GSS Background Quality Report

Background Quality Report: *Quarterly Employment Survey*

Dimension	Assessment by the author
Introduction	***Context for the quality report.*** Data for the Quarterly Employment Survey (QES) are collected as part of the Quarterly Business Survey (QBS). The QBS is a statutory survey issued under the Statistics of Trade and Employment (Northern Ireland) Order 1988 and is designed to collect information on employees, turnover and construction output data. The QES provides short-term employee jobs estimates for Northern Ireland and is used by the Office for National Statistics (ONS) to calculate quarterly Workforce Jobs estimates for the UK. Each calendar quarter, QES has a sample size of approximately 6,000 businesses (drawn from the Inter Departmental Business Register) and includes all public sector units; all private sector units with 25 or more employees; all private sector units with more than one industry activity and a sample of smaller businesses. The QES statistical bulletin and data tables are published quarterly (in mid March, June, September and December each year) by the Economic and Labour Market Statistics (ELMS) branch within the Northern Ireland Statistics and Research Agency (NISRA). QES statistics were designated as National Statistics in 2010 following a full assessment by the Office for Statistics Regulation. The statistical bulletin and data tables are available to download from the QES homepage. Employee job estimates can be disaggregated by gender, working pattern (full/part-time), public/private sector, and industrial activity at the two-digit SIC level. Seasonally adjusted figures are available at section level, sector level and for the public and private sector series. Employee jobs estimates (not adjusted for seasonality) by gender and industry level are available from Q2 1971. A comprehensive guide relating to QES methodology can be found on our website.
Relevance	***The degree to which the statistical product meets user needs in both coverage and content.*** The QES is carried out to provide regular information on employee jobs in Northern Ireland (NI) and is an important indicator of the condition of the NI economy. Employee jobs estimates are published by gender, working pattern (full/part-time), public/private sector, and industrial activity at the two-digit SIC level. Seasonally adjusted figures are available at section level, sector level (i.e. manufacturing, construction, services and other industries) and for the public and private sector series.

	There are a variety of users of QES data: • The Office for National Statistics in calculating quarterly workforce jobs estimates for the UK; • The Department for the Economy (DfE) in policy formulation, economic commentary and in response to external information requests; • The Department of Finance (DoF) in the calculation of the NI Composite Economic Index (NICEI); • Private consultancy firms; • Universities and academics; • Media reporters; • Members of the general public. An annual Labour Market User Group is held to: engage with users; provide an overview of labour market outputs and plans for development; seek feedback and assess if outputs are meeting user needs. The most recent Labour Market User Group agenda and presentation can be found on our website. Users have raised a desire for QES estimates disaggregated by geography, however the sample size does not allow for robust estimates at this level of disaggregation. Users are instead advised to use the annual Business Register and Employment Survey (BRES) for lower level geography estimates.
Accuracy and Reliability	***The proximity between an estimate and the unknown true value.*** The accuracy of the results is affected by a range of issues. Some of these are related to the fact that the estimates are based on a sample rather than a census of all businesses and that not all businesses respond to the survey. Some relate to other processes involved in calculating the results. **Non-Sampling Errors** Non-sampling errors should not be viewed as mistakes, rather they are the result of conscious decisions to produce timely, accurate data at minimum cost. Measuring non-sampling error is much more difficult than measuring sampling error because in many cases the reasons for the non-sampling error are not known, whereas sampling error is a direct result of the survey design and is under the control of the researcher. In some cases it may not be possible to measure non-sampling error or to only give an indication of its possible effect on the survey estimates. Examples of non-sampling error impacting on the QES are: **Coverage error** - the error which arises because some units are either excluded or duplicated on the sampling frame used to identify the population of interest. Coverage error is minimised for the QES as the sampling frame is the Inter Departmental Business Register (IDBR), a dynamic register which is constantly updated using data

provided by businesses to HMRC, Companies House and various survey sources, such as the Business Register and Employment Survey and the Annual Business Inquiry.

Non-response error – non-response can reduce the precision of survey estimates. Strategies for minimising non-response to the QES include issuing email and paper reminders; telephone response chasing which is prioritised to target strata where coverage has not reached a specified target response rate; and capturing data returns over the telephone. In the QES, imputation is used to estimate non-response.

Respondent error – respondent error arises when a respondent returns an incorrect value. On the electronic QES questionnaire, automatic rules are put in place to highlight errors to the respondent (for example if the sum of male/female and full/part time does not equal the total number of employee jobs entered), and the questionnaire cannot be submitted until these errors have been rectified. This will take the form of validation against previous returns to identify any unusual increases and decreases. Contributors whose quarterly returns show an increase or decrease above a certain threshold are contacted and asked for an explanation (if they have not already provided one on their original returned QBS form) to ensure that the employment return is correct. Where a return does not make it through the "validation gate" and no explanation is forthcoming, these returns will be imputed until an explanation or correction is provided.

