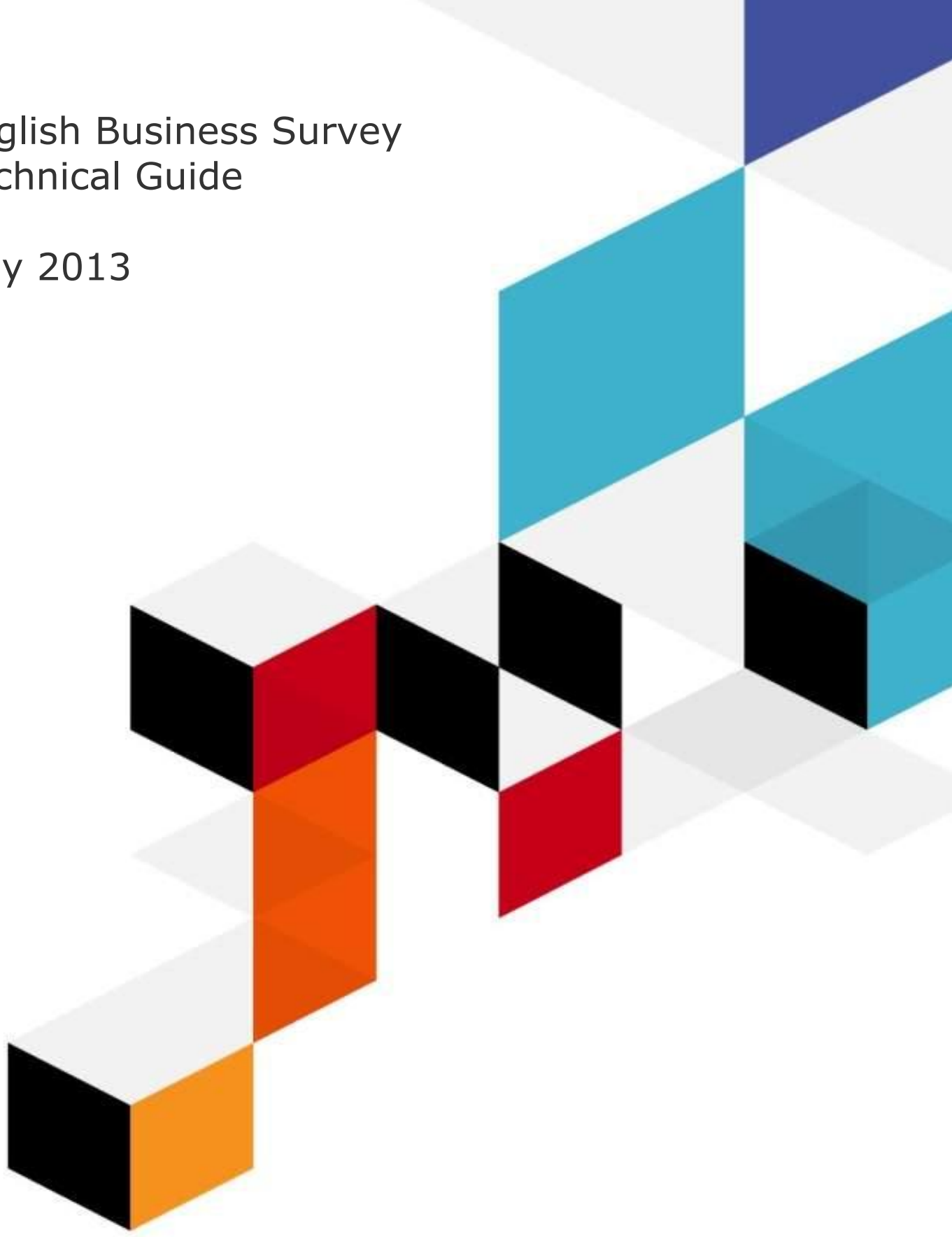
# English Business Survey Technical Guide

May 2013



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# Introduction

The English Business Survey (EBS) provides a monthly assessment of business perceptions of past, current and future economic and business conditions in each English region. In the summer of 2011 BIS commissioned an independent research company, TNS BMRB, to conduct the survey on its behalf. It has been conducted continuously since November 2011 covering businesses in England.[1]

A detailed understanding of businesses' perceptions and plans across England is helping to inform the Government's economic growth and rebalancing agenda. This information is valuable to the Government, policy makers, businesses, and local organisations in helping to guide policy and support private sector growth in all parts of England. The outputs of the survey provide valuable intelligence of the local economic and business conditions to businesses.

This report presents the technical details of the EBS. The report is intended primarily for analysts who wish to make use of the data, who will need to understand the sample design, the details of coding and the actual questions asked. The survey has undergone extensive development and testing, including pilot testing of the survey and cognitive testing of the survey questions. EBS methods and questionnaire continue to be reviewed to ensure that they remain fit for purpose. All revisions will be pre-announced. Results should be used with this in mind.

This is the second version of this document. If you have any feedback on its content, clarity and readability you may e-mail ebsurvey@bis.gsi.gov.uk. Any suggestions will inform the next update of the document.

1 The first month of fieldwork was conducted in November and the outputs from that month will be the October 2011 data given October was the key reference period workplaces were asked about in the survey. In the rest of the document we will specify reference or fieldwork period.

**Summary of the English Business Survey**

**What the English Business Survey is**

The English Business Survey (EBS) provides timely, robust and geographically detailed intelligence on business and economic conditions in England. The Survey enhances understanding of business and economic conditions throughout England and ultimately improves policy making through this understanding. The statistics are also useful to businesses, researchers and local organisations, including Local Enterprise Partnerships interested in intelligence about local economic and business conditions. The EBS provides a timely assessment of business perceptions of past, current and future economic and business conditions in England. The EBS is a non-statutory telephone survey of business workplaces that achieves 3,000 telephone interviews each month.

**When the survey commenced**

The first month of interviewing for the EBS was in November 2011 using a reference month of October 2011. This followed a period of testing and development – see section 3 for more detail.

**What the survey measures**

The survey measures business performance at national, regional and sub-regional levels by asking businesses about past, current and future economic and business conditions. The EBS provides a simple indication of how workplaces are faring by asking about how conditions (in key indicators such as employment, costs and investment) have changed between a month three months ago, and how they are expected to change in a month, three months into the future[2].

**Survey coverage**

The survey covers business workplaces registered for Pay As You Earn and/or Value Added Tax across the whole economy including the public sector and non-profit/voluntary organisations.[3]

**Sample Size**

The survey achieves 3,000 responses per month, with at least 60 interviews in each NUTS2 sub region[4]. The achieved sample allows monthly estimates for each region

[2] There are some questions that do not follow this format exactly. For more information see section 6 of the User Guide

[3] The sample is drawn from the Inter-Departmental Business Register which covers all businesses registered to pay VAT or that have a PAYE scheme in operation.

[4] The nomenclature of territorial units for statistics (NUTS) classification is a hierarchical system for dividing up the economic territory of the EU.

and quarterly sub-regional estimates, including analysis for each Local Enterprise Partnership (LEP)[5].

**Sample design**

A stratified random sample of businesses is drawn from the Inter-Departmental Business Register (IDBR) on a quarterly basis. The primary objective of the sample design is to achieve a sample that is as close as possible to being proportionate to the employment distribution within England. Once the quarterly sample is received it is split into three equal batches with samples from each batch remaining available for contact for up to three months (if sample is loaded in January, it can be contacted in January, February and March). Each month new sample is issued to interviewers which results in the sample for any particular month being a mix of new samples and old samples that are in the process of follow up. Sample months in this document (in the response rate section) refer to the month that the sample batch was first issued.

**Sampling Error**

The EBS does not use a simple random sampling approach, but rather it has a complex sample design. Precise design factors are calculated by using statistical software packages which account for the survey design. The sample drawn is a stratified random sample of the IDBR database. TNS BMRB are provided with full business population counts (broken down by employment and workplaces within sub-regions) from this database. When the sample is drawn, the list of records is sorted by three categories (local authority unit, industry sector and employment count). In practice this means that larger workplaces have a far higher probability of being sampled than smaller workplaces. Over a year all workplaces with 250 or more employees will be included in the sample drawn from the IDBR and available for selection. Sample is drawn at random, starting from a random position on the sample list. Ordering the list, starting at a random point and selecting at random helps minimise the levels of bias within the sample.

The survey weighting includes a correction for the design of the sample, and significance testing on the survey data includes the level of error in the calculation of significance. A calculation of sampling error is shown in section 5.3.

On the data tables accompanying the Statistical Release each month, subgroup percentages have been tested against the equivalent percentage for England and if shaded, the difference was found to be statistically significant at the 95% level.

**Imputation**

Information on the number of employees at a workplace may be taken from the IDBR if a respondent is unable to provide an estimate.

[5] Information on LEPs and their coverage can be found on the BIS website at http://www.bis.gov.uk/policies/economic-development/leps/statistics

**Estimation**

The EBS has two weights that can be used for analysis:

Economic importance weight: this weight reflects the economic importance of each workplace by giving workplaces with more employment more of an impact on the survey results; employment is used as a proxy for economic importance as a robust measure of turnover is not available for all workplaces. Survey responses are weighted so that the weighted sample matches the population with respect to sub-region (NUTS2) and employment. The design of the survey has been optimised for the use of the Economic importance weight and the weight is applied to create all published statistics.

Workplace weight: this weight reflects the number of workplaces in England. No adjustment is made for the number of employees at each workplace. The workplace weight ensures that the sample is representative of the number of workplaces by NUTS1 region and by industry sector and is as representative as possible of total employment band. The sampling method is not optimised for the workplace weight, but and has been optimised to ensure the drawn sample most closely represent the employment distribution within England; the result is a less efficient sample for the workplace weight.

**Publication schedule**

Statistics from the EBS are published each month and quarter. Monthly statistics are published for English Regions within 2 months of the month to which they refer. Quarterly data are published for English Regions and Sub-regions (NUTS2 and LEP) within 3 months of the Quarter to which they refer.

Survey micro data are made available to Approved Researchers through ONS' Virtual Micro Laboratory and the Data Archive.

# 1. Sample design

The EBS interviews 3,000 businesses in England each month. The sample for the survey is drawn quarterly. The survey uses a stratified random sampling approach, drawing sample from the IDBR held by the Office for National Statistics. This section explains the sample design for the survey, and the impact of using the IDBR (telephone matching rates), and how sample is issued in the survey.

### 1.1 Overview

| Process | Notes |
|---|---|
| IDBR Counts ↓ | ■ TNS BMRB send a list of records from previous 3 quarters of research to be excluded<br>■ BIS provide detailed counts of businesses and employment populations (for 16 size groups and 30 NUTS2 sub-regions). This has the full population, and the available population (full population minus businesses sampled in previous three quarters) |
| Select ideal sample draw ↓ | ■ Select ideal sample for a quarter based on 360 sampling cells (12 employment size groups*30 NUTS2 regions) using:<br>■ Telephone matching rates for each sampling cell<br>■ Sample conversion rates for each sampling cell<br>■ Need to achieve 60 interviews per NUTS2 region per month |
| Select from available sample ↓ | ■ In one year we cannot select more than 100% of available sample<br>■ The ideal sample is constrained by the amount of sample available in each sampling cell<br>■ TNS BMRB select the best possible number of available sample records |
| Sample requested ↓ | ■ Required number of sample records in each sample cell is requested by TNS-BMRB<br>■ Instructions are given to draw the sample at random<br>■ Sample is drawn and delivered securely to TNS-BMRB |

*Figure 1 : Sample selection process*

The survey is designed to assess business conditions at a regional and sub-regional level. This is done by interviewing businesses at a local, workplace level about their perceptions of economic and business conditions. The main distinction of this survey compared with most other business confidence surveys is the use of employment to reflect the economic importance of a workplace[6]; employment is used as a proxy for

[6] A business can be a single local unit (hereafter called workplace) or a workplace that belongs to a larger enterprise, for example a local store of a larger retail chain. The EBS is a workplace survey (see Section 2.2).

economic importance as a robust measure of turnover is not available for all workplaces.[7].

