

Summary Quality Report for the Vacancy Survey

1 Introduction

This report is part of a rolling programme of quality reports being introduced by the Office for National Statistics (ONS). The full programme of work being carried out on [Statistical Quality](#)¹ is available on the [National Statistics website](#)². Summary Quality Reports are overview notes which pull together key qualitative information on the various dimensions of quality as well as providing a summary of methods used to compile the output.

This report relates to the monthly Vacancy Survey. This survey is a statutory, monthly survey of businesses which asks the single question, how many job vacancies they have in total (on a specified date) for which they are actively seeking recruits from outside their organisation. Vacancy statistics are published in the [Labour Market Statistical Bulletin](#)³ usually within six weeks of the reference date of the survey. The results are also published in [Economic and Labour Market Review \(ELMR\)](#)⁴. Further information can be found on the [National Statistics website](#)².

2 Summary of Quality

2.1 Relevance

The degree to which the statistical product meets user needs for both coverage and content.

The Vacancy Survey produces monthly estimates of job vacancies across the whole economy. Questionnaires are sent to a sample of approximately 6,000 businesses every month, approached mainly via head offices. The survey covers all sectors of the economy and all industries in England, Scotland and Wales (Great Britain) with the exception of employment agencies (to avoid double counting of vacancies) and agriculture, forestry and fishing (because of the disproportionate costs involved as these industries mainly consist of very small businesses with few vacancies). Northern Ireland businesses are not approached because of the risk of overlap with other surveys conducted by Northern Ireland departments. Estimates for UK are derived by weighting up the data for Great Britain using employment estimates (Northern Ireland accounts for around 3 per cent of UK employment). The headline series are based on three-month moving averages, by type of industry and by employment count, but monthly estimates of total vacancies are also published. Vacancy statistics are not available by region.

Survey	Vacancy Survey.
What it measures	Number of vacancies for which recruits are being actively sought.
Frequency	Monthly.
Sample size	6000 approximately.
Periods available	Monthly from April 2001.
Sample frame	Inter Departmental Business Register (IDBR).
Sample design	Stratified simple random sampling with 100 per cent coverage of businesses with register employment above a threshold which varies by industry.
Weighting	In strata without 100 per cent coverage, each business represents a number of similar businesses, based on the number of employees and the Standard Industrial Classification (currently SIC 2003 ⁵). Plans are in motion to move onto SIC 2007 in 2010. Weights are updated monthly.
Estimation	Ratio estimation uses a ratio between the survey variable (number of vacancies) and an auxiliary variable (register employment) to make estimates for non-sampled units.
Imputation	A link factor is calculated and applied to previous returns for each non-responder. The original construction for a never-responding business is calculated from a ratio (calculated from other respondent

	values in the same strata) being applied to the register employment. For subsequent periods, imputed values will be based on movements in similar sized businesses.
Outliers	Outliers are detected manually and are treated by setting their estimation weight to one, thereby representing only themselves.
Seasonal Adjustment	The series are seasonally adjusted in X-12-ARIMA ⁶ using a multiplicative model.

Vacancy statistics provide important information about the demand for labour, and give an early indication of what is happening in the labour market. They are used for monitoring and policy making purposes by UK government departments and Eurostat:

HM Treasury - Vacancy statistics are used to assess labour market conditions and are an important indicator in the context of macroeconomic assessment.

The Bank of England - The Bank's Monetary Policy Committee use vacancy statistics in the assessment of the labour market, that is, the balance between demand and supply and the extent of inflationary pressures in the economy.

The Department for Work and Pensions (DWP) - Whole economy estimates allow DWP to give some context to the Jobcentre Plus estimates.

The Department for Business, Innovation and Skills - The levels of vacancies are tracked as one of the indicators of the balance of supply and demand for skills.

Eurostat - Eurostat receives quarterly job vacancy estimates in order to monitor short-term changes in job vacancies by economic activity and to draw comparisons with other countries. In 2002 Eurostat agreed with member states to collect the statistics under a gentlemen's agreement. In 2008 a new regulation, [EC No 453/2008](#)⁷ was passed making the collection a mandatory requirement from 2010. The UK has played an active part in the task force to develop the regulation, which the UK Vacancy Survey fully meets.

