

Summary quality report for Annual Business Inquiry part 1 (ABI/1)

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. 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 Annual Business Inquiry (ABI). The ABI collects information via two surveys. The ABI/1 solely concentrates on business employment details and the ABI/2 collects information relating to the financial information of a business. This report specifically concentrates on the ABI/1 and aims to provide users with guidance to assess the quality and usability of the ABI/1 estimates.

The [National Statistics website](#)² has a comprehensive online guide to the methods and terminology used in compiling ABI business and economic statistics.

2 Summary of quality

2.1 Relevance

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

The Annual Business Inquiry Part 1 (ABI/1) collects comprehensive employment information from businesses representing the majority of the Great Britain economy. The ABI/1 survey collects business information for England, Scotland and Wales. The Department of Enterprise Trade and Investment ([DETINI](#))³ of Northern Ireland collect the same ABI information ([NIABI](#))⁴ independently. Both data sources are then combined to produce ABI/2 estimates on a UK basis. The ABI/1 employee estimates are Great Britain based and published on the National On-line Manpower Information Service ([NOMIS](#))⁵ website. NOMIS is regarded as the definitive source of official Government employee statistics.

In terms of employee data, the ABI/1 sample of approximately 67,000 businesses is used to provide estimates for a total universe of around 2.2 million businesses covering all major industry sectors, such as Production, Construction, Service Trades, Distribution, Public Administration, Health and Education. More detail on ABI/1 industry coverage can be found under the Summary of Methods section at the end of the report.

	ABI/1
What it measures	The number of employees in the Great Britain economy on a male/female and full time/part time basis.
Frequency	Annual.
Sample Size (achieved)	Approximately 76,000 up to 2006; approximately 67,000 from 2007.
Periods available	From 1997.
Sample frame	Inter-Departmental Business Register (IDBR).
Sample design	Stratified random sample where the strata are defined by Standard Industrial Classification (SIC), country, and employment size of a business.
Weighting	Each responding business represents a number of similar businesses from the IDBR, based on number of employees and the standard industrial classification (currently SIC 2003). Weights are updated annually.
Estimation	Ratio estimation is carried out for all strata with employment less

	than 250.
Imputation	Automatic imputation using period on period movements is carried out for non-responding businesses with 250+ employment. Manual construction is used in exceptional circumstances. For example an influential responder would have a manual construction if it did not respond.
Outliers	Businesses with extreme or atypical variable returns for their business size are treated as outliers. Outlier business information is placed into a separate fully enumerated stratum.

The ABI/1 data and estimates are used widely, both within and outside the government and are a vital source of business employee information. The key users and uses of the output include:

- **Eurostat** - The ABI/1 is a source of annual structural statistics for the Structural Business Statistics Regulation (SBSR) for policy monitoring and formulation by the European Union.
- **The Scottish Executive and the Welsh Assembly** - The ABI/1 provides estimates on employee numbers which are essential in the calculation of Scottish and Welsh employment trends. Estimates on all sectors are incorporated into the Scottish and Welsh figures and may also be utilised in internal briefings.
- **Department of Trade and Industry (DTI)** - DTI uses ABI/1 estimates to assess the structure and performance of industries
- **Workforce jobs** - It is usual for the Workforce Jobs series (WFJ), much of which is initially based on the Short term employment surveys estimate of employee jobs, to be benchmarked on the Annual Business Inquiry (ABI/1) estimate. This benchmarking usually takes place in time for the December Labour Market Statistics First Release in the following year.
- **ABI/2** - The ABI/2 survey collects financial data which are matched to ABI/1 employment estimates to calculate turnover per head.
- **Local Government** - Local Government planning departments are major users of the ABI/1, using the estimates published on NOMIS to forecast trends in employment in their specific areas and to claim for Central Government and European funding.

Additional users also include national government departments and bodies, businesses, academics and the general public. User groups are consulted to ensure that ABI/1 data remain relevant to their needs.

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. Total error consists of two elements, the sampling error and the non-sampling error. More detail on estimates and measures of these errors can be found [online](#)⁶.