The sample is drawn using a stratified random sampling method. From November 2011 to December 2012 a random probability sampling approach was used, whereby businesses were selected with a probability proportional to size (PPS). The sampling method was changed from January 2013 onwards to a simpler design with a stratified random sample but without PPS. The sample design is explained in more detail in section 1.4 and the previous method is explained in section 7.

The fact that the sampling approach fulfils the random sample assumption, allows confidence intervals to be calculated around survey estimates and formal statistical tests to be carried out. The sample is grouped into different strata using the employment count at a workplace. This approach was taken to maximise the similarity between the drawn sample and the employment distribution in England.

The sample is also selected to ensure that a minimum of 60 interviews are carried out in each NUTS2 sub region per month.[8] This is so that sample sizes are large enough to enable sub-regional (NUTS2 and Local Enterprise Partnership[9]) analysis every quarter.[10]

## 1.2 Sample frame

The sample of workplaces is drawn from the IDBR; the IDBR covers all businesses registered to pay VAT or that have a PAYE scheme in operation. It is widely regarded as the most comprehensive business sampling frame available, although it does not cover unregistered businesses, so excludes the very smallest non-employing businesses that are not registered for VAT or PAYE. Non-registered businesses are not registered for either PAYE or VAT, which means they are generally the very smallest non-employing businesses.

The EBS is conducted at the level of the workplace rather than at the level of the enterprise[11] and the sample is therefore selected at the workplace level. The weighting of the survey is applied to reflect the relative importance or contribution of different sized workplaces to the local economy, the survey uses the number of people employed at each workplace as the measure of its contribution to the economy. The sample is selected on a quarterly basis from across all industry sectors (including public sector organisations).

[7] The use of employment rather than turnover to allocate the sample, is likely to be preferred even if turnover data were available, as employment is generally less volatile than turnover.
[8] The nomenclature of territorial units for statistics (NUTS) classification is a hierarchical system for dividing up the economic territory of the EU.
[9] Information on LEPs and their coverage can be found on the BIS website at http://www.bis.gov.uk/policies/economic-development/leps/statistics
[10] This is available on the quarterly aggregated micro data released and the Online Reporting Tool which is accessible for all: http://dservuk.tns-global.com/English-Business-Survey-Reporting-Tool/
[11] Figure 4 displays the structure of the IDBR. On the IDBR, the enterprise is the statistical unit that most closely equates to a business.

The sample from the IDBR is drawn by BIS, according to a specification set out by TNS BMRB. For quarter 1 2013 and quarter 2 2013 this has involved sampling approximately 29,950 records each quarter. This figure is calculated using the process described in figure 1 above, to produce a sample that achieves 3,000 interviews per month (with 60 in each NUTS2 region) by evaluating previous telephone matching rates and sample conversion rates, while being designed to be representative of employment (rather than representative of workplaces) in England.

Approximately 2,500 workplaces with 250 or more employees are selected each quarter. As the total population of this group in England is around 10,000 it means that in one year all large workplaces are sampled.

## 1.3 Telephone matching

As the IDBR does not contain telephone numbers for all entries, the selected quarterly sample is put through a telephone number matching process to make it usable for telephone interviewing.

The first sample drawn from the IDBR, to be issued in November and December 2011, did not contain any telephone numbers, as BIS's access to the IDBR at this time did not include access to the telephone numbers. Thus all sample records received by TNS BMRB were sent for matching. However, all sample drawn after this *did* contain some telephone numbers.

| | % |
|---|---|
| Nov-Dec 2011 | - |
| Jan-Mar 2012 | 61% |
| Apr-Jun 2012 | 70% |
| Jul-Sep 2012 | 70% |
| Oct-Dec 2012 | 69% |
| Jan-Mar 2013 | 62% |

*Figure 2 : IDBR Sample supplied with Telephone numbers*

As figure 2 (above) shows, around 60-70% of records supplied from the IDBR include a contact telephone number. However, most of these numbers were head office numbers and the proportion of the sample presumed to include workplace numbers varied between 25-30% (see Figure 3 below)[12]. Any records without a unique telephone number were subject to telephone number matching.

[12] Duplicate telephone numbers i.e. the same phone number for different workplaces, arose as the telephone numbers supplied were attached at the enterprise level. For many records, the local units within the same enterprise all had the same telephone number and so could not be used.

| | Nov-Dec 2011 Fieldwork sample | Jan-Mar 2012 Fieldwork sample | Apr-Jun 2012 Fieldwork sample | Jul-Sep 2012 Fieldwork sample | Oct-Dec 2012 Fieldwork sample | Jan-Mar 2013 Fieldwork sample |
|---|---|---|---|---|---|---|
| | % | % | % | % | % | % |
| **Overall selected sample with telephone numbers** | 73 | 73 | 73 | 76 | 78 | 73 |
| - With existing unique telephone number | - | 25 | 33 | 35 | 35 | 26 |
| - Successful look-up | 73 | 47 | 46 | 43 | 46 | 46 |
| *Base* | *63,370* | *46,245* | *37,050* | *32,611* | *30,753* | *29,957* |

*Figure 3: Overall telephone matching rates*

The overall telephone matching rate represents the success rate after a two stage number look-up process, firstly using an automated searching facility and secondly using a manual search service. The overall matching rate for telephone matching has varied between 73% and 78% - see Figure 3. The match rates are the proportion of records returned with a number successfully appended, which is then ready to be issued for fieldwork regardless of the quality of that number (although duplicate numbers are removed). The proportion of issued numbers that were not useable due to the telephone number not being valid is detailed in Section 2.

Matching rates were typically the lowest for workplaces with 0 to 9 employees (see Figure 4) and the overall match rate for workplaces with an employment of 250 or was most variable, fluctuating between a low of 71% and a high of 85%. Matching rates for the other size bands were comparatively high and stable.

| | **Employment** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0-9 | 10-49 | 50-249 | 250+ | 0-9 | 10-49 | 50-249 | 250+ |
| | % | % | % | % | *Base* | *Base* | *Base* | *Base* |
| Nov-Dec 2011 | 59 | 78 | 83 | 85 | *20,787* | *25,594* | *14,528* | *2,461* |
| Jan-Mar 2012 | 61 | 78 | 79 | 72 | *14,862* | *16,636* | *12,372* | *2,377* |
| Apr-Jun 2012 | 58 | 79 | 81 | 79 | *9,929* | *11,386* | *12,742* | *2,993* |
| Jul-Sep 2012 | 72[13] | | 81 | 73 | *7,938* | *9,072* | *12,362* | *3,239* |
| Oct-Dec 2012 | 62 | 84 | 83 | 81 | *7,327* | *8,699* | *11,578* | *3,149* |
| Jan-Mar 2013 | 56 | 84 | 80 | 71 | *9,428* | *6,960* | *11,071* | *2,498* |

*Figure 4: Telephone matching rates by number of employees*

[13] Sample received back from the telephone matching process for July to September 2012 sample was not split between 0-9 and 10-49

## 1.4 Sample selection

### 1.4.1 Stratification

The businesses listed on the IDBR can be grouped into statistical units, which themselves are arranged in a hierarchical manner as shown in Figure 5 below.

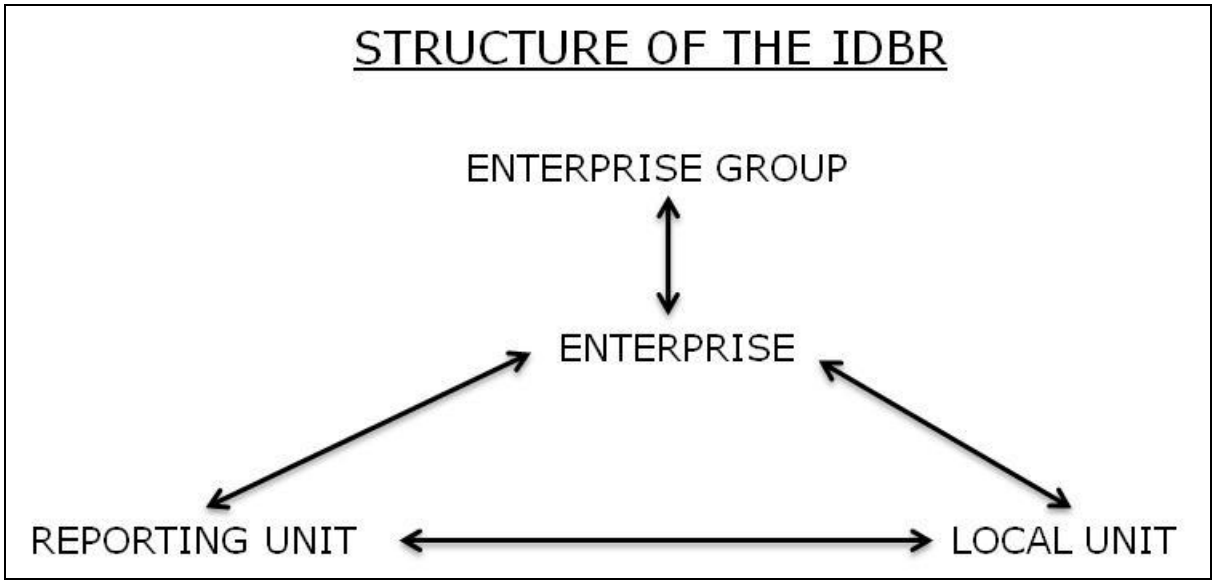


*Figure 5: IDBR structure*

The IDBR includes all businesses who pay VAT or operate a PAYE scheme. The top level comprises Enterprise groups. These are groups of legal units under common ownership. Enterprises comprise the layer below that. These are the smallest combination of legal units that have a certain level of autonomy within an Enterprise Group. They are the closest equivalent to a business. The lowest level comprises workplaces (also known as local units) which are individual sites within an Enterprise, for example factories, shops or offices. The EBS is conducted at the workplace level - lowest level - rather than at the enterprise level; this approach was taken as it is important to determine the conditions at the local level rather than at the location of the enterprise head office.

#### Sample selection process

Following consultation with ONS and BIS, the sample selection process was revised for January 2013 onwards.

The survey interviews 3,000 businesses per calendar month with around 60 businesses per NUTS2 sub region. To select a business for interview, the following steps are undertaken:

1. Prior to selection, all the workplaces on the IDBR are divided into strata based on their NUTS2 sub region and the employment count at the workplace. From January 2013, the employment count was split into 12 groups: 0-1, 2, 3-4, 5-6, 7-9, 10-19, 20-49, 50-99, 100-249, 250-499, 500-999, 1000+. In total, 360 sampling strata are defined.

2. To ensure an optimum and efficient sample selection, the available sample is first determined by calculating the number of cases to be drawn from each stratum, based on previous telephone matching rates and sample-to-interview conversion rates. To ensure sample selection performs optimally, telephone matching rates and sample-to-interview conversion rates are continually monitored.

3. Records are then drawn from the selected sample at random in order to draw the specified number of sample records requested. Records are selected within each of the selection strata, using a random start and fixed sampling interval. For example, if the objective was to select 1,000 workplaces from 4,000 workplaces within a stratum, then the sampling interval is 4,000/1,000=4 with a random starting position between 1 and 4, so that every 4$^{th}$ workplace was selected until the required quarterly sample size is achieved.

4. Within each of the 360 strata the workplaces are sorted by their local authority code (LAU1; previously known as NUTS4 definition), industry section (SIC 2007 definition) and the raw employment count of the workplace.

5. Once a workplace is selected, it is excluded from selection for the next three quarters. This is so that no workplace can be selected for the EBS more than once in a 12 month period; thus reducing the survey burden on businesses.

## 1.5 Issuing sample for fieldwork

The EBS has an achieved sample size of circa 3,000 interviews every calendar month. The sample unit remains active for up to three months to maximise the opportunity to complete an interview with each selected workplace. In any monthly dataset there is therefore a mix of older, harder-to-reach cases carried over from previous sample issues as well as fresh cases issued that month. All interviews that are conducted within any month use the same reference point; for example, all interviews conducted in February 2013 would use January 2013 as the reference point.