Questionnaire error – this error reflects the effect of question wording and form design on responses. Questionnaire error is minimised in QES by including detailed completion notes and definitions on the questionnaire. Careful question and webform operation testing are also carried out in an attempt to minimise this error. A dedicated helpline is available to answer any questions or address any submission difficulties respondents may have.

Mode error – this describes the effect of different methods of administering a questionnaire on the recorded responses. The webform option of the questionnaire was launched in Q2 2015 and whilst the variables on the webform and paper form are the same, the two modes have a slightly different format. In March 2016 the data collection process for the QES merged with the Index of Services (IOS) and Index of Production (IOP) to form the Quarterly Business Survey. This means respondents now receive the QES in various different form types, with figures also accepted over the phone as the survey approaches the close date. It is recognised that these changes can affect the recorded responses.

Data capture error - Information recorded on a paper questionnaire may be inaccurately converted to a format which can be interpreted by a computer. QBS paper questionnaires are scanned into the computer system by a third party, ITS Ltd, and under the terms of the contract scanning errors must be below 2%, so errors of this type are minimal. Where errors are made they are often identified

	and corrected (where appropriate) during the validation process. Also, over two thirds of businesses complete the QES via webform, with the figures entered on the webform being uploaded straight to the system.

Revisions – It is normal practice for Quarterly Employment Survey estimates to be revised. These revisions will occur primarily in light of (a) late responses to surveys and administrative sources, (b) where cross survey congruence checks provide more accurate data and (c) where there are revisions to seasonal adjustment factors which are re-estimated every quarter. Most statistical revisions reflect either the adoption of new statistical techniques, or the incorporation of new information, which allows the statistical error of previous statements to be reduced. Only rarely are there avoidable 'errors' such as human or system failures, and such mistakes are made quite clear when they do occur.

One dimension of measuring accuracy is reliability, which can be measured using evidence from the analyses of revisions to assess the closeness of early estimates to subsequently estimated values. QES publishes a "Revisions Triangle", which indicates the size and direction of revisions. The QES revisions policy and Revisions Triangle can be found on our website.

Sampling errors & confidence intervals - information on the QES sampling error is provided through confidence intervals. The QES bulletin includes 95% confidence intervals around headline estimates. The QES confidence intervals are relatively small (less than 1.0%), meaning the estimate is relatively precise. A confidence intervals user guidance document is available on our website. This includes explanations and examples for general users, as well as more detailed information for the more technical user.

Using 2 Digit SIC Level Data - The introduction of sample rotation from March 2014 contributed to the volatility of the series. To counteract these effects from March 2016 the number of businesses selected in SIC and size bands experiencing the greatest impact of rotation increased. Volatility also arises when businesses inform NISRA of SIC code changes via business surveys, ONS and HM Revenue & Customs (HMRC).

This new information helps to improve the industry estimates of employee jobs each quarter but also adds volatility to quarterly and annual changes, particularly at 2 digit SIC level. SICs 74 (Other professional, scientific and technical activities) and 82 (Office administrative, office support and other business support activities) are most affected by updates to industry codes. It is therefore recommended that changes in employee jobs estimates at 2 digit SIC level are considered in the context of a longer time series. |
| **Timeliness and Punctuality** | *Timeliness refers to the time gap between publication and the reference period. Punctuality refers to the gap between planned and actual publication dates.* |
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	The Economic and Labour Market Statistics (ELMS) Publication Schedule is available on the NISRA website and provides twelve months advance notice of releases. QES results are published in March, June, September and December, some 2.5 months after the end of the survey's reference period. Publication dates are fixed to align with the release of wider UK Labour Market Statistics. Every effort is made to meet the publication deadline and the QES has mostly been published to the scheduled timetable since it was introduced.
Accessibility and Clarity	***Accessibility is the ease with which users are able to access the data, also reflecting the format 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.***
	QES data are published every quarter through statistical bulletins, which are free to download from the QES webpage from 07.00am on the day of publication. These include text, tables, charts and infographics. All data tables can be downloaded via Excel or ODS format. QES outputs therefore have a 3 star Open Data rating. QES results are also published in the monthly Labour Market Report. QES figures are also used by ONS to estimate quarterly workforce jobs for the United Kingdom. ONS publications on employment and the labour market can be found on the ONS website. Summary of key findings are presented at the front of each statistical bulletin to ensure that the main messages reach the user. The language throughout the publication is clear and appropriate to all audiences. Text boxes at the start of each section explain key/technical terms. More detailed information for the more technical user is included in the accompanying background and methodology reports. QES data are also available to download from the new NISRA Data portal. Bespoke data tables can be produced if users request data that are not already available. Data requests can be made by contacting economicstats@nisra.gov.uk. NISRA operates a policy whereby publications are available on request in alternative formats such as Braille, large print and minority ethnic languages.
Coherence and Comparability	***Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain.***

