

Northern Ireland Research and Development Quality Report

Introduction

This report covers the Northern Ireland Research and Development (R&D) Survey and provides information on the quality of the data used to produce the publication and the statistical time series. This will allow users to be informed about the quality of the information upon which they may be drawing conclusions and making decisions.

The report is based on the nine quality dimensions of the European Statistical System

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-RA-08-015

From 1st April 2011, responsibility for the production of official statistics on the economy and labour market became the responsibility of the Department of Finance and Personnel (DFP). Those powers previously exercised by the Department of Enterprise, Trade and Investment (DETI) under the Statistics of Trade and Employment (Northern Ireland) Order 1988 are now exercised by DFP, as a result of The Departments (Transfer of Functions) (No.2) Order (Northern Ireland) 2011. While DFP exercise the powers of the 1988 Order, in practice the operational responsibility for statistics production reside with the Northern Ireland Statistics and Research Agency (NISRA), an Agency of DFP.

In the short-term the statistics will continue to be published on the DETI website.

Publication Name: Northern Ireland Research and Development Statistics

Department Responsible: Department of Finance and Personnel

Release Date: Annual - December

Web link to main publication: <http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-research-development.htm>

Quality report last updated: November 2014

Dimension	Assessment by the Author
Relevance	<p>The degree to which the statistical product meets user needs in both coverage and content.</p> <p>R&D data is a key economic indicator which measures Research and Development activity over time and allows comparisons to be made with UK figures. R&D activity contributes to the development of new technologies, products and processes and is a key driver of productivity growth. The Northern Ireland R&D surveys cover the business sector, higher education and other government financed activities. It includes information on: the level of R&D; sources of</p>

	<p>funding for R&D; employment in R&D. It provides important indicators of the extent to which Northern Ireland companies and higher education establishments are investing in the activities that underlie future economic development.</p> <p>All of the data are obtained from the statutory Annual Survey of Research and Development (R&D) within Northern Ireland.</p> <p>R&D data are widely used by anyone who has an interest in the NI economy. The figures are used by economists and economic commentators both within and outside Government in assessments of the state of the economy e.g. the Ulster Bank in their Economic Commentary. The NI Assembly/Government Departments require a variety of indicators, which measure the state of the NI economy for planning, policy and monitoring purposes. The Northern Ireland R&D data is provided to the Office for National Statistics for inclusion in the UK published results In addition, significant non-governmental users of the data include Employer's Associations, Universities and academics, the Economic Research Institute of Northern Ireland, academic researchers both home and abroad, the media and the general public, e.g. Ulster Bank, University of Ulster (UU), and Oxford Economics.</p>
<p>Accuracy</p>	<p>The proximity between an estimate and the unknown true value.</p> <p>The methodology is contained in the background notes of the statistics bulletin. http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-research-development.htm</p> <p>The accuracy of the series is affected by a range of issues. Some of these are related to the fact that the data are collected from a sample of businesses and some relate to the other processes involved in calculating the series.</p> <p>Sampling error: Sampling error arises because the variable estimates are based on a sample rather than a full census of the population. The difference between the estimates derived from the sample and the true population values is referred to as the sampling error.</p> <p>R&D surveys pose special problems for survey design – R&D takes place in only a small proportion of businesses but a comprehensive list of these businesses does not exist. A simple random sample of the business population would not be suitable for an R&D survey because many of the sample businesses would not undertake R&D and many significant R&D performers would be missed in such a sample.</p> <p>The solution is to construct a census of known R&D active firms from other sources. This information can be gained from previous surveys (mainly the 2012 survey) and extra information from various sources such as the Office for National Statistics (ONS), Invest NI and filter questions on the Annual Business Inquiry and Community Innovation Survey. For the purposes of the 2013 survey, businesses were</p>

stratified into 4 groups:

- (i) Businesses responding to the 2012 survey who returned or had estimated a total R&D expenditure value greater than zero;
- (ii) Businesses reporting positively to the R&D filter question in the Annual Business Inquiry and Community Innovation Survey; other identified potential R&D performers (principally, those companies who had received assistance from Invest NI during 2013); and companies newly identified to ONS as R&D spenders;
- (iii) Companies who have been identified as 'not R&D performers' when selected for past surveys;
- (iv) The remainder of Northern Ireland businesses.