Over time the expectation is that the mix of old and new sample cases reaches a steady state, so that comparisons between monthly datasets are valid. However for the first month, there were no existing records to call although 3,000 interviews still needed to be achieved. Thus the number of records issued in the first month was substantially higher than would normally be issued.

The table below shows the progression of interviews throughout the three month fieldwork period. The timing of interviews in the fieldwork period now remains fairly consistent at circa 50%.

| | Month of issue | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **ALL** | Nov-11 | Dec-11 | Jan-12 | Feb-12 | Mar-12 | Apr-12 | May-12 | Jun-12 | Jul-12 |
| | % | % | % | % | % | % | % | % | % |
| Interview in month of issue | 63.5 | 54.1 | 50.5 | 59.3 | 54.6 | 50.5 | 49.6 | 47.0 | 50.3 |
| Interview in month two | 27.4 | 34.2 | 35.0 | 28.9 | 33.1 | 34.3 | 37.5 | 37.6 | 33.3 |
| Interview in month three | 9.1 | 11.6 | 12.7 | 11.8 | 12.3 | 15.2 | 12.9 | 15.2 | 16.4 |
| Interview in month four[14] | .1 | .1 | 1.7 | .0 | .0 | .0 | .0 | .1 | .0 |

*Figure 6: Time from sample issue to interview*

As is good practice when trying to maximise the response rate on a survey, rather than issue the entire drawn sample, the monthly sample are issued in batches[15]. This approach maximises the efficiency of the sampling process and optimises response rates. Batches of sample are issued weekly for use by interviewers[16].

[14] A small number of interviews are conducted after the three month fieldwork period if a firm appointment had been set with a business

[15] Records were randomly allocated to batches.

[16] However, for the first two months larger batches were issued less frequently, owing to the unusual time of year for interviewing, which necessitated more sample to be front loaded and the lack of existing contacts.

# 2. Response rate

This section examines the level of response to the survey over time and for different business characteristics and geographical areas.

The table below shows the overall response rate for sample loaded between November 2011 and October 2012.

| | Response Rate (%) |
|---|---|
| **Total** | **50** |
| **Size of Business** | |
| Small | 50 |
| Medium | 48 |
| Large | 53 |
| **Region (NUTS1)** | |
| North East | 50 |
| North West | 48 |
| Yorkshire | 52 |
| East Midlands | 51 |
| West Midlands | 49 |
| East of England | 50 |
| London | 46 |
| South East | 50 |
| South West | 50 |

*Figure 7: Annual response rate by business size and region, November 2011 to October 2012*

The EBS is a non-statutory, voluntary survey with an overall response rate for sample loaded between November 2011 and October 2012 of 50%. The table below shows that the response started off in the mid-forty per cent and gradually increased and has stabilised in the mid-fifties. This response rate is based on all sample issued between November 2011 and October 2012.

It is not possible to directly compare response rates between the EBS and other business surveys as none are close in terms of sampling unit and length of questionnaire. The examples below highlight some of the response rates achieved for other business surveys conducted within the last two years.

- The 2011 WERS achieved a response rate of 46.5% across all workplaces for a 90 minute interview.
- The 2011 Employers Pension Provision survey achieved a 52% (based on a 30 minute interview with private sector employers).
- The 2012 Commercial Victimisation Survey achieved a response rate of 54%.

| | Size of Business | | | |
|---|---|---|---|---|
| | 0-49 | 50-249 | 250+ | Total |
| | % | % | % | % |
| November 11 | 44 | 40 | 52 | 44 |
| December 11 | 45 | 41 | 48 | 44 |
| January 12 | 48 | 46 | 52 | 48 |
| February 12 | 53 | 47 | 46 | 50 |
| March 12 | 53 | 43 | 39 | 48 |
| April 12 | 54 | 44 | 44 | 48 |
| May 12 | 55 | 50 | 59 | 53 |
| June 12 | 54 | 51 | 57 | 53 |
| July 12 | 55 | 51 | 61 | 54 |
| August 12 | 56 | 55 | 61 | 56 |
| September 12 | 54 | 56 | 57 | 55 |
| October 12 | 50 | 54 | 56 | 53 |

*Figure 8: Monthly response rate by business size*

One of the key features of the EBS is the ability to produce regional estimates. Figure 9 looks at the response rates achieved in each English region for the sample issued.

| | Region | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | North East | North West | Yorks | East Mids | West Mids | East | London | South East | South West | England |
| | % | % | % | % | % | % | % | % | % | % |
| Nov 11 | 45 | 42 | 45 | 46 | 44 | 43 | 38 | 42 | 47 | 44 |
| Dec 11 | 45 | 40 | 48 | 44 | 43 | 43 | 41 | 43 | 48 | 44 |
| Jan 12 | 47 | 46 | 50 | 53 | 45 | 49 | 41 | 50 | 50 | 48 |
| Feb 12 | 51 | 47 | 53 | 51 | 47 | 51 | 46 | 52 | 54 | 50 |
| Mar 12 | 49 | 47 | 49 | 50 | 50 | 47 | 41 | 51 | 51 | 48 |
| Apr 12 | 48 | 46 | 50 | 53 | 42 | 51 | 45 | 49 | 51 | 48 |
| May 12 | 51 | 52 | 55 | 53 | 50 | 57 | 47 | 54 | 55 | 53 |
| Jun 12 | 53 | 51 | 53 | 52 | 52 | 53 | 51 | 55 | 55 | 53 |
| Jul 12 | 56 | 55 | 55 | 53 | 52 | 50 | 53 | 54 | 55 | 54 |
| Aug 12 | 53 | 57 | 59 | 57 | 58 | 56 | 50 | 58 | 60 | 56 |
| Sep 12 | 60 | 50 | 58 | 58 | 56 | 57 | 52 | 55 | 58 | 55 |
| Oct 12 | 56 | 52 | 55 | 52 | 53 | 55 | 50 | 53 | 53 | 53 |

*Figure 9: Monthly response rate by region*

As typically experienced in surveys, the response rate in London is lower than the rest of the English regions and typically varies between three and seven percentage points below the national average.

A breakdown of fieldwork outcomes is provided in Figure 10 and Figure 11 for all sample batches to date. Response rate is calculated by:

Interviews/
(Total Sample Issued – Deadwood)

| Month of issue | Nov 11 | Dec 11 | Jan 12 | Feb 12 | Mar 12 | Apr 12 | May 12 | Jun 12 | Jul 12 | Aug 12 | Sep 12 | Oct 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TOTAL SAMPLE ISSUED** | 13,107 | 8,359 | 6,394 | 7,349 | 8,527 | 7,089 | 7,071 | 6,836 | 7,140 | 6,409 | 6,783 | 6,742 |
| Total Interviews | 4,851 | 3,030 | 2,566 | 3,116 | 3,441 | 2,949 | 3,173 | 2,917 | 3,041 | 2,839 | 2,926 | 2,751 |
| **LIVE SAMPLE - UNRESOLVED** | | | | | | | | | | | | |
| Appointment | 1 | 13 | 1 | 12 | 7 | 8 | 8 | 20 | 33 | 38 | 41 | 59 |
| Call back | 721 | 463 | 432 | 860 | 845 | 833 | 611 | 783 | 931 | 674 | 573 | 810 |
| No reply – after contact | 2,318 | 1,576 | 950 | 640 | 1,133 | 897 | 866 | 420 | 343 | 251 | 376 | 240 |
| Unobtainable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stopped Interview | 0 | 0 | 3 | 12 | 17 | 7 | 0 | 0 | 7 | 9 | 2 | 2 |
| Referral | 7 | 0 | 1 | 1 | 0 | 1 | 1 | 5 | 0 | 0 | 8 | 3 |
| New telephone number | 1 | 0 | 9 | 5 | 6 | 8 | 16 | 44 | 6 | 10 | 38 | 33 |
| No reply – no contact | 779 | 563 | 389 | 388 | 392 | 337 | 305 | 115 | 2 | 0 | 17 | 5 |
| Fresh sample | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| **LIVE SAMPLE – REFUSAL CODES** | | | | | | | | | | | | |
| Abandoned Interview | 228 | 146 | 93 | 71 | 177 | 143 | 120 | 105 | 124 | 75 | 81 | 91 |
| Hard Refusal | 630 | 242 | 217 | 202 | 222 | 169 | 122 | 130 | 110 | 111 | 126 | 143 |
| Over 40 calls | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 23 | 9 | 10 |
| Unavailable | 21 | 42 | 39 | 71 | 56 | 51 | 45 | 47 | 40 | 55 | 69 | 95 |
| No such job title/person | 43 | 40 | 19 | 23 | 26 | 26 | 24 | 22 | 38 | 39 | 37 | 42 |
| Soft refusal | 780 | 488 | 379 | 525 | 593 | 496 | 454 | 607 | 708 | 656 | 685 | 647 |
| Proxy refusal | 682 | 306 | 246 | 251 | 206 | 205 | 248 | 264 | 232 | 203 | 240 | 221 |
| Office Refusal | 83 | 27 | 24 | 28 | 24 | 20 | 22 | 35 | 41 | 44 | 47 | 45 |
| Other unproductive | 3 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 0 | 0 | 2 | 2 |
| **DEADWOOD (INELIGIBLE SAMPLE)** | | | | | | | | | | | | |
| Fax | 189 | 121 | 50 | 65 | 76 | 35 | 24 | 9 | 15 | 19 | 11 | 30 |
| Unobtainable | 479 | 330 | 401 | 404 | 502 | 334 | 405 | 420 | 420 | 390 | 450 | 465 |
| No reply after max calls | 33 | 13 | 0 | 0 | 0 | 0 | 35 | 164 | 204 | 206 | 255 | 240 |
| Residential number | 5 | 1 | 0 | 1 | 0 | 0 | 5 | 28 | 53 | 39 | 52 | 50 |
| Fax/No reply | 109 | 40 | 21 | 27 | 38 | 12 | 25 | 35 | 19 | 19 | 23 | 33 |
| Business moved | 216 | 239 | 117 | 129 | 176 | 133 | 143 | 143 | 151 | 146 | 141 | 134 |
| Business closed | 190 | 123 | 72 | 72 | 104 | 68 | 72 | 86 | 93 | 83 | 87 | 73 |
| Incorrect sample | 734 | 554 | 362 | 441 | 482 | 350 | 338 | 427 | 515 | 463 | 481 | 505 |
| Duplicate | 2 | 1 | 1 | 4 | 3 | 5 | 8 | 8 | 5 | 12 | 6 | 13 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Figure 10: Fieldwork outcomes by month of sample issue*

Of the total sample issued, the level of ineligible sample (deadwood) has varied between 15% and 23%. The largest categories within these deadwood records were those where the sample details from the IDBR were incorrect and where the number dialled did not connect.

| | Deadwood | | | |
|---|---|---|---|---|
| | 0-49 | 50-249 | 250+ | Total |
| Month of issue | % | % | % | % |
| November 11 | 16 | 13 | 17 | 15 |
| December 11 | 18 | 15 | 19 | 17 |
| January 12 | 16 | 17 | 12 | 16 |
| February 12 | 15 | 18 | 12 | 16 |
| March 12 | 17 | 16 | 13 | 16 |
| April 12 | 14 | 12 | 13 | 13 |
| May 12 | 15 | 14 | 20 | 15 |
| June 12 | 16 | 22 | 20 | 19 |
| July 12 | 20 | 22 | 18 | 21 |
| August 12 | 21 | 22 | 19 | 21 |
| September 12 | 22 | 22 | 23 | 22 |
| October 12 | 23 | 23 | 23 | 23 |

*Figure 11: Monthly deadwood rates by business size*

It should be noted that the number of records initially drawn from the IDBR was based on an assumption of equal telephone matching and sample conversion rates across regions and workplace size bands, as this information was not available prior to starting fieldwork. However as more information became available the number of cases drawn in each region and workplace size group varied according to the actual experience gained from administering the survey. The sample selection process takes into account matching and sample conversion rates to select the number of sample records per quarter. This has led to a more consistent number of samples released each month than previously (at an overall level, and when splitting by size) which has led to improved response rates.