Vacancy statistics are also used by businesses and analysts to gauge the strength of the labour market.

2.2 Accuracy

The closeness between an estimated result and the (unknown) true value.

Estimates from this survey are subject to various sources of error that can be categorised into sampling error and non-sampling error.

Sampling error occurs because estimates are based on a sample rather than a census. The Vacancy Survey estimates the size of this error by estimating standard errors and coefficients of variation. For the monthly estimates of total vacancies, the standard errors for the level are around 20,000, or 3 per cent expressed as a coefficient of variation. For the three-month rolling average of vacancies, the standard errors are around 10,000, or 1.5 per cent expressed as a coefficient of variation. For a three-month average of vacancies for a typical industrial sector, the coefficient of variation is around 10 per cent.

Non-sampling errors are not easy to quantify and include errors of coverage, measurement, processing and non-response. The Vacancy Survey usually exceeds a target monthly response rate of 80 per cent. In 2008, the average response rate for the survey was 81.6 per cent.

Revisions are analysed over time in terms of their size, direction and volatility. This is to monitor the accuracy of various statistical processes, such as, imputations for non-response, which can be replaced by late responses that cause revisions.

Standard errors and revisions analyses for the Vacancy Survey can be found in the [Annual update of data and seasonal adjustment for the Vacancy Survey](#)⁸.

2.3 Timeliness and Punctuality

Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the time lag between the actual and planned dates of publication.

The Vacancy Survey reference date falls on the first Friday of the month unless this is the first day of the month. In this case, the reference date will move to the second Friday of the month. Data collection for each period closes down on the fifteenth working day of the calendar month after the survey reference date. One week later the statistics are passed to the Labour Market Division, the customer within ONS. The vacancy statistics are then published in the [Labour Market Statistical Bulletin](#)³ usually between six and seven weeks after the reference date of the survey. The results are also published in [ELMR](#)⁴.

ONS publishes the latest month's vacancy estimates along with revisions to the previous three months' estimates and figures for the same period a year ago. In April of each year, revisions for the previous three years (thirty-eight months) are published and are pre-announced in the March Statistical Bulletin.

In the unlikely event of a change to the pre-announced release schedule, public attention should be drawn to the change and the reasons for the change should be explained fully at the same time, as set out in the [Code of Practice for Official Statistics](#)⁹

2.4 Accessibility and Clarity

Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.

Each month's headline estimates are based on three-month moving averages, by type of industry and by size of enterprise (in terms of employment), but monthly estimates of total vacancies are also published. The headline Vacancy estimates are published on the National Statistics website in the [Labour Market Statistical Bulletin](#)³. Vacancy data are also available each month in [ELMR](#)⁴ which is available on the [National Statistics website](#)² or in hard copy.

The following tables of vacancy data are published:

Publication	Tables	Content
Labour Market Statistical Bulletin	Table 21: Vacancies summary ¹⁰	UK seasonally adjusted monthly, three month average and vacancy ratio per 100 employee jobs. Estimates available for thirteen months.
Labour Market Statistical Bulletin	Table 22: Vacancies by Industry ¹⁰	UK seasonally adjusted monthly and three month average by industry sector. Estimates available for thirteen months.
Economic and Labour Market Review	Table 2.22: Vacancies ¹¹	UK seasonally adjusted monthly, three month average and vacancy ratio per 100 employee jobs. Estimates available from April 2001.
Economic and Labour Market Review	Table 2.23: Vacancies by Industry ¹¹	UK seasonally adjusted three month averages by industry sector. Estimates available from July 2001.
Economic and Labour Market Review	Table 6.25: Vacancies by size of enterprise ¹¹	UK seasonally adjusted three month averages by size of enterprise. Estimates available from July 2001.

The First Release is available in a paper format directly from the National Statistics press office and time series data are available to download free of charge from the [National Statistics website](#)².