The businesses making up strata (i) and (ii) formed a register of R&D performers and the sample for the 2013 survey was derived from this register. Indeed, each of these businesses were issued a questionnaire – in effect, therefore, a census of R&D performers was carried out. Strata (iii) and (iv) were not included as they were assumed to have zero R&D expenditure.

It is worth noting that a number of NI companies are part of national and international companies. Many concentrate their R&D at particular sites, not necessarily in NI, although all of their plants, including those in NI, will share in the benefits of research. For 2013, 1,378 forms were sent out to businesses believed to be performing R&D. Completed forms were returned by 1262 businesses representing a response rate of 92 per cent. The total number of companies spending on R&D is relatively small – 535 in 2013 (and 495 in 2012).

Processing errors: The data may be entered incorrectly into the system. Again, the validation procedures will highlight these and a check can be made to see if this is data input error or the provision of incorrect data. This has negligible impact on the series.

Measurement errors: A business may provide incorrect data to the turnover question – for example providing the exact amount in £s rather than in £000s. Validation checks are applied to the raw data from the R&D Survey and individual returns that are significantly out of step with previous values are queried with the data suppliers and may be amended depending on the result of the check. Where a company has also provided data to the Northern Ireland Annual Business Inquiry (ABI) the information from the R&D Survey can be compared to the ABI. This information is used to understand and explain movements in the data. This has negligible impact on the series.

Coverage errors: The sample is designed to cover all businesses in Northern Ireland that carry out Research and Development and is drawn from information from Inter-Departmental Business Register (IDBR) and previous DETI surveys.

Data prior to 2009 are on a SIC 2003 basis. Care should therefore be

	<p>taken when making comparisons with previous reports.</p> <p>Non-response errors: Not all businesses respond to the survey. The characteristics of these businesses may be different from those that do respond. However, as the size and industrial classification of the non-responding businesses are known we are able to construct estimates based on this information and this has a limited impact on the overall series.</p> <p>Provision of revised data: Revisions to data occur for a number of reasons: late returned questionnaires, incorrect estimates, revised back data, and changes in coverage as a result of changes to the Standard Industrial Classification.</p> <p>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.</p>
<p>Timeliness and Punctuality</p>	<p>Timeliness refers to the time gap between publication and the reference period. Punctuality refers to the gap between planned and actual publication dates.</p> <p>The Economic and Labour Market Statistics (ELMS) publications schedule is available on the DETI website and provides twelve months advance notice of releases. http://www.detini.gov.uk/deti-stats-index.htm</p> <p>The Annual R&D is published in December and the publication date is fixed to coincide with the release of the Labour Market Statistics. Every effort is made to meet the publication deadline and the R&D bulletin has always been published to the scheduled timetable since it was introduced. In the unlikely event of a change to the pre-announced release schedule, public attention would be drawn to the change and the reasons for the change explained fully at the same time, as set out in the Code of Practice for Official Statistics.</p> <p>The Annual R&D is usually published 7 months after the end of the reference period. It is published as a Statistical Bulletin on the DETI website.</p>
<p>Accessibility and Clarity</p>	<p>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.</p> <p>R&D statistical bulletins contain tables, graphs and text and conform to the standards set out in the Code of Practice for Official Statistics. The publication contains a 'Background Notes' section which provides information on the scope of the survey, details of the data collection process, validation process and methodology.</p>