The data are weighted to compensate for this difference in response across different areas (see Section 5).

# 3. Questionnaire development 2011

This section explains the questionnaire development program from commissioning of the survey until the first month of interviewing in November 2011. A questionnaire workshop was initially conducted to identify topic areas to be covered by the survey. Questions were cognitively tested and a pilot survey was conducted in September 2011.

## 3.1 Initial development

A rigorous period of questionnaire development was undertaken prior to the survey's launch in November 2011 to ensure the questionnaire produced high quality data on the key directional indicators that it was intended to track each month. Pilot testing revealed that the optimum questionnaire length was eleven minutes, consisting of nine minutes of 'core' questions which are asked every month, and two minutes of ad hoc questions, which can be changed prior to the start of each calendar month's interviewing. The length of the core questions (in minutes) were tested in the pilot survey, and the structure of the questionnaire was agreed following the cognitive testing and pilot survey. The questionnaire development focused primarily on finalising the 'core' questions. A separate report documents the questionnaire development process which incorporated a questionnaire development workshop, a period of cognitive testing and a large-scale pilot exercise.[17] In this technical guide, a summary of each of the stages is detailed below.

## 3.2 Questionnaire development workshop

TNS BMRB, in partnership with BIS, embarked on an intense period of development work in the summer of 2011. The first step involved BIS developing an initial questionnaire based on data needs. TNS BMRB then worked with BIS research team members to redraft the questionnaire into a more complete version, before a workshop was held involving key stakeholders. There were two aims for the workshop: to review and finalise the content of the draft questionnaire for cognitive testing (in terms of the question coverage) and to think about how the results would be reported on a monthly basis. The workshop was held on 26 July 2011.

[17] Report on Questionnaire Development: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32539/12-601-english-business-survey-report-questionnaire-development.pdf

## 3.3 Cognitive testing

The next stage of development was to cognitively test the questionnaire to ensure that respondents understood and answered the questions as anticipated. The questionnaire that was cognitively tested is included in the questionnaire development report (see footnote 17).

A total of 28 cognitive interviews were conducted (10 face-to-face and 18 by telephone between 22 August 2011 and 2 September 2011 with businesses from a wide range of industry sectors and different levels of employment. Overall, respondents found the questions to be generally clear and easy to answer. Some question specific issues were highlighted during this phase and were addressed for the telephone pilot. The full details of this testing can be found in the separate questionnaire development report.

## 3.4 Telephone pilot

Following the cognitive testing, the questionnaire for the pilot stage was developed. The main purpose of the pilot was to test the contact procedures across a broader range of businesses, to test the questionnaire further and to get a clear idea of the questionnaire length.

A total of 253 telephone interviews were conducted by TNS BMRB between 19 September 2011 and 30 September 2011, using sample drawn from the IDBR. The sample was drawn from a wide range of industry sectors and workplace sizes in order to try to capture responses from a greater breadth of businesses.

As with the cognitive testing, overall, respondents found the questions to be generally clear and easy to answer. The pilot helped to ascertain that the questionnaire was too long in length, as well as clear up final issues picked up at the cognitive testing stage. Further details of the pilot findings, and the questionnaire used, can be found in the separate questionnaire development report (see footnote 17 for link).

## 3.5 Finalising the questionnaire

Following the pilot, further changes were made to the questionnaire to reduce the questionnaire length. The core questionnaire is available on the EBS section of the BIS website and the broad structure of the final questionnaire is summarised in Figure 12.[18]

[18] English Business Survey Questionnaire: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32538/12-600-english-business-survey-questionnaire.pdf

| Topic areas covered |
| --- |
| Contact / introduction |
| Characteristics |
| Output |
| Exports |
| Domestic output |
| Stocks |
| Jobs and hours |
| Prices |
| Credit conditions |
| Investment |
| Capital investment |
| Data linkage / re-contact permissions |

*Figure 12: Questionnaire Structure*

A range of ad hoc questions were developed and a yearly timetable agreed. These ad hoc questions are included on either, a monthly rolling basis, a quarterly rolling basis or a yearly basis. These questions are shown in appendix B.

**Computer Aided Telephone Interview system**

For interviewing, the IBM SPSS Data Collection Family Suite of interviewing software, is used and for the management of sample, SPSS-MR's Quancept CATI software is used. Prior to the survey's launch in November 2011, both the questionnaire program and sample management system were extensively and systematically tested. This included checking the questionnaire content, question wording, routing, internal consistency checks and text substitution. Further checking was carried out by the data processing and telephone project management teams. Before release into the field, the questionnaire was further checked by running automatically generated test results through the program then checking the results against the questionnaire they were based on.

The questionnaire changes each calendar month, due to the rotation of the ad hoc questions (see Appendix B for a list of ad hoc questions), thus the questionnaire program checking procedure is conducted every month to ensure that the previous ad hoc questions have been removed correctly and the new ad hoc questions have been inserted correctly.

# 4. Data collection and fieldwork management

This section focuses on the data collection procedures such as making sure that interviewers are fully briefed and respondents can be persuaded of the surveys bona fides.

## 4.1 Interviewer briefings

Prior to starting work on the survey from November 2011, interviewers and telephone centre supervisors were personally briefed by researchers from TNS BMRB.

This briefing covered:

- the background to the survey and its aims;
- the sample design and methodology;
- introducing the survey to respondents;
- identifying the appropriate respondent to interview
- maximising response; and
- the questionnaire structure.

All interviewers were given a set of project instructions, which provided further information about the survey and key definitions and rules. TNS BMRB researchers have continued to brief all interviewers working on the project personally, covering the same issues as above.

Interviewer feedback has been sought throughout; for example, a follow up debrief was held between interviewers, TNS BMRB researchers and BIS researchers in order to find out the key issues that occur, and improvements that can be made to the briefing of the survey and to the survey itself.

## 4.2 Reassurance letter

Advance letters are not sent out to businesses prior to interviewing so a reassurance letter is provided to interviewers. This can be sent to those who are contacted and wish to receive notification of the survey in writing. Letters are despatched on BIS-headed paper and explain the purpose and nature of the research – see Appendix A for an example.

Although businesses are encouraged to contact TNS BMRB in the first instance, the name and direct telephone number of a contact in the project team at BIS is also provided. This is so businesses can be reassured that the survey is genuine and allows them to ask questions that are more relevant to BIS.

## 4.3 Telephone interviewing

Telephone fieldwork is carried out by TNS BMRB's telephone interviewing centres in Ealing and Hull. Each of these centres has a long-standing track record in conducting large-scale random sample surveys among businesses for central government clients. These telephone centres are equipped with around 300 CATI stations and 1,150 interviewers.

## 4.4 Quality control

Strong emphasis is placed on quality control, in terms of ensuring that the surveys are administered according to the instructions and conducted to the highest standards. The interviewer supervisory team monitor at least 7% of interviews using undetected listening facilities.

Prioritising and selecting which interviewers are monitored is done on a systematic basis, taking into account factors such as experience, previous performance and how often they have been monitored in the past. Monitoring results are graded using a standard benchmark and interviewers receive regular feedback on their performance.

Data provided in outputs (tables, SPSS micro data, online reporting tool) are checked against the raw data taken from the interviews. The outputs are produced using the same software package (IBM Dimensions) as is used for data collection which ensures consistency.

Some data recorded during the survey are also available in the sampling database (IDBR), for example employment. However, survey data is used in preference to the sample data (unless data is not provided in the survey).

# 5. Weighting and estimation

This section looks at the weighting applied to the survey data in order to make it representative of employment in England. The Economic importance (employment) weights are highlighted and confidence levels around survey estimates are discussed. The significance testing applied to the monthly data tables is included in this section.

## 5.1 Economic importance weights

To enable inferences from the sample of workplaces to the entire population of workplaces in England the sample data need to be weighted. The sample selection was designed to represent employment, and is optimised for the economic importance weights. As the sample of workplaces for the EBS is chosen with unequal probabilities, compensating weights need to be used in order to produce unbiased estimates of population quantities. With the Economic importance weight applied to do this. The economic importance weight has two functions, it: adjusts for unequal probability of selection due to the complex survey design; and, grosses the results to be representative of the distribution of employment across England, rather than the number of workplaces. The weighting process can be summarised as:

1. The first stage weight (sampling weight) is calculated as the inverse of the probability of selection. As outlined in Section 2, the probability of selection for an individual workplace is determined by the NUTS2 sub region and employment size band it is assigned to on the IDBR, as well as the number of employees at the workplace. This is done to correct for the design effects of sampling to reflect employment.

2. The sampling weight is then adjusted by multiplying it by the employment total of each interviewed workplace as recorded on the IDBR. This adjustment to the design weight produces a 'base weight' for calibrating to population totals. These totals are based on the latest available IDBR information for (a) total employment band, (b) NUTS2 sub region, and (c) industry sector with no interactions between these variables.[19]

3. To avoid excessive variance in weights both across the sample and within key subgroups, these weights are trimmed within each NUTS1 region. The minimum weight is set at 1/5 of the median untrimmed weight in the relevant region; the maximum weight is set at 5 times the median untrimmed weight in the relevant region.

[19] Each category is calibrated independently of each other. It is raked so that each employment size category is calibrated to the employment for England, then each region is calibrated so that it matches the regions of England then each industry sector so that it matches the population of industry sectors in England.

4. Once this stage is complete, a second calibration to population totals is carried out but this time excluding total employment band.

Figures 13 to 15 illustrate the final unweighted and weighted profile of the November 2011 fieldwork interviews by IDBR employment band, industry sector and region, when the data are weighted to the employment profile of England.

It can be seen that, in practice, workplaces in the '250+' employment band are under-represented by the final weights. Ultimately, the weights represent a pragmatic trade-off between two competing types of error: bias and variance. The weighting scheme will continue to be evaluated to ensure that the trade-off continues to meet the requirements of the survey.

The survey uses employment to scale the responses to employment totals to reflect the relative importance or contribution of different sized workplaces to the local economy. Employment is used as turnover is not available at the workplace level on the IDBR (only at the enterprise level).[20] The data are weighted so that the weighted sample matches employment totals for each NUTS2 region. This additional process of grossing to employment totals, rather than counts, is not a traditional weighting process.

This means that economic importance weights should not be used with the survey variables that ask respondents about the total number of employees[21] at their site. For these variables it is more appropriate to analyse using the workplace weight.