There have been a number of methodological papers on Vacancy statistics published during the last few years. These papers can be accessed via the links in the attached table:

	Title of reference
1	A new survey of job vacancies: the first experimental results ¹²
2	The Vacancy Survey: A new series of National Statistics ¹³
3	Seasonal adjustment of the Vacancy Survey results ¹⁴
4	Vacancy Survey triennial review ¹⁵

For further information and analysis contact Bob Watson: tel. 01633 455070.

2.5 Comparability

The degree to which data can be compared over time and domain.

The survey uses a simple 'one number' questionnaire, asking for the total number of vacancies on a particular date near the beginning of each month. The data are available either broken down by industry to 19 industrial groupings or broken down by size of enterprise.

The Vacancy Survey covers most of the UK economy, the only exception being agriculture, forestry & fishing. Data are available from April 2001 and have been classified by industry using [SIC 2003](#)⁵.

Comparability with statistics from other EU countries has been considered in the development of the new regulation, as discussed in section 2.1. A methodological comparison of vacancies data supplied to Eurostat can be found in annex H of the [Vacancy Survey triennial review](#)¹⁵.

2.6 Coherence

The degree to which data that are derived from different sources or methods, but which refer to the same phenomenon, are similar.

Statistics of jobcentre vacancies, that is job openings notified by employers to Jobcentre Plus, are collected by the DWP from the Jobcentre Plus administrative system. These provide analyses of vacancies in more detail than is possible using the ONS survey eg statistics by local area, occupation and duration of vacancies, as well as by industry. However only a proportion of all vacancies are notified.

The jobcentre figures can be expressed in terms of the inflow of newly-notified vacancies over a period or the number (or stock) of unfilled vacancies on a specified date each month. A variety of statistics is available on [Nomis](#)¹⁶. However these figures have been subject to various administrative distortions in recent years. Recent changes in these figures would not necessarily signify developments in the labour market. For these reasons the jobcentre data do not provide a suitable alternative source to the Vacancy Survey. A [Guide to Jobcentre Plus vacancy statistics](#)¹⁷ and an [Article on publication of the jobcentre figures](#)¹⁸ are available on the [National Statistics website](#)².

3 Summary of Methods Used to Compile the Output

Coverage

The survey covers all sectors of the economy and all industries in England, Scotland and Wales (with the exception of agriculture, forestry and fishing). Results for Great Britain are adjusted to cover Northern Ireland using employment estimates. The survey records how many job vacancies a business has in total (on a specified date) for which they are actively seeking recruits from outside their organisation.

Sample

The total sample is approximately 6000 businesses per month. Approximately 1,700 large businesses are included in the survey every month. The remaining 4,300 are smaller enterprises sampled randomly on a quarterly basis and remaining in the survey for five to nine quarters depending on the size of the business. Businesses are currently grouped in ten employment size-bands ranging from those with one to four people employed through to those businesses with 2,500 or more. In common with other business surveys conducted by ONS, the sampling frame is the IDBR. The IDBR stores details of about 2 million businesses registered in the UK, and is maintained largely by updates from Her Majesty's Revenue & Customs, Companies House and surveys conducted by ONS specifically geared to maintaining the Register.

Weighting

As it is not possible to survey every business in the population it is necessary to weight the data to provide estimates for the full population. In strata that are not fully enumerated, each business represents a number of similar businesses, based on the number of employees and the standard industrial classification (currently [SIC 2003](#)⁵), although plans are in motion to move onto SIC 2007 in 2010). Weights are updated monthly.

Estimation

Results are produced using a ratio estimator, which is one of the standard estimators used by ONS. Ratio estimation uses the ratio between the survey variable (no. of vacancies) and an auxiliary variable (register employment) to make estimates for non-sampled units. Although the correlation between the number of vacancies and employment is not strong, use of the ratio estimator gives slightly more precise results for the whole economy than would come about through use of a simple expansion estimator.

Imputation

Values for businesses that don't respond are imputed. Imputation is based on the pattern of responses for similar businesses. A link factor is calculated from responses received and applied to previous returns for each non-responder. The original construction for a never-responding business is calculated from a ratio (calculated from other respondent values in the same strata) being applied to the register employment. For subsequent periods, imputed values will be based on movements in similar sized businesses.