	<p>The R&D statistical bulletin is available on the DETI website and free to download at 09:30 on the day of publication, in PDF format.</p> <p>The ELMS Helpline can be contacted either by phone (028 9052 9311) or by email (statistics@dfpni.gov.uk)</p> <p>Enquiries from the media are directed through the DETI Press Office.</p> <p>NISRA operates a policy whereby publications are available on request in alternative formats such as Braille, large print and minority ethnic languages.</p>
<p>Coherence and Comparability</p>	<p>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.</p> <p>The data used to calculate the R&D are sourced from the Annual Survey of Research and Development in Northern Ireland. There is no comparable source but when the Northern Ireland Annual Business Inquiry data are available checks can be undertaken to ensure consistency between the returns and the data returns from the ABI.</p> <p>Every effort is made to ensure that the series is comparable over time, and a comparable time series by total R&D is available back to 2001.</p> <p>Where possible, changes to the methodology are applied to the whole series to ensure this comparability is maintained.</p> <p>The Northern Ireland methodology is essentially comparable with the ONS UK, Welsh and Scottish methodologies. The data used are deflated turnover from monthly and/or quarterly surveys, with some industries measured by deflated production, direct volume measures or employment numbers. Research and Development figures for the UK, Wales and Scotland, respectively, can be accessed through the following links</p> <p>http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Research+and+Development+in+Business</p> <p>http://wales.gov.uk/topics/statistics/theme/economy/business/research/?lang=en</p> <p>http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Trend/RandDBusiness</p>
<p>Trade-offs between Output Quality Components</p>	<p>Trade-offs are the extent to which different aspects of quality are balanced against each other.</p> <p>As the R&D is a short-term indicator, the main users want the figures to be available as soon as possible after the period to which they</p>

	<p>refer. The main limiting factor is the availability of activity data from businesses. Estimates are published as soon as validation is finished and quality assurance is completed. As a result, revisions are an inevitable consequence of the trade-off between timeliness and accuracy.</p>
<p>Assessment of User Needs and Perceptions</p>	<p>The processes for finding out about users and uses, and their views on the statistical products.</p> <p>ELMS, NISRA has a programme of regular, scheduled Economy and Labour Market Statistics Users meetings. (The last meeting was 28 May 2014). The date of the next meeting is to be confirmed. http://www.detini.gov.uk/deti-stats-index/stats-national-statistics/user-consultation-and-information.htm</p> <p>From attendance at the statistics users meetings it is clear that users are primarily government officials, academics and economic analysts. It is likely that members of the general public access our data via the website.</p> <p>These allow users to give feedback on their needs and perceptions of the R&D.</p> <p>Additionally NISRA runs an annual NISRA –wide customer satisfaction survey which incorporates ELM statistics.</p>
<p>Performance, Cost and Respondent Burden</p>	<p>The effectiveness, efficiency and economy of the statistical output.</p> <p>The estimated respondent burden for 2012/13 was £77,072.</p> <p>The latest NISRA report on survey compliance costs for the Northern Ireland departments is available at: http://www.nisra.gov.uk/publications/Statistical_Surveys_of_Businesses_NI.html</p>
<p>Confidentiality, Transparency and Security</p>	<p>The procedures and policy used to ensure sound confidentiality, security and transparent practices.</p> <p>The data are held on a network that is accredited to the security level of the data and is accessible only to staff involved in the production process. During the publication process all hard copies of interim results are locked away or shredded.</p> <p>Staff are trained and reminded of the protocols for ensuring the data remain confidential. This covers physical security, IT security and data disclosure issues.</p> <p>The Research and Development Survey operates under the Official Statistics Code of Practice and Associated Protocols. The DETI Confidentiality Statement is available at the link below</p>

	<p>http://www.detini.gov.uk/deti-stats-index/stats-national-statistics/data-security.htm. All survey respondents are provided with a link to this statement as part of the documentation attached to the questionnaire.</p> <p>In line with the Code of Practice guidelines on presentation and publication of official statistics, statistical announcements and statements are issued separately from other statements or comment about the figures.</p>
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