Using this weighting scheme means that a Workplaces' influence in the estimate is approximately proportionate to the number of employees at that workplace, thus a larger workplace will have more influence than a smaller workplace; this is designed to capture the importance of the workplace to the economy. The use of employment means that the results effectively estimate the proportion of employees working at a site where the site manager believes a particular outcome is positive/negative/the same.

| Sample size | Unweighted% | Weighted to employment% | IDBR population (employment)% |
|---|---|---|---|
| **IDBR employment band** | | | |
| 1-2 | 7.5 | 7.3 | 6.7 |
| 3-4 | 8.1 | 5.6 | 5.0 |
| 5-9 | 14.0 | 9.8 | 8.8 |
| 10-19 | 17.8 | 11.4 | 10.2 |
| 20-49 | 24.8 | 17.5 | 15.5 |
| 50-99 | 14.4 | 14.0 | 12.4 |
| 100-249 | 9.0 | 16.2 | 14.4 |
| 250+ | 4.4 | 18.1 | 27.0 |
| Total | 100 | 100 | 100 |
| *Base* | *3,080* | *3,080* | *23,205,600* |

*Figure 13: Profile of November 2011 EBS data, weighted by economic importance weights*

[20] The use of employment rather than turnover to allocate the sample, is likely to be preferred even if turnover data were available, as employment is generally less volatile than turnover.
[21] Variables that relate to total employment are qemps and qempsfl.

| Sample size | Unweighted% | Weighted to employment% | IDBR population (employment)% |
|---|---|---|---|
| **Region** | | | |
| 1 North East | 8.5 | 4.3 | 4.3 |
| 2 North West | 13.8 | 12.8 | 12.8 |
| 3 Yorkshire and The Humber | 10.8 | 9.5 | 9.5 |
| 4 East Midlands | 9.9 | 8.2 | 8.2 |
| 5 West Midlands | 12.6 | 10 | 10 |
| 6 East of England | 9.6 | 10.6 | 10.6 |
| 7 London | 8.7 | 18.3 | 18.3 |
| 8 South East | 12.6 | 16.2 | 16.2 |
| 9 South West | 13.6 | 10 | 10 |
| Total | 100 | 100 | 100 |
| Base | *3,080* | *3,080* | *23,205,600* |

*Figure 14: Profile of November 2011 EBS data, weighted by workplaces in England*

| Sample size | Unweighted% | Weighted to employment% | IDBR population (employment)% |
|---|---|---|---|
| **Industry (SIC 2007 section)** | | | |
| A: Agriculture, Forestry And Fishing | 3.1 | 1.3 | 1.3 |
| B: Mining And Quarrying | 0.1 | 0.1 | 0.1 |
| C: Manufacturing | 8.6 | 9.1 | 8.5 |
| D: Electricity, Gas, Steam And Air Conditioning Supply | - | - | 0.4 |
| E: Water Supply; Sewerage, Waste Management And Remediation Activities | 0.4 | 0.4 | 0.6 |
| F: Construction | 4.8 | 4.8 | 4.8 |
| G: Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles | 20.2 | 16.4 | 16.4 |
| H: Transportation And Storage | 3.1 | 4.6 | 4.6 |
| I: Accommodation And Food Service Activities | 9.2 | 6.2 | 6.2 |
| J: Information And Communication | 2.2 | 3.9 | 3.9 |
| K: Financial And Insurance Activities | 1.2 | 3.8 | 3.8 |
| L: Real Estate Activities | 1.8 | 1.7 | 1.7 |
| M: Professional, Scientific And Technical Activities | 6.7 | 7.6 | 7.6 |
| N: Administrative And Support Service Activities | 6.1 | 8.1 | 8.1 |
| O: Public Administration And Defence; Compulsory Social Security | 2 | 5.3 | 5.3 |
| P: Education | 12.1 | 9.5 | 9.5 |
| Q: Human Health And Social Work Activities | 12.8 | 12.5 | 12.5 |
| R: Arts, Entertainment And Recreation | 2.8 | 2.5 | 2.5 |
| S: Other Service Activities | 3 | 2.2 | 2.2 |
| T: Activities Of Households As Employers; Undifferentiated Goods- And Services-Producing Activities Of Households For Own Use | - | - | 0 |
| U: Activities Of Extraterritorial Organisations And Bodies | - | - | 0 |
| Total | 100 | 100 | 100 |
| Base | *3,080* | *3,080* | *23,205,600* |

*Figure 15: Profile of November 2011 EBS data, weighted by workplaces in England*

*Note: The dash (-) means that there were no workplaces in this subgroup interviewed.*

## 5.2 Experimental workplace weights

For analyses at the workplace level a traditional weight, known as the workplace weight, is derived. The workplace weight ensures that the sample is representative of the number of workplaces by NUTS1 region and by industry sector and is as representative as possible of total employment bands. The sampling method is not optimised for the workplace weight, but it has been optimised to ensure it most closely represents the employment distribution within England. This means that the larger the number in employment at a workplace, the greater the probability that it will be selected. This is done because while just three per cent of workplaces have more than 50 employees, 54% of employees work at workplaces with more than 50 employees.

In order to represent the economic importance of employment, larger workplaces are over represented in the sample to redress the imbalance in workplace size/employment importance ratio. In a year all workplaces with 250 or more employees will be selected. The result of this method of sampling is a less efficient sample for the workplace weight.

The weighting approach is similar to the derivation of the economic importance weights outlined in Section 5.1. The major difference is that estimates are not grossed to employment counts. The stages are outlined below:

1. The same first stage weight (sampling weight) is used, as when deriving the economic importance weights. This is calculated as the inverse of the probability of selection.

2. This sampling weight is then calibrated to population totals for workplaces. These totals are based on the latest available IDBR information for (a) total employment band, (b) NUTS2 sub region, and (c) industry sector with no interactions between these variables.

3. As with the economic importance weighting, to avoid excessive variance in weights both across the sample and within key subgroups, these weights are trimmed within each NUTS1 region. The minimum weight is set at 1/5 of the median untrimmed weight in the relevant region; the maximum weight is set at 5 times the median untrimmed weight in the relevant region.

4. Once this stage is complete, a second calibration to population totals is carried out but this time excluding total employment band.

Figures 16 to 18 illustrate the final unweighted and weighted profile of the November 2011 fieldwork interviews by employment band, industry sector and region, when the data are weighted to the workplace profile of England.

In practice, although the industry and region profiles of the sample match the population profiles, the profile of workplaces in the various employment bands are significantly different. The smallest workplaces (those with employment of 2 or less) are considerably under-represented. However, as with the economic importance weighting, ultimately, the weights represent a pragmatic trade-off between two competing types of error: bias and variance. It should also be borne in mind that the sampling procedure was designed with a view to maximising the efficiency when weighted to employment, not workplaces. As with many aspects of the EBS, this will be reviewed as the survey progresses. All tables initially published from the EBS will use the economic importance weights.

| Sample size | Unweighted% | Weighted to workplaces% | IDBR population workplaces% |
|---|---|---|---|
| **IDBR employment band** | | | |
| 1-2 | 7.5 | 22.0 | 52.9 |
| 3-4 | 8.1 | 20.5 | 15.6 |
| 5-9 | 14.0 | 25.3 | 14.5 |
| 10-19 | 17.8 | 16.2 | 8.1 |
| 20-49 | 24.8 | 9.8 | 5.5 |
| 50-99 | 14.4 | 3.4 | 2.0 |
| 100-249 | 9.0 | 1.9 | 1.0 |
| 250+ | 4.4 | 0.9 | 0.5 |
| Total | 100 | 100 | 100 |
| *Base* | *3,080* | *3,080* | *2,161,200* |

*Figure 16: Profile of November 2011 EBS data, weighted by workplaces in England*

| Sample size | Unweighted% | Weighted to workplaces% | IDBR population workplaces% |
|---|---|---|---|
| **Region** | | | |
| 1 North East | 8.5 | 3.4 | 3.4 |
| 2 North West | 13.8 | 11.6 | 11.6 |
| 3 Yorkshire and The Humber | 10.8 | 8.5 | 8.5 |
| 4 East Midlands | 9.9 | 7.9 | 7.9 |
| 5 West Midlands | 12.6 | 9.6 | 9.6 |
| 6 East of England | 9.6 | 11.6 | 11.6 |
| 7 London | 8.7 | 18.2 | 18.2 |
| 8 South East | 12.6 | 18.1 | 18.1 |
| 9 South West | 13.6 | 11.0 | 11.0 |
| Total | 100 | 100 | 100 |
| *Base* | *3,080* | *3,080* | *2,161,200* |

*Figure 17: Profile of November 2011 EBS data, weighted by workplaces in England*

| Sample size | Unweighted% | Weighted to workplaces% | IDBR population workplaces% |
|---|---|---|---|
| **Industry (SIC 2007 section)** | | | |
| A: Agriculture, Forestry And Fishing | 3.1 | 4.4 | 4.4 |
| B: Mining And Quarrying | 0.1 | 0.2 | 0.1 |
| C: Manufacturing | 8.6 | 5.4 | 5.3 |
| D: Electricity, Gas, Steam And Air Conditioning Supply | - | - | 0.1 |
| E: Water Supply; Sewerage, Waste Management And Remediation Activities | 0.4 | 0.3 | 0.4 |
| F: Construction | 4.8 | 10.7 | 10.7 |
| G: Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles | 20.2 | 19.0 | 19.0 |
| H: Transportation And Storage | 3.1 | 3.2 | 3.2 |
| I: Accommodation And Food Service Activities | 9.2 | 6.2 | 6.2 |
| J: Information And Communication | 2.2 | 6.6 | 6.6 |
| K: Financial And Insurance Activities | 1.2 | 2.7 | 2.7 |
| L: Real Estate Activities | 1.8 | 3.6 | 3.6 |
| M: Professional, Scientific And Technical Activities | 6.7 | 14.3 | 14.3 |
| N: Administrative And Support Service Activities | 6.1 | 7.2 | 7.2 |
| O: Public Administration And Defence; Compulsory Social Security | 2.0 | 0.9 | 0.9 |
| P: Education | 12.1 | 2.6 | 2.6 |
| Q: Human Health And Social Work Activities | 12.8 | 5.6 | 5.6 |
| R: Arts, Entertainment And Recreation | 2.8 | 3.0 | 3.0 |
| S: Other Service Activities | 3.0 | 4.0 | 4.0 |
| T: Activities Of Households As Employers; Undifferentiated Goods- And Services-Producing Activities Of Households For Own Use | - | - | 0.0 |
| U: Activities Of Extraterritorial Organisations And Bodies | - | - | 0.0 |
| Total | 100 | 100 | 100 |
| *Base* | *3,080* | *3,080* | *2,161,200* |

*Figure 18: Profile of November 2011 EBS data, weighted by workplaces in England*

*Note: The dash (-) means that there were no workplaces in this subgroup interviewed.*

## 5.3 Balance figures

Some of the individual tables in the monthly and quarterly statistics, and in the Online Reporting Tool contain 'Balances'. Balances provide a summary of the scores for businesses that expect a variable to change (generally reported as 'higher' or 'lower'); and are calculated by deducting the scores for the 'lower' category from the scores for the 'higher' category. If a balance statistic is positive, more businesses experienced or expected a factor to be higher; conversely, if a balance statistic is negative more businesses experienced or expected a factor to be lower. Balance statistics do not provide an indication of the number of businesses that answered a factor was the same and it is recommended that users review the scores for all categories when considering a balance. Users should also be aware that a balance can be achieved through a number of different scenarios in the underlying results. For example, a balance of zero can be achieved from Higher and Lower being both 0% or both being 50%. It is therefore important to consider the underlying figures published for each variable.

It is important to remember that the survey questions ask workplaces whether, for example, output was higher or lower and this does not take into account the size of any changes. Therefore a balance of 50% does not necessarily mean output growth will be higher than if the balance was 20%, as the growth rate seen by those contributing to the 20% positive balance may, in aggregate, outweigh the growth rates seen or expected by those contributing to the positive 50% balance. The difference in size between the two percentages simply means that businesses accounting for a larger proportion of the economy reported that output was higher.

## 5.4 Sampling errors

The sample for the English Business Survey is a stratified random sample drawn from the IDBR. TNS BMRB are provided with full business population counts (broken down by employment and workplaces within sub-regions) from this database. When the quarterly sample is drawn, the list of records is sorted by three categories (local authority unit, industry sector and employment count). From this, sample is drawn at random, starting from a random position on the sample list. Ordering the list, starting at a random point and selecting at random helps minimise the levels of bias within the sample.

The survey weighting includes a correction for the design of the sample (see figure 24 in appendix C), and significance testing on the survey data includes the level of error in the calculation of significance.