Sampling error

The ABI is based on a sampled survey, estimating the number of employees which gives rise to sampling errors. The actual sampling error for any estimate is unknown but we can estimate, from the sample, a typical error, known as the **standard error**. This provides a means of assessing the precision of the estimate; the lower the standard error, the more confident we can be the estimate is close to the true value. The coefficient of variation (CV) can be calculated as the standard error divided by the estimate, and it is used to compare the relative precision across surveys or variables. The CV indicates the quality of a figure, the smaller the CV the higher the quality.

For ABI/1, the CV and standard errors are at local authority/district level. Data are available for 2000 - 2005 and have been calculated on unrounded figures. The CV and standard errors are calculated based on current [geography](#)⁷ ABI estimates. The CV for each current district can be applied to the relevant CAS (*Census Area Statistics*) *geography* district estimates to produce standard errors on this basis.

The CVs are calculated excluding agriculture data as these data are supplied externally and not necessarily through a sample. However, it is assumed the agriculture data are of the same quality and will not affect the value of the CV, and can be applied to the total estimate for the region.

Data on ABI/1 standard errors are available on the [NOMIS website](#)⁸.

Non-sampling error

Non-sampling errors are not easy to quantify and include errors of coverage, measurement, processing and non-response. Where there are small differences between responders and non-responders, response rates give an indication of the likely impact of non-response bias on the estimates.

In seeking to maximise accuracy of the survey, the sample selection for ABI/1 is carried out after the annual IDBR update processes are complete. This should minimise the selection of misclassified businesses and inadequate coverage of newly established businesses and defunct reporting units.

Various procedures are in place to ensure that errors are minimised. Year on year comparisons are made at respondent and aggregate level. Disparities are investigated to ensure consistent annual returns. Congruence checks are made against other surveys to ensure consistent values across industries from different surveys.

Another indicator of accuracy is reliability, which can be measured by assessing the difference between the first published estimate and the final revised figure. ABI/1 adheres to a Revisions Policy whereby both current survey estimates together with a revision of the previous year's survey estimates are published. Late returns or information received in the course of the following year's survey may make changes to source data after publication. Such changes are incorporated into the figures when the revised estimates are published the following year. This revisions policy can be seen in the [ABI First Release](#)⁹.

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 [National Statistics Release Calendar](#)¹⁰ is available on the National Statistics website and provides twelve months advance notice of releases. ABI/1 has always met the target publication deadlines. In the unlikely event of a change to the release schedule, an announcement will be made at least two weeks in advance, as set out in the [National Statistics Code of Practice](#)¹¹.

The following list shows the time lag between publication and the reference period to which the ABI/1 data refer. These timings are for the publications of the ABI/1 estimates from implementation in 1997 up to 2005.

Provisional National Results Release:	12 months after the reference period.
Final National Results Release:	24 months after the reference period.

From the 2006 survey period, the reference date changes from December to September. The publication date remains at December of the following year. From the 2006 survey the list would thus be:

Provisional National Results Release: 15 months after the reference date.
Final National Results Release: 27 months after the reference date.

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.

ABI/1 employee estimates are published twice for every annual survey, once in December of the following year at the provisional level and then a final revised release the following December.

The ABI/1 publication is available online at [NOMIS website](#)⁵ and provides a comprehensive overview of the Great Britain economy at various regional levels.

The ABI/1 results team Annual.employment.figures@ons.gov.uk¹² can advise on additional estimates and alternative data formats.

2.5 Comparability

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

The ABI/1 has been published on a comparable basis since 1997. Whenever methodological changes or other factors, such as changes to the Standard Industrial Classification (SIC), impact on the latest data/estimates, announcements are given and every effort is made to ensure that all previous estimates are amended to make them directly equivalent.

ABI/1 covers all SIC(92) and SIC(2003) classifications. Data for 1997 - 2002 have been collected under [SIC\(92\)](#)¹³ and data from 2003 have been collected under [SIC\(2003\)](#)¹⁴.

There are 3 specific improvements being introduced from the publication of the 2006 results.