	Every effort is made to ensure that the series is comparable over time, and comparable time series of employee jobs estimates (not adjusted for seasonality) by gender and industry level from the QES are available from 1971. Where possible, changes to the methodology are applied to the whole series to ensure this comparability is maintained. The Labour Force Survey (LFS) is a household survey carried out by interviewing individuals about their personal circumstances and work. The LFS defines employment as the number of people in work. This differs from the concept of jobs measured by QES as a person can have more than one job, and some jobs may be shared by more than one person. LFS employment figures are based on a rolling three month period whereas QES measures the number of jobs on a particular day. LFS employment figures include those who are employed, self-employed, unpaid family workers and those on government supported training programmes. The Office for National Statistics (ONS) publishes comparable employee jobs figures by GB region on the NOMIS website. The ONS have also developed experimental statistics on the number of payrolled employees from HMRC Pay as You Earn Real Time Information. Users should be aware that these estimates are derived from administrative data and are currently still in their developmental phase.
Trade-offs between Output Quality Components	***Trade-offs are the extent to which different aspects of quality are balanced against each other.*** As the QES is a short-term indicator, the main users want the figures to be available as soon as possible after the period to which they refer. Estimates are published as soon as validation is completed, and quality assurance checks have been carried out. As a result, revisions due to late returns are an inevitable consequence of the trade-off between timeliness and accuracy. The QES revisions policy can be found on our website. The QES produces a Revisions Triangle – this is a summary table which indicates the size and direction of revisions. The table presents a summary of the differences between the first estimates published and those published 3 years later for the same reference period.
Assessment of User Needs and Perceptions	***The processes for finding out about users and uses, and their views on the statistical products.*** An annual Labour Market User Group is held to: engage with users; provide an overview of labour market outputs and plans for development; seek feedback and assess if outputs are meeting user needs. The most recent Labour Market User Group agenda and presentation can be found on our website. Consultations are held to seek views on specific changes to outputs or methodology. A consultation was held in June 2017 to seek feedback from users on the proposal to cease publication of Civil

| | Employment Jobs, Workforce in Employment and Self-employment Jobs. A [wider consultation](#) on labour market outputs including QES data took place in July/August 2019. A further [NISRA consultation](#) which included proposed changes to QES dissemination outputs was also held between August to October 2023.

There is a wide range of users of QES data both within and outside of government:

- The Office for National Statistics (ONS) – to calculate quarterly workforce jobs estimates for the UK.
- The Department for the Economy (DfE) – in policy formulation and in response to external information requests. QES data also feed into the [DfE Economic Commentary](#), which provides an overview of the condition of the NI economy.
- The Department of Finance (DoF) – in the calculation of the [Northern Ireland Composite Economic Index](#) (NICEI) which is an indication of the performance of the NI economy.
- Private consultancy firms
- Universities and academics
- Members of the general public
- Media outlets |
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| **Performance, Cost and Respondent Burden** | ***The effectiveness, efficiency and economy of the statistical output.***

The estimated [cost to businesses in Northern Ireland](#) in 2021/22 of completing the Quarterly Business Survey (which includes QES, Index of Services, Index of Production and the Quarterly Construction Enquiry) was £130,989.11.

Efforts have been made in recent years to reduce the burden on businesses, such as rotating businesses out of the sample, data sharing with the annual Business Register and Employment Survey responses, accepting telephone responses, and most significantly introducing and promoting a webform option.

The burden to businesses due to statutory Government Statistical Surveys is also monitored by the [Statistics Advisory Committee](#) (SAC). Under the [Statistics of Trade and Employment (NI) Order 1988](#), a Northern Ireland Department is required to consult this committee before carrying out a statutory survey of businesses. |
| **Confidentiality, Transparency and Security** | ***The procedures and policy used to ensure sound confidentiality, security and transparent practices.***

The data are collected under the [Statistics of Trade and Employment (Northern Ireland) Order 1988](#) which requires the Department to ensure the confidentiality of the data. Staff are trained and reminded of the protocols of Data Protection Essentials and GDPR. This covers physical security, IT security and data disclosure issues. A summary of NISRA ELMS' confidentiality policy can be accessed [here](#). |

	The data are stored on a secure network drive and is accessible to only those staff who are involved in the statistical production process.