Standard errors form the basis for calculating confidence intervals associated with particular estimates. A 95% confidence interval for a population estimate is ±1.96 standard errors around the estimate calculated from the sample. Figure 19 presents the confidence intervals around survey estimates of various magnitudes if the sample is assumed to be a simple random sample (SRS).

| | 95% confidence intervals (using SRS) at different estimates | | |
|---|---|---|---|
| | Estimate | | |
| **Sample size** | **10% or 90%** | **25% or 75%** | **50%** |
| 100 | +/- 5.9% | +/- 8.7% | +/- 9.8% |
| 150 | +/- 4.9% | +/- 7.1% | +/- 8.2% |
| 200 | +/- 4.3% | +/- 6.1% | +/- 7.1% |
| 250 | +/- 3.7% | +/- 5.5% | +/- 6.2% |
| 300 | +/- 3.5% | +/- 5.0% | +/- 5.8% |
| 400 | +/- 3.0% | +/- 4.3% | +/- 5.0% |
| 1,000 | +/- 1.9% | +/- 2.8% | +/- 3.1% |
| 1,500 | +/- 1.5% | +/- 2.3% | +/- 2.5% |
| 2,000 | +/- 1.3% | +/- 1.9% | +/- 2.2% |
| 3,000 | +/- 1.1% | +/- 1.6% | +/- 1.8% |

*Figure 19: Confidence intervals (95% confidence level) using simple random survey*

The EBS does not use a simple random sampling (SRS) approach; design factors are calculated to adjust for this complex design and can be applied to the equivalent confidence interval for a survey using a SRS approach. For example, if the SRS standard error was 0.9% and the design factor was 1.38, the complex standard error would equal 1.2% (0.9*1.38=1.242). If the survey estimate was 50%, the SRS confidence interval would be:

50% +/- (1.96*0.9%) = between 48.2% and 51.8%

The 95% confidence interval for the survey employing the complex sample design would be:

50% +/- (1.96*1.2%) = between 47.6% and 52.4%

Thus in 19 samples out of 20, the population value would be expected to lie within the 95% confidence intervals (between 47.6% and 52.4%) constructed. Only one time out of twenty would the population value be expected to lie outside the confidence interval for the survey estimate.

Figure 24 in appendix C shows the estimated design factors associated with a number of estimates based on the interview data from November 2011 fieldwork (October 2011 EBS), weighted to economic importance.[22]

There are design factors that are larger than one. This is because weights are required to compensate for different sampling rates in different strata. As discussed in section 5.1 a design weight is produced which takes into account the oversampling of large workplaces which is necessary to represent employment (and therefore economic importance). However this is countered by the stratification and the targeting of more

[22] These design factors were calculated using the Complex Samples module within IBM's SPSS software. This software incorporates the sample design when producing statistics and so generates the complex standard errors.

variable strata, which leads to design factors less than one for the regional breakdowns where the latter effect is more dominant[23].

## 5.5 Comparing estimates to see whether a significant difference exists

One of the main uses of the EBS is to compare estimates across regions and over time. However, due to variation between random samples that could be drawn from the same population, differences between survey estimates may arise purely by chance, rather than as a result of genuine differences between the underlying populations.

On the data tables accompanying the Statistical Release each month, subgroup percentages have been tested against the equivalent percentage for England and if shaded, the difference was found to be statistically significant at the 95% level.

The significance test employed is a t test, where the variance of the difference between the subgroup percentage ($y_1$) and the England percentage ($y_2$) is first calculated as:

$$V(y_2 - y_1) = V(y_1) + V(y_2) - 2RV(y_1)$$

where R is the product-moment correlation coefficient between two sample proportions $y_1$ and $y_2$ and V represents the sample variance.[24]

With independent samples, R would be 0. With overlapping samples, it is generally positive. In this instance, since the subgroup makes up part of the England total, the correlation coefficient for the overlapping proportion is 1 and for the non-overlapping proportion is 0. Thus, instead of the correlation coefficient, the proportion of cases the subgroup makes up out of the total England is used in place of R.

[23] A design factor of less than one arises when a sample is more precise and has smaller standard errors than a SRS, while a design factor greater than one arises when a sample has standard errors larger than those that would be obtained from a SRS of the same size.

[24] Taken from Kalton, G. (1983), *Introduction to Survey Sampling*, Sage University Paper series on Quantitative Applications in the Social Sciences, series no. 07-035, Beverly Hills, CA, and London: Sage Publications.

# 6. Data preparation and Publication

Before data is published it goes through a series of quality checks to reduce the possibility of error. This section looks at the data preparation processes that are conducted, and the publication of EBS data.

The stages of research through till publication are detailed below.

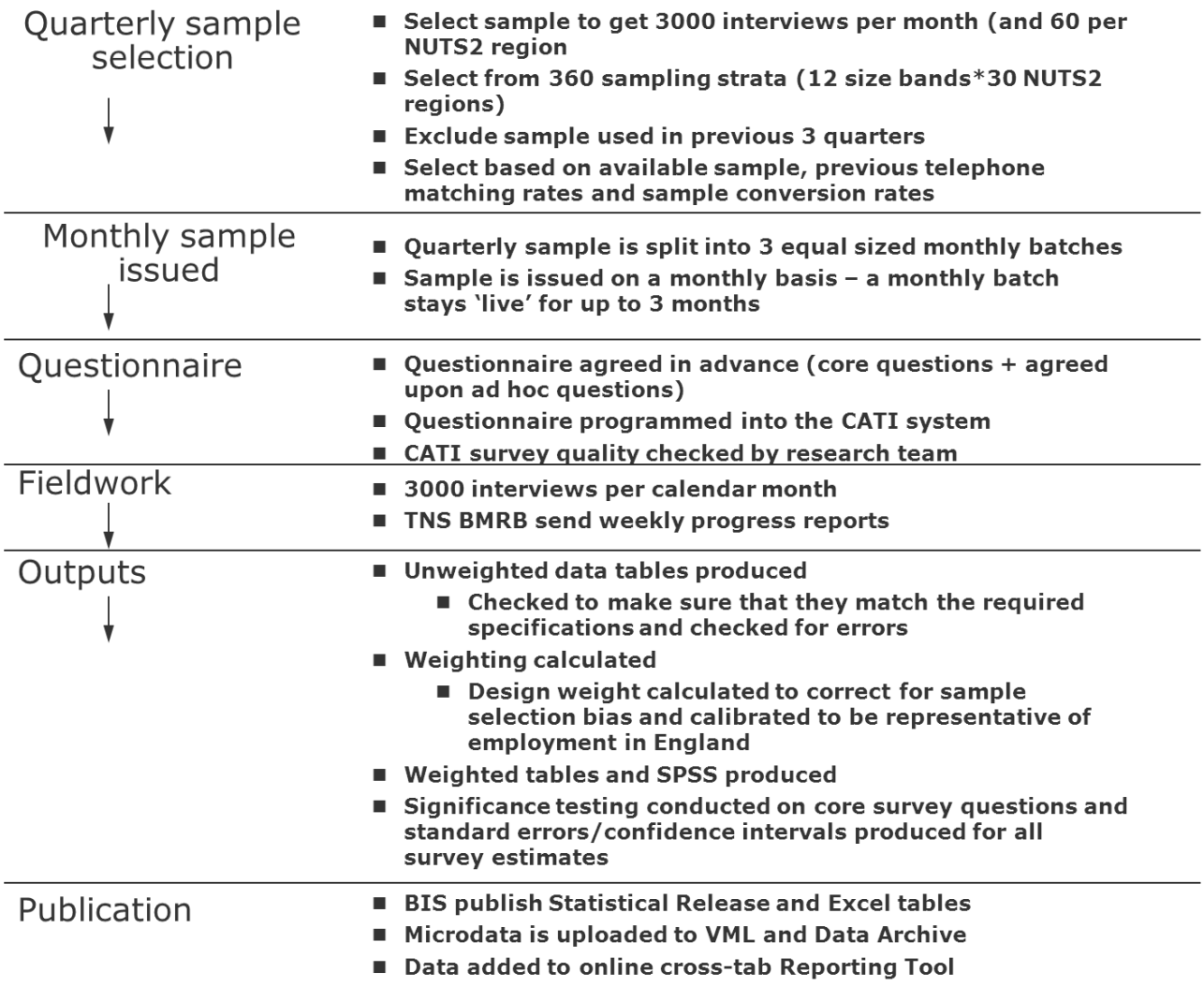


*Figure 20: Research process from sample selection to publication of data*

## 6.1 Data Preparation

### 6.1.1 Coding of open questions and other answers

The EBS questionnaire contains no open ended questions within the core set of questions. Occasionally, the ad hoc questions that can be added to a calendar month's questionnaire may require the need for coding of open ended and 'other (specify)' responses. When this is the case, all 'other' answers will be inspected to check whether they should have been assigned to one of the pre-coded answers. Where there are cases that give similar or identical responses additional codes will be added to the code frames to simplify analysis.

### 6.1.2 Tabular output

Monthly data tables are produced in Microsoft Excel format. The tables include the weighted percentage totals only; all absolute numbers are suppressed with the exception of unweighted base sizes (counts of responses).

Suppression rules have been devised through reviews of other surveys and through discussions between BIS, the ONS and TNS BMRB. Subsequently, unweighted base counts are rounded to base 5 and column percentages are rounded to the nearest whole number. Figures are suppressed for any columns where the base is less than 50. Cell sizes with an unweighted count of less than 5 but not equal to one are also suppressed. For an example of the data tables please see the EBS User Guide[25].

## 6.2 Quality Assurance

Checks are carried out by TNS BMRB to ensure that all variables are fully-labelled in terms of both variable names and code frame labels. There is also consistent formatting of standard codes (e.g. Don't know, Refused codes) and consistent definitions of missing values.

The final data set is quality assured by checking:

Manual checks:

- against the raw interview data, to ensure that the data set fully reflects the raw data from which it has been produced.
- to ensure that all filters fully match the specification, that is, checking whether the correct number of respondents answered each question that they were supposed to, according to the paper version of the questionnaire.

[25] https://www.gov.uk/government/organisations/department-for-business-innovation-skills/series/english-business-survey

Automated checks:

replicating the tables from the micro data to ensure consistent results are produced. This quality assurance procedure ensures that the correct figures are displayed in the tables, the correct suppression rules have been applied and the data have been rounded accordingly.

## 6.3 Publication

*Monthly Statistical Release*

BIS publish the English Business Survey Statistical Release each month, not more than two months after the reference period used in the survey (ie November 2012 reference period was published by the end of January 2013).

*Quarterly Statistical Release*

BIS also publish a Statistical Release for quarterly data, not more than three months after the reference period used in the survey. Due to the base size of 9,000, additional analysis is conducted at a sub-regional (NUTS2 and LEP) level.

*Data Tables*

Data tables (in excel format) featuring the 15 core survey questions are published at the same time as the Monthly Statistical Release. A quarterly dataset with 3 months of accumulated data is also released within three months of the period that is referenced in the data.

*The English Business Survey Reporting Tool*

An online reporting tool has been developed to dissemination survey results, it can be found at http://dservuk.tns-global.com/**English**-**Business**-**Survey**-Reporting-Tool/

The English Business Survey Reporting Tool is an interactive method of querying the EBS results from October 2011 onwards. Users can analyse data for the core questions at several levels (time period, geography, and a selection of cross breaks as referenced in figure 21 below). The picture below outlines the options that users can select:

The following tables list the options available in the **time period**, **question topics, cross break and geography** drop down menus.

Table 1 - **Time period**

| |
|---|
| **Monthly data e.g.** |
| *October 2011* |
| *November 2011* |
| **Cumulative monthly data e.g.** |
| *October 2011 – November 2011* |
| *October 2011 – December 2011* |
| **Quarterly data e.g.** |
| *Q4 2011* |
| *Q1 2012* |
| **Cumulative quarterly data e.g.** |
| *Q4 2011 – Q1 2012* |
| *Q4 2011 – Q2 2012* |
| **Annual data e.g.** |
| *Annual Oct 2011 – Sept 2012* |

Table 2 - **Question topics**

| |
|---|
| Levels of business activity (current/future) |
| Levels of stocks (current/future) |
| Number of people working (current/future) |
| Total hours worked (current) |
| Workforce utilisation (current) |
| Wages/labour costs (current/future) |
| Output prices (current/future) |
| Capital investment |
| Level of business activity (yearly) |
| Volume of exports (current/future) |

Table 3 – **Cross Break**

| |
|---|
| Workplace size |
| Industry sector summary |
| NUTS1 Region |
| Single or Multi site |
| Age of workplace |
| Export status |
| Legal status of business |
| Ownership of workplace |
| Reference period |

Table 4 – **Geography**

| |
|---|
| All England |
| NUTS1 (8 regions) |
| LEP (39 regions) |

*Figure 21: List of available options on reporting tool*

The reporting tool is updated with the latest EBS results two days after they are published on the BIS website; Figure 22, below provides an example of data displayed by the reporting tool.

