any inaccurate impact of these non-responding returns based on alternative data sources. The Vacancy Survey also takes on revisions to the estimates from the previous three periods to take on late survey returns from businesses, enable weight adjustments in line with an increase in response levels, and to accept data previously "In error" status that has been validated with the respondent.

Information collected

The Vacancy Survey reference date will be Thursday 7 May because of change in date of the first May public holiday. Responders may report information that does not reflect the reference date. This would be problematic if it happened in volume; we will instruct respondents to return information for the reference date and contact the responder where the return is out of line with expectations.

Validating reported information

In processing, returned information is run through a validation process. Information from each responder is classified either as "Clean" (the vacancy return is in line with expectations based on recent returns from that responder and current returns from similar responders) or "In error" (they are out of line with expectations). "In error" cases are investigated via contacting the responder, and most are either confirmed or amended, classified as "Clean" and used in the estimation.

However, where employment (as recorded on the IDBR) is above a threshold, that varies by industry, the remaining "In error" cases are imputed. Typically, the Vacancy Survey has less than 0.5% of errors at the end of validation process.

In the coming months returns initially classified as "Clean" could be inaccurate and returns classified as "In error" could reflect true changes. To help address this we have issued an information flyer to accompany all survey invitations, prompting respondents to provide any information about how the coronavirus has affected their business. While this will not be suitable for quantitative analysis, it will provide qualitative information for use in validating returns and reviewing imputations. Alternative data sources and external reports will also be used to validate the results.

Calibration to external employee information

For strata without 100% sampling, the returned sample is weighted to the IDBR frozen employment totals by Standard Industrial Classification (SIC) industries. These IDBR figures are based on information with a time lag. We will consider evidence within other sources of changed employee numbers by sector and may revise the employee numbers that we calibrate to accordingly.

Providing contextual information

The ONS is developing surveys and outputs to assess the [impact of the coronavirus](#) and this includes our new online Labour Market System (LMS), which provides information on the labour market aligned to the LFS but with additional detail, and a new fortnightly business survey asking about the impact of the coronavirus on businesses for topics such as turnover, materials, trade and workforce. We will seek to reference contextual information from these surveys to supplement our vacancies estimates.

Average Weekly Earnings

The Average Weekly Earnings (AWE) measure is the ONS's lead indicator of short-term changes in earnings. It is calculated from returns to the Monthly Wages and Salaries Survey (MWSS), a survey of 9,000 businesses covering 13.8 million employees.

The MWSS captures information about each company's total wage bill and the number of people paid in the reference period. Having been weighted to the Great Britain level, the total wage bill is then divided by the number of employees to give average weekly earnings. AWE also reflects changes to the industrial composition of the workforce. For instance, all other things being equal, an increase in the relative number of employees in highly paid industries will cause average earnings to rise.

Challenges faced in producing AWE estimates in 2020 are as follows:

Achieved sample and handling of non-responders

AWE is produced from responses to the MWSS, which has a selected sample size of approximately 9,000. Typically, the response rate is approximately 83% each month. The survey is conducted through electronic data collection, meaning that respondents can access it from wherever their office is; we therefore do not expect a strong reduction in percentage response.

However, a new challenge will be encountered in relation to those companies which do not respond. In AWE, such companies have their employee and pay information imputed based on their most recent previous response. But in a period when these employee numbers and pay are likely to be unusual, this imputation would produce inaccurate results and therefore we will introduce actions to remove the inaccurate impact of these non-responding companies. This will be through either removal of cases or a form of imputation; consideration is being given to both approaches.

Information collected

The survey asks companies to return information for the last week in the month unless that is an unusual week, in which case information can be given for a more representative week in that month. In coming months companies may be inclined to feel that the last week of the month is unusual and report information that does not reflect the current situation. This would be problematic if it happened in volume, and therefore we will instruct companies to return information only for the last week of the month.

AWE reports payments made through company payrolls. This includes statutory sick pay and - we believe - payments made to furloughed employees. However, it appears likely that the latter will not be paid in March, although it will cover the period from 1 March. Therefore, it is likely that the AWE estimates for March will measure actual payments made but may not be an accurate reflection of what is due to employees. The estimates may therefore be lower than the pay due to many weekly employees for that month. Conversely, the estimates may be higher than the pay due to many monthly employees, because March pay will often be based on normal monthly salary (that is, over-payment of what is due) with a subsequent correction made in April.

Any arrears payments or downward revisions to pay subsequently made in the last week of April will be picked up by AWE, but other arrears payments made to weekly staff earlier in April will not be picked up in AWE. Overall, the combined March and April AWE estimates may under-represent the total amount paid. The ONS will aim to reference [experimental Real Time Information estimates](#) to aid understanding of pay across the two months.

Validating reported information

In AWE processing, returned information is run through a validation process. Information from each company is classified either as "Clean" (the employee numbers and pay are in line with expectations based on recent returns from that company and current returns from similar companies) or "In error" (they are out of line with expectations). "In error" cases are investigated via contacting the company, and most are either confirmed or amended, classified as "Clean". However, the remaining "In error" cases are imputed.

In the coming months there are two potential challenges. Firstly, that company returns initially classified as "Clean" are actually inaccurate, for example, the company has failed to incorporate staff or pay changes this period, and secondly that companies classified as "In error" actually reflect true changes. The latter is expected to be a particular challenge in the coming months. To help address this we have issued an information flyer to accompany all survey invitations, prompting respondents to provide any information about how the coronavirus has affected their business. While this will not be suitable for quantitative analysis, it will provide qualitative information for use in validating returns.