- Firstly, the reference month is changing from December to September. The change of reference month is expected to result in a reduction in figures overall, although the amount will vary by industry given the seasonal nature of some activity. This is linked to the use of Business Register Survey (BRS) questionnaires. To enable the BRS to contribute to the ABI/1 sample, the two surveys needed to be brought into line in terms of the reference date. For ABI/1 2006 onwards, the ABI/1 reference month has been brought forwards from December to September to be consistent with the BRS. This action also brings the ABI/1 more in line with other ONS outputs.
- Secondly, from 2006 onward, ABI/1 will be using BRS returns within the ABI/1 survey. It has been identified that by moving the reference month from December to September the data collected by the ABI/1 can be directly compared to the data collected by the BRS and the quality of statistics will be improved. An important aspect of this is that the ABI/1 will be able to use actual local unit returns, where these returns are included in the BRS sample. The non sampled element will continue to be estimated as before. This should result in more accurate regional data.
- Thirdly, is a change in the methodology regarding minimum domains. Minimum domains group together certain industries and geographical areas in order to provide regional estimates at the lower, more detailed, levels. The change of minimum domains will not have a significant impact on regional data, although there should be a small but definite

improvement in the quality of the estimates and in reducing volatility over time. The effect on the distribution of results by industry is also expected to be minor. Overall aggregate totals will not be affected.

From 2007 the ABI/1 sample will be reduced from approx 76,000 to 67,000 to save on validation costs, compliance costs and reduce the burden on smaller businesses by reducing the possibility of them being selected. Where possible, information from the BRS will be used to minimise the impact on quality.

The classification of what is an employee has remained consistent for ABI/1 since implementation in 1997, with only minor changes being made to the questionnaires in accordance with customer needs and requirements. More detail of what is classed as an employee can be found on the [NOMIS website](#)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.

The users of ABI/1 require ABI/1 aggregate estimates to be coherent with other surveys. ABI/1 estimates, where possible, are coherent with various short term indicators produced from the Monthly Production Inquiry (MPI) and Monthly Inquiry into the Distribution and Services Sector (MIDSS). In addition, ABI/1 aims to be consistent with related annual and quarterly surveys such as the Workforce Jobs Series (WFJ).

The Monthly Wages and Salary Survey (MWSS), Retail Sales Inquiry (RSI), Monthly Inquiry into Distribution Services Sector (MIDSS), Monthly Production Inquiry (MPI) and GAPS surveys all collect employment information. MIDSS, MPI, RSI and GAP's are among the sources used to calculate the WFJ series. Although ABI/1 is less timely, their sample sizes are much smaller than the ABI/1 and as such, this will cause variation in the estimates from these short term surveys and the ABI/1.

The Labour Force Survey (LFS) is regarded by ONS as the best measure of total jobs in the economy. The ABI/1 outputs are regarded as the best estimates at a detailed regional and industrial level.

- The ABI/1 is a point in time survey requesting employee counts on a specific date in the year. The LFS estimates are averages for three month periods.
- The LFS is employment based, the ABI/1 employee based. The LFS definition of employment is anyone (aged 16 or over) who does at least one hour's paid work in the week prior to their LFS interview, or has a job that they are temporarily away from (e.g. on holiday). Whereas the ABI is a point in time estimate of full and part time employees on the payroll. Also, unlike the ABI, the LFS includes people who do unpaid work in a family business, working proprietors, the self employed, Government Supported Trainees and HM Forces.
- The LFS is a household survey while the ABI/1 is a survey of businesses. There is often a conflict between which industry people actually work in, compared to what they think they work in, and the LFS relies on respondents to self-classify to an industry. The answers that employees give in response to the LFS industry question may be influenced by the nature of their own job, which may not reflect the main activity of the organisation for which they work. As a result ABI/1 figures give a more reliable industry breakdown than the LFS.

3 Summary of methods used to compile the output

Coverage

The ABI/1 estimates cover Great Britain businesses registered for Value Added Tax (VAT) and/or Pay As You Earn (PAYE) and are classified to the [SIC\(2003\)](#)¹⁴. The ABI/1 obtains the required details on these businesses from the IDBR which is then used as the ABI/1 sampling frame.