**English Business Survey**

**QOUTPUT Level of business activity or volume of output in reference month compared to 3 months before**

**Base: All businesses**

**Geography: All England**

| | TOTAL | WORKPLACE SIZE | | | | INDUSTRY SECTOR SUMMARY VARIABLE | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Base | 1 to 9 | 10 to 49 | 50 to 249 | 250+ | Agriculture/ Production (A-E) | Construction (F) | Other services (G-N, R-U) | Education, Health and Public administration and defence (OPQ) |
| Unweighted Base | 3080 | 935 | 1300 | 685 | 160 | 370 | 145 | 1735 | 830 |
| Higher | *35%* | *27%* | *36%* | *37%* | *41%* | *40%* | *30%* | *37%* | *31%* |
| The same | *38%* | *38%* | *36%* | *37%* | *44%* | *36%* | *41%* | *31%* | *53%* |
| Lower | *25%* | *33%* | *26%* | *22%* | *14%* | *23%* | *29%* | *30%* | *12%* |
| Don't know | *2%* | *1%* | *2%* | *4%* | * | *1%* | * | *2%* | *4%* |
| Balance(Higher-Lower) | *10%* | *-7%* | *10%* | *15%* | *27%* | *16%* | *1%* | *6%* | *18%* |

Reference month - October 2011
Data are weighted to be representative of total employment in England (not workplaces), so a result of 10% should be interpreted as workplaces accounting for 10% of employment are....
Region, workplace size and industry all relate to the workplace. For workplaces that are part of larger organisations region, workplace size and industry may differ from that of the enterprise.
Table sub-totals may not sum to total due to rounding. Unweighted totals are rounded to the nearest 5.
Tables have been assessed for disclosure to protect confidentiality
* Figures suppressed due to small cell sizes
- Figures suppressed due to small base sizes (i.e. column suppression)
... Balance not available due to small sample sizes
TNS-BMRB

*Figure 22: Online reporting tool example data*

## 6.4 Dataset release

EBS Micro data are available to 'approved researchers' via ONS' 'Virtual Micro Laboratory'[26] and an aggregated version of the dataset is available to academics from the UK Data Archive[27].

[26] http://www.ons.gov.uk/ons/about-ons/who-we-are/services/index.html

# 7. Methodological Revisions

As the survey has progressed, revisions have been made to the sample selection process and the formula used for significance testing of monthly results in data tables. This section explains the changes made.

## 7.1 Sample selection process

Between November 2011 and December 2012 the sample selection was more complex, involving two stages to the design of the selection – (the current, simpler design is described in section 1). Firstly the sample was sorted into 90 strata (3 size bands and 30 NUTS2 sub regions), then an annual selection was made whereby all large workplaces (250+) were selected and the remaining 60 strata were selected with probability proportionate to workplace size. A quarterly selection was then made within each stratum (from the selected annual sample) by using a random start and fixed sampling interval to ensure an even spread of different sized workplaces in each stratum.

The new design (see section 1) involves producing more strata (360 - as the size bands are more detailed), but the sample is selected directly for a quarter, so there is only one stage. As before, a sampling weight is computed as the inverse of the sampling probability and calibration to the population remains the same.

## 7.2 Significance Testing

The significance test method was evaluated and changed for the February 2012 reference month data from its original basis. The original significance test employed for November 2011 to January 2012 outputs was a t-test, where the variance of the difference between the subgroup percentage ($y_1$) and the England percentage ($y_2$) was first calculated as:

$$V(y_2 - y_1) = V(y_1) + V(y_2) - 2R\sqrt{V(y_1)*V(y_2)}$$

The formula was adjusted because previously the formula dealt with situations where a population is measured on two separate occasions. So previously there were two difference estimates of the variance in the overlap, but the adjusted formula deals with the situation where there is only one estimate of the variance which is a more accurate measure of comparing a single estimate within a population against a total.

[27] http://www.data-archive.ac.uk

# 8. Feedback

This is the second version of this document. If you have any feedback on its content, clarity and readability you may contact us (details below). Any suggestions will inform the next update of the document.

Statistician: Gary Wainman

Tel: 0114 207 5114

E-mail: ebsurvey@bis.gsi.gov.uk

Letters: 2nd Floor, 2 St Paul's Place, 125 Norfolk Street, Sheffield, S1 2FJ

# Appendix A: Reassurance letter

Dear Sir, Madam,

**ENGLISH BUSINESS SURVEY**

The Department for Business, Innovation and Skills (BIS) has asked TNS-BMRB, an independent research agency, to conduct a survey among businesses across the country. The survey aims to provide BIS with regular and up to date assessments of how businesses perceive current economic and business conditions across England.

The questionnaire will be covering business issues such as employment, costs and investments. It will not be asking for any detailed information about your business performance, just whether things have got better or worse over the last few months and what you expect to happen in the next few months. If your organisation has more than one workplace we would like you to answer the questions based on the specific site that we refer to in the interview.

Each interview will take about 10 minutes and is conducted over the telephone. We would be very grateful if you would agree to take part. If you would like to find out any further information about this research please visit the English Business Survey website at www.ebsurvey.co.uk

As a result of this survey the government and your local enterprise partnership will have a much better understanding of how businesses in your area are faring in the current economic climate. Findings from the survey will be placed on the BIS website on a regular basis. More information is available at https://www.gov.uk/government/organisations/department-for-business-innovation-skills/series/english-business-survey

TNS-BMRB are bound by the Market Research Society Code of Conduct. This means that all survey responses and data will be treated confidentially. The full survey data, including company demographic information, will be used for research purposes only by researchers within BIS, the National Institute for Economic and Social Research, TNS-BMRB and the ONS data lab. Published data, held on the BIS and the English Business Survey website, will be anonymised. No individual firm will be identifiable in published findings.

If you have any further questions about this research please contact Hannah Kilshaw at TNS-BMRB on TNS-BMRB.EnglishBusinessSurvey@tns-bmrb.co.uk or 0207 656 5748 quoting the ID number in the subject header of the correspondence.

Thank you in advance for your cooperation.

Yours sincerely,

**Deputy Director, Enterprise and Economic Development Analysis**
**Department for Business, Innovation and Skills**

# Appendix B: Ad hoc questions

All questions can be analysed at the NUTS1 geographical level unless an asterisk is next to the response in the 'Frequency' column. If an asterisk is included then the question has asked for a full quarter and is available to analyse at sub-regional level in the quarterly data at NUTS2 or LEP level.

| Question name | Description | Frequency | Reference month |
|---|---|---|---|
| **Obstacles to growth** | | | |
| QOBST3 | Main challenges for the year ahead | Ad hoc | June/December 2012 |
| QCONTING2 | How preparing for these challenges | Ad hoc | June/December 2012 |
| QOPSYR2 | Main opportunities for the year ahead | Ad hoc | June/December 2012 |
| **Public sector** | | | |
| QPUBLC | Proportion of work conducted for the public sector | Annual | October 2011/2012 |
| **Exporting** | | | |
| QIMPDEP | Extent output is dependent on imported goods | Annual | November 2011/2012 |
| QEXPLN | Whether have plans to start exporting directly from workplace in next 12 months | Annual | November 2011/2012 |
| QEXPLANY | Plans for exports | Annual | November 2011/2012 |
| QEXPBAR | Difficulties, if any, encountered when trying to develop exports over previous 12 months | Annual | July 2012 |
| QEXPBAR2 | Why business does not export | Annual | July 2012 |
| **Research and development** | | | |
| QRD | Whether intend to introduce new or significantly redeveloped products, services or processes in next 12 months | Annual | September 2012 |
| QRD2 | Whether feel any of the following are barriers to the introduction of new or significantly redeveloped products, services or processes | Annual | September 2012 |
| **Changing employment levels/vacancies** | | | |
| Qhowa | How business expects employment levels to increase | Once a quarter | October 2011, January/April/ July 2012 |
| Qhowb | How business expects employment levels to decrease | Once a quarter | October 2011, January/April/ July 2012 |
| QVACA | Whether had any staff vacancies last month | Once a quarter | October 2011, January/April/ July 2012 |
| QVACB | Whether any of these vacancies difficult to fill | Once a quarter | October 2011, January/April/ July 2012 |
| QVACC | Types of job roles that were difficult to fill | Once a quarter | October 2011, January/April/ July 2012 |

| Question name | Description | Frequency | Reference month |
|---|---|---|---|
| **Credit** | | | |
| QCREDT | Whether offer credit to customers | Once a quarter | November 2011, February/May/August 2012 |
| QCREDLT | Whether a greater proportion of customers having been paying later than the standard payment terms last month compared with three months before | Once a quarter | November 2011, February/May/August 2012 |
| QCREDPBL | Whether late payment is an issue | Once a quarter | November 2011, February/May/August 2012 |
| QCREDPC | Proportion of customer base where late payment a problem | Once a quarter | November 2011, February/May/August 2012 |
| **Capital investment** | | | |
| QINVTYP | Largest capital investment made | Once a quarter | November 2011, February/May/August 2012 |
| QNOINV | Reasons for business not making any new capital investments | Once a quarter | November 2011, February/May/August 2012 |
| **Business support awareness** | | | |
| QSUPP4 | Awareness of types of help that are available and supported by government | Once a quarter | December 2011/12, March/June/September 2012 |
| QSUPPUSE4 | Whether business has used any of the following in the last 12 months | Once a quarter | December 2011/12, March/June/September 2012 |
| **Levels of cash** | | | |
| QCASH | Amount of cash available in reference month compared with same time last year | Once a quarter | December 2011/12, March/June/September 2012 |
| QCASH2 | Main reason for the change in cash available | Once a quarter | December 2011/12, March/June/September 2012 |
| **LEP** | | | |
| QLEP | Awareness of Local Enterprise Partnerships | One quarter* | April/May/June 2012 |
| QLEP2 | Awareness of specific LEP that covers workplace area | One quarter* | April/May/June 2012 |
| QLEP3 | Whether business has had any contact with LEP | One quarter* | April/May/June 2012 |
| QLEP4 | Helpfulness of contact with LEP | One quarter* | April/May/June 2012 |

| Question name | Description | Frequency | Reference month |
|---|---|---|---|
| **Flooding** | | | |
| QDEFRA1 | Whether had difficulty getting building/contents insurance in last year due to risk of flooding | One quarter* | Jan/Feb/March 2013 |
| QDEFRA2 | Experience of getting building/contents insurance cover | One quarter* | Jan/Feb/March 2013 |
| QDEFRA3 | Reasons given by insurers for cover being refused/price or excess levels going up in cost | One quarter* | Jan/Feb/March 2013 |
| QDEFRA4 | Any actions taken if had difficulty getting buildings/contents insurance as a result of flooding | One quarter* | Jan/Feb/March 2013 |