Vacancy Ratio

The vacancy ratio is an estimate of the number of vacancies per 100 jobs, using employee jobs estimates from the Short-Term Employment Survey (STES).

Seasonal adjustment

The Vacancy Survey data show strong seasonal patterns, with vacancies peaking around September to October and dropping around January each year. Seasonal adjustment is the process of estimating and removing the systematic calendar related variations in a time series. The parameter settings used for the process of seasonal adjustment are derived using [X-12-ARIMA](#)⁶. The monthly series and three month moving average series by industry and by size of business are seasonally adjusted directly to give the best possible seasonal adjustment. These seasonally adjusted time series are quality assured on an annual basis.

Statistical Disclosure

[Statistical Disclosure Control Methodology](#)¹⁹ is applied to data. This ensures that information attributable to an individual organisation is not disclosed in any publication. The [Code of Practice for Official Statistics](#)⁹, and specifically Principle 5: Confidentiality, set out practices for how we protect data from being disclosed. The Principle includes a guarantee to survey

respondents to "ensure that official statistics do not reveal the identity of an individual or organisation, or any private information relating to them". More information can be found on the ONS [Statistical Disclosure Control Methodology](#)¹⁹ page of the [National Statistics website](#)².

Published Data

The monthly vacancy headline estimate is based on a three-month moving average, by type of industry and by size of business (in terms of employment), but monthly estimates of total vacancies are also published. Vacancy statistics are published in the [Labour Market Statistical Bulletin](#)³ and also in [ELMR](#)⁴.

4 References

	Title of Reference	Website Location
1	Statistical Quality	http://www.ons.gov.uk/about-statistics/methodology-and-quality/quality/index.html
2	National Statistics website	http://www.statistics.gov.uk/default.asp
3	Labour Market Statistical Bulletin	http://www.statistics.gov.uk/pdfdir/lmsuk0809.pdf
4	Economic and Labour Market Review (ELMR)	http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=14692&Pos=&ColRank=1&Rank=240
5	SIC 2003	http://www.statistics.gov.uk/methods_quality/sic/contents.asp
6	X-12-ARIMA	http://www.census.gov/srd/www/x12a
7	EC Regulation No 453/2008, Mandatory Collection of Job Vacancy Information	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:145:0234:0237:EN:PDF
8	Annual update of data and seasonal adjustment for the Vacancy Survey	http://www.statistics.gov.uk/cci/article.asp?id=1775
9	Code of Practice for Official Statistics	http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html
10	Tables 21 & 22 of Vacancies	http://www.statistics.gov.uk/statbase/tsdtables1.asp?vlnk=lms
11	Tables 2.22, 2.23 & 6.25 of Vacancies	http://www.statistics.gov.uk/elmr/08_09/data_page.asp
12	A new survey of job vacancies: the first experimental results	http://www.statistics.gov.uk/CCI/article.asp?ID=640&Pos=4&ColRank=2&Rank=224
13	The Vacancy Survey: A new series of National Statistics	http://www.statistics.gov.uk/CCI/article.asp?ID=406&Pos=2&ColRank=1&Rank=224
14	Seasonal adjustment of the Vacancy Survey results	http://www.statistics.gov.uk/CCI/article.asp?ID=1024&Pos=3&ColRank=1&Rank=224
15	Vacancy Survey triennial review	http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=14019&Pos=3&ColRank=1&Rank=272
16	Nomis®	https://www.nomisweb.co.uk/Default.asp
17	Guide to Jobcentre Plus Vacancy Statistics	http://www.statistics.gov.uk/CCI/article.asp?ID=404&Pos=1&ColRank=2&Rank=224
18	Article on publication of the jobcentre figures	http://www.statistics.gov.uk/CCI/article.asp?ID=1172&Pos=&ColRank=1&Rank=224
19	Statistical Disclosure Control Methodology	http://www.statistics.gov.uk/about/data/methodology/general_methodology/sdc.asp

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