This will mean that much more validation of returns will be required, and this will require extensive resource above our current capacity. As a result, we will prioritise quality over quantity meaning that the final sample size that the estimates are based on may be smaller than normal but with a higher degree of accuracy.

Calibration to external employee information:

The returned sample is weighted to IDBR frozen employee numbers by industry, public or private sector and company size bands. These IDBR figures are based on information that is calculated with a time lag. We will consider evidence within AWE and other sources of changed employee numbers by sector and may revise the employee numbers that we calibrate to ("employee weights") accordingly.

Similarly, the process of incorporating information to compensate for the exclusion of [businesses with fewer than 20 employees](#) in the survey is based on information that is calculated with a time lag. If the employment experience in these smaller businesses is different to those in larger ones, this dynamic will not be captured.

Providing contextual information:

The ONS is developing surveys and outputs to assess the [impact of the coronavirus](#) and this includes our new online Labour Market Survey (LMS), which provides information on the labour market aligned to the LFS but with additional detail, and a new fortnightly business survey asking about the impact of the coronavirus on businesses for topics such as turnover, materials, trade and workforce. We will seek to reference contextual information from these surveys to supplement our AWE estimates.

Annual Survey of Hours and Earnings

The Annual Survey of Hours and Earnings (ASHE) provides information about the levels, distribution and make-up of earnings and hours paid for employees by sex, and full-time and part-time working.

Estimates are available for various breakdowns including industries, occupations, geographies and age groups within the UK. ASHE is used to produce hours and earnings statistics for a range of weekly, annual and hourly measures. ASHE is the official source of estimates for the number of jobs paid below the national minimum wage and is also used to produce estimates of the proportions of jobs within workplace pension categories. It is conducted in relation to the pay period covering a reference date, which in 2020 is 22 April.

The challenges and decisions relating to this survey are as follows:

Achieved sample

In 2020, the ONS will increase the proportion of data that is collected electronically, meaning that most respondents will be able to access the data return process from wherever their office is. However, data for smaller companies are collected via paper forms sent out by post and we anticipate substantial issues with response from these smaller businesses.

We are investigating feasibility of transferring as many of the "paper" cases as possible to electronic mode, but there will be challenges in trying to contact them to provide access to the electronic route. This means that there may be a smaller completed sample size and a possible bias in the profile of cases in the final achieved sample. The latter should be accommodated by the ASHE weighting system, which differentiates mode of data collection. However, the former (smaller sample size) may have to be accepted, either in the final sample or in an initial sample provided to normal timetable followed by a larger sample if the pattern of returns makes this worthwhile.

We will monitor progress of paper form returns, and consider use of a response chasing team to guide those who were sent paper forms should a return to office working occur in the next three months.

Information collected

The majority of pay estimates from ASHE are based on employees whose pay in the reference period was not "less in the pay period due to absence from work". The notable exception is annual pay, which is based on all employees in the achieved sample.

Our ability to produce estimates for the core "employees whose pay was not less in the pay period due to absence from work" will be unaffected by unusual patterns of work across the labour force. However, an anticipated increase in employees whose pay was affected by absence ("loss of pay" cases) will create challenges.

First, it will mean that the sample size of those who did not suffer loss of pay will be smaller than in other years. This may be skewed to certain industries and occupations. We will monitor returned data and consider whether the pattern of employee types should trigger new forms of weighting or analysis.

Secondly, Question 1 in the survey "On 22 April 2020, was the above person a paid employee in your organisation working in the United Kingdom and receiving a salary or wage?" is designed simply to ensure we include only UK-based employees in our estimates. However, given the current climate we anticipate employers being confused by this question (that is, they may exclude employees who were sick or not offered work, even though they remained employees). This would cause a problem in that the main weight based on all current employees, regardless of whether or not they worked on the reference date. (Note that the low pay weight excludes those whose pay was affected by absence, meaning that this weight would not be affected by any confusion at this question.)

To protect quality of responses we will issue clarification guidance to accompany the questionnaire. While in theory this will address any concerns, reality may see some cases being coded incorrectly.

Business Register and Employment Survey

The Business Register and Employment Survey (BRES) is the official source of employee and employment estimates by detailed geography and industry. It publishes employee and employment estimates at detailed geographical and industrial levels. It collects comprehensive employment information from businesses in England, Scotland and Wales, representing the majority of the Great Britain economy. Independently collected Northern Ireland data are then combined to produce estimates on a UK basis.

Employment is obtained by adding the number of working owners to the number of employees employed by a business, where working owners include sole traders, sole proprietors and partners who receive drawings and/or a share of profits but are not paid via Pay As You Earn (PAYE). The survey sample of approximately 85,000 businesses is weighted up to represent the Great Britain economy covering all sectors.

Producing BRES estimates in 2020:

Achieved sample, and handling of non-responders

For the 2018 survey period, BRES sampled approximately 85,000 businesses in Great Britain. The response rate for the 2018 BRES survey was 85.1%. Northern Ireland data were collected independently by the Northern Ireland Statistics and Research Agency. The 2019 survey period has already reached a similar response rate.

Information collected

The survey asks companies to return information for 13 September 2019.

Validating reported information

Given the reference date for the 2019 survey and the timing of responses the validation process has largely been unaffected by the coronavirus. Current estimation methods for the 2019 survey are also unaffected.

Calibration to external employee information

The returned sample is weighted to the IDBR frozen employee numbers by industry classification (by section) and region. Given the reference date for the 2019 survey, the calibration is unaffected by the coronavirus.