*Figure 23: Ad hoc questions asked*

# Appendix C: Complex Standard Errors November 2011

| COMPLEX STANDARD ERRORS FOR SURVEY ESTIMATES | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **Estimate (%)** | **Standard error (%)** | **95% confidence interval** | | **Design factor (deft)** | **N (unweighted)** |
| | | | Lower (%) | Upper (%) | | |
| **QOUTPUT Level of business activity or volume of output last month compared with 3 months before** | | | | | | |
| -7 Don't know | 2.2 | 0.3 | 1.7 | 2.9 | 1.128 | 85 |
| 1 Higher | 35.1 | 1.2 | 32.7 | 37.5 | 1.434 | 985 |
| 2 The same | 38.1 | 1.2 | 35.8 | 40.5 | 1.393 | 1,150 |
| 3 Lower | 24.6 | 1.0 | 22.7 | 26.6 | 1.281 | 865 |
| **QFUTOUT Expectation of level of business activity or volume of output in 3 months time** | | | | | | |
| -7 Don't know | 3.9 | 0.5 | 3.1 | 5.0 | 1.379 | 120 |
| 1 Higher | 26.1 | 1.2 | 23.9 | 28.5 | 1.489 | 750 |
| 2 The same | 39.3 | 1.2 | 36.9 | 41.8 | 1.410 | 1,175 |
| 3 Lower | 30.6 | 1.1 | 28.5 | 32.9 | 1.330 | 1,035 |
| **QEXPT Whether site produces or sells goods or services for export directly overseas** | | | | | | |
| -7 Don't know | 0.6 | 0.4 | 0.2 | 2.0 | 2.290 | 10 |
| 1 Yes | 16.8 | 1.1 | 14.8 | 19.1 | 1.435 | 330 |
| 2 No | 82.6 | 1.1 | 80.3 | 84.7 | 1.460 | 2,045 |
| **QEXPTFT Expected volume of exports in 3 months time compared with this month** | | | | | | |
| -7 Don't know | 4.2 | 1.3 | 2.3 | 7.6 | 1.174 | 15 |
| 1 Higher | 28.8 | 3.5 | 22.4 | 36.0 | 1.395 | 90 |
| 2 The same | 46.1 | 3.5 | 39.3 | 53.1 | 1.281 | 155 |
| 3 Lower | 20.9 | 3.0 | 15.7 | 27.3 | 1.321 | 70 |
| **QSTOCK Volumes of stocks or inventories this month compared with 3 months ago** | | | | | | |
| -7 Don't know | 2.7 | 0.6 | 1.7 | 4.1 | 1.390 | 30 |
| 1 Higher | 27.3 | 1.6 | 24.3 | 30.6 | 1.338 | 375 |
| 2 The same | 38.9 | 1.7 | 35.7 | 42.3 | 1.289 | 560 |
| 3 Lower | 17.7 | 1.2 | 15.5 | 20.2 | 1.175 | 280 |
| 5 Do not have any stocks | 13.4 | 1.2 | 11.2 | 15.9 | 1.301 | 155 |
| **QFTSTOCK Expected volume of stocks or inventories in 3 months compared with this month** | | | | | | |
| -7 Don't know | 2.8 | 0.6 | 1.9 | 4.1 | 1.249 | 35 |
| 1 Higher | 11.8 | 1.1 | 9.9 | 14.1 | 1.236 | 185 |
| 2 The same | 40.2 | 1.7 | 36.9 | 43.6 | 1.302 | 575 |
| 3 Lower | 32.4 | 1.6 | 29.3 | 35.6 | 1.282 | 460 |
| 5 Do not have any stocks | 12.8 | 1.2 | 10.7 | 15.2 | 1.300 | 150 |
| **QPPL Number in employment last month compared with 3 months before** | | | | | | |
| -7 Don't know | 0.5 | 0.3 | 0.2 | 1.5 | 2.159 | 10 |
| 1 Higher | 18.6 | 1.0 | 16.6 | 20.7 | 1.497 | 495 |
| 2 The same | 63.9 | 1.2 | 61.4 | 66.2 | 1.406 | 2,090 |
| 3 Lower | 17.0 | 1.0 | 15.1 | 19.1 | 1.496 | 485 |
| **QFTPPL Expected number in employment in 3 months compared with this month** | | | | | | |
| -7 Don't know | 0.8 | 0.3 | 0.4 | 1.7 | 1.954 | 15 |
| 1 Higher | 11.3 | 0.9 | 9.7 | 13.2 | 1.572 | 295 |
| 2 The same | 67.8 | 1.2 | 65.4 | 70.2 | 1.467 | 2,235 |
| 3 Lower | 20.1 | 1.1 | 18.0 | 22.3 | 1.515 | 535 |

| Variable | Estimate (%) | Standard error (%) | 95% confidence interval | | Design factor (deft) | N (unweighted) |
|---|---|---|---|---|---|---|
| | | | Lower (%) | Upper (%) | | |
| **QHRS Number of actual hours worked last month compared with 3 months before** | | | | | | |
| -7 Don't know | 1.3 | 0.3 | 0.8 | 2.2 | 1.668 | 35 |
| 1 Higher | 29.3 | 1.2 | 27.0 | 31.6 | 1.443 | 765 |
| 2 The same | 51.8 | 1.3 | 49.3 | 54.2 | 1.393 | 1,665 |
| 3 Lower | 17.6 | 0.9 | 16.0 | 19.5 | 1.298 | 615 |
| | | | | | | |
| **QPRCBKa Wage and other labour costs last month compared with 3 months before** | | | | | | |
| -7 Don't know | 4.6 | 0.6 | 3.5 | 5.9 | 1.607 | 135 |
| 1 Higher | 23.2 | 1.0 | 21.2 | 25.2 | 1.351 | 765 |
| 2 The same | 65.7 | 1.2 | 63.3 | 68.0 | 1.392 | 1,950 |
| 3 Lower | 6.6 | 0.6 | 5.4 | 7.9 | 1.384 | 205 |
| | | | | | | |
| **QPRCFT Expected wage and other labour costs in 3 months compared with last month** | | | | | | |
| -7 Don't know | 2.1 | 0.4 | 1.5 | 3.0 | 1.346 | 65 |
| 1 Higher | 21.9 | 1.0 | 20.0 | 24.0 | 1.358 | 680 |
| 2 The same | 67.3 | 1.2 | 65.0 | 69.5 | 1.360 | 2,015 |
| 3 Lower | 8.6 | 0.7 | 7.4 | 10.0 | 1.321 | 290 |
| | | | | | | |
| **QPCHRD Average prices charged last month compared with 3 months before** | | | | | | |
| -7 Don't know | 3.0 | 0.5 | 2.1 | 4.2 | 1.480 | 65 |
| 1 Higher | 18.0 | 1.1 | 15.9 | 20.2 | 1.389 | 440 |
| 2 The same | 67.3 | 1.3 | 64.6 | 69.8 | 1.380 | 1,610 |
| 3 Lower | 11.8 | 0.9 | 10.2 | 13.7 | 1.341 | 270 |
| | | | | | | |
| **QPCHRDFT Expected average prices charged in 3 months compared with last month** | | | | | | |
| -7 Don't know | 4.2 | 0.6 | 3.2 | 5.4 | 1.381 | 100 |
| 1 Higher | 20.2 | 1.1 | 18.1 | 22.5 | 1.361 | 505 |
| 2 The same | 64.9 | 1.3 | 62.3 | 67.4 | 1.356 | 1,540 |
| 3 Lower | 10.7 | 0.8 | 9.2 | 12.4 | 1.288 | 250 |
| | | | | | | |
| **QOUTYR Volume of business activity or output compared with the same time last year** | | | | | | |
| -7 Don't know | 3.2 | 0.5 | 2.4 | 4.3 | 1.480 | 105 |
| 1 Higher | 43.1 | 1.3 | 40.6 | 45.6 | 1.432 | 1,225 |
| 2 The same | 26.9 | 1.1 | 24.9 | 29.0 | 1.333 | 870 |
| 3 Lower | 26.7 | 1.1 | 24.6 | 28.9 | 1.367 | 875 |
| | | | | | | |
| **region_code Region (NUTS1)** | | | | | | |
| 1 North East | 4.3 | 0.1 | 4.1 | 4.6 | 0.347 | 260 |
| 2 North West | 12.8 | 0.3 | 12.3 | 13.4 | 0.469 | 425 |
| 3 Yorkshire and The | 9.5 | 0.2 | 9.1 | 10.0 | 0.423 | 335 |
| 4 East Midlands | 8.2 | 0.2 | 7.7 | 8.6 | 0.493 | 305 |
| 5 West Midlands | 10.0 | 0.3 | 9.5 | 10.6 | 0.483 | 385 |
| 6 East of England | 10.6 | 0.3 | 10.1 | 11.1 | 0.459 | 295 |
| 7 London | 18.3 | 0.5 | 17.4 | 19.2 | 0.652 | 270 |
| 8 South East | 16.2 | 0.3 | 15.6 | 16.8 | 0.466 | 385 |
| 9 South West | 10.0 | 0.2 | 9.6 | 10.5 | 0.410 | 420 |

| Variable | Estimate | Standard | 95% confidence | | Design | N |
|---|---|---|---|---|---|---|
| | | | Lower | Upper | | |
| **industry_code Industry section (SIC 2007)** | | | | | | |
| 1 Agriculture, Forestry And Fishing | 1.3 | 0.1 | 1.0 | 1.6 | 0.724 | 95 |
| 2 Mining And Quarrying | * | * | * | * | * | * |
| 3 Manufacturing | 9.1 | 0.7 | 7.8 | 10.5 | 1.291 | 265 |
| 4 Electricity, Gas, Steam And Air Conditioning Supply | - | - | - | - | - | - |
| 5 Water Supply; Sewerage, Waste Management And Remediation Activities | 0.4 | 0.2 | 0.2 | 0.9 | 1.347 | 10 |
| 6 Construction | 4.8 | 0.5 | 4.0 | 5.8 | 1.214 | 145 |
| 7 Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles | 16.4 | 0.8 | 14.8 | 18.0 | 1.235 | 620 |
| 8 Transportation And Storage | 4.6 | 0.6 | 3.5 | 5.8 | 1.551 | 95 |
| 9 Accommodation And Food Service Activities | 6.2 | 0.4 | 5.5 | 7.1 | 0.980 | 285 |
| 10 Information And Communication | 3.9 | 0.6 | 2.9 | 5.2 | 1.693 | 70 |
| 11 Financial And Insurance Activities | 3.8 | 0.7 | 2.6 | 5.5 | 2.075 | 35 |
| 12 Real Estate Activities | 1.7 | 0.3 | 1.3 | 2.3 | 1.096 | 55 |
| 13 Professional, Scientific And Technical Activities | 7.6 | 0.7 | 6.4 | 9.1 | 1.412 | 205 |
| 14 Administrative And Support Service Activities | 8.1 | 0.7 | 6.8 | 9.6 | 1.476 | 190 |
| 15 Public Administration And Defence; Compulsory Social Security | 5.3 | 0.9 | 3.9 | 7.3 | 2.130 | 60 |
| 16 Education | 9.5 | 0.7 | 8.3 | 10.9 | 1.244 | 375 |
| 17 Human Health And Social Work Activities | 12.5 | 0.8 | 11.1 | 14.2 | 1.316 | 395 |
| 18 Arts, Entertainment And Recreation | 2.5 | 0.3 | 2.0 | 3.2 | 1.088 | 85 |
| 19 Other Service Activities | 2.2 | 0.3 | 1.7 | 2.8 | 1.025 | 90 |
| **employment_cod IDBR employment band** | | | | | | |
| 1 0-4 | 12.9 | 0.6 | 11.8 | 14.2 | 1.019 | 480 |
| 2 5-9 | 9.8 | 0.5 | 8.9 | 10.9 | 0.953 | 430 |
| 3 10-49 | 28.9 | 0.7 | 27.6 | 30.3 | 0.822 | 1,310 |
| 4 50-99 | 14.0 | 0.5 | 13.0 | 15.1 | 0.879 | 445 |
| 5 100-249 | 16.2 | 0.8 | 14.7 | 17.8 | 1.181 | 275 |
| 6 250-499 | 11.7 | 0.8 | 10.2 | 13.4 | 1.386 | 95 |
| 7 500-999 | 3.5 | 0.6 | 2.4 | 4.9 | 1.905 | 25 |
| 8 1000-4999 | 3.0 | 0.8 | 1.8 | 4.9 | 2.506 | 15 |
| 9 5000+ | - | - | - | - | - | - |

*Figure 24: Complex standard errors*

*Note: The star (*) means that the row was suppressed because there were too few workplace responses in this particular subgroup to produce reliable statistics. The dash (-) means that there were no workplaces in this subgroup interviewed.*