The ABI/1 sample covers all major industry groups, such as Production, Construction, Distribution, Service Trades and many more. A complete listing of the industry groups can be found [online](#)¹³.

Sample Design

The ABI/1 sample covers around 76,000 contributors from across the Great Britain economy. The IDBR is used as the sampling frame from which a stratified random sample is drawn. The strata are defined by SIC at industry level, by country and by employment size, with all employment sizes of businesses being covered.

The sampling scheme is designed to give the best estimates of the population totals for a given sample size and involves selecting all the largest businesses with a progressively reducing fraction of smaller businesses. This method will ensure that the sample targets those businesses with the largest contribution to an industry. It also ensures that the survey sample size of the smaller businesses minimizes the compliance burden on them.

Weighting and Estimation

As it is not possible to survey every business in the population, to obtain estimates of the population values it is necessary to weight the data. ABI/1 uses two weights, one to represent the effect of stratified sampling and the other to represent the effect of ratio estimation.

The implementation of weights ensures the estimates take into account the characteristics of non-selected businesses. Further detail on the initial Implementation of the Annual Business Inquiry and the estimation process used by the ABI/1 can be found in a paper written by James Partington (2001) on the [NOMIS website](#)¹⁵.

Statistical Disclosure

The ABI is conducted under the Statistics of Trade Act (STA) 1947. This Act imposes restrictions on the way that data collected during the survey may be used. The provisions of the STA are further regulated by the Employment and Training Act 1973 (ETA) as amended by the Employment Act 1989, which states that local planning authorities may only use confidential data for purposes that relate to development plans.

The main aim of these restrictions is to protect the identity of individual businesses, who have made statistical returns, from being disclosed or otherwise deduced. Some of the ABI outputs have already been subjected to disclosure control and, therefore, the issue of confidentiality does not arise. However, employee information extracted by users of the NOMIS database has not been suppressed and contains potentially disclosive cells.

Access to NOMIS is restricted, by the provisions of the ETA 4(3)(f), to holders of Chancellor of the Exchequer's Notices.

Users of ABI/1 estimates on NOMIS are personally responsible for ensuring that any information which they publish or pass on to other users does not contain disclosive figures. More information is provided via the guide to [disclosive rules](#)¹⁶.

4 References

	Title of Reference	Website location
1	Statistical Quality Programme	http://www.statistics.gov.uk/about/data/methodology/quality/default.asp
2	ABI methods and terminology	http://www.statistics.gov.uk/abi/

3	Department of Enterprise, Trade and Investment (DETINI)	http://www.detini.gov.uk/cgi-bin/gethome
4	Northern Ireland ABI (NIABI)	http://www.detini.gov.uk/cgi-bin/get_builder_page?page=1930&site=4&parent=57&prevpage=2125
5	ABI/1 employee data	http://www.nomisweb.co.uk
6	ABI Quality Measures	http://www.statistics.gov.uk/abi/quality_measures.asp
7	Guide to geographies available on ABI/1	http://www.statistics.gov.uk/geography/
8	ABI/1 Standard Errors	http://www.nomisweb.co.uk/articles/news/files/ABI%20Std%20Errors%20and%20CVs.xls
9	ABI First Release	http://www.statistics.gov.uk/abi/whatsnew.asp
10	Release Calendar	http://www.statistics.gov.uk/ReleaseCalendar/currentreleases.asp
11	National Statistics Code of Practice	http://www.statistics.gov.uk/about/national_statistics/cop/default.asp
12	ABI/1 Results team	annual.employment.figures@ons.gov.uk
13	SIC (92)	http://www.statistics.gov.uk/methods_quality/sic/contents.asp
14	SIC (2003) & Coverage	http://www.statistics.gov.uk/statbase/Product.asp?vlnk=14012
15	ABI/1 Technical Report	http://www.nomisweb.co.uk/articles/ref/ABI_lmt_may2000.pdf
16	Guide to disclosure rules	http://www.nomisweb.co.uk/notices/docs/infoguide.pdf
