

# Northern Ireland Index of Production Quality Report

## Introduction

This report covers the Northern Ireland Index of Production (IOP) 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](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-RA-08-015)

From 1<sup>st</sup> April 2011, the production of official statistics on the economy and labour market became the responsibility of 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 have been exercised by DFP from this date, 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 short-term the statistics will continue to be published on the DETI website.

**Publication Name:** Northern Ireland Index of Production

**Department Responsible:** Department of Finance and Personnel

**Release Date:** Quarterly – January, April, July, October

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

**Quality report last updated:** April 2012

Dimension	Assessment by the Author
Relevance	<p data-bbox="491 1563 1383 1630"><b>The degree to which the statistical product meets user needs in both coverage and content.</b></p> <p data-bbox="491 1666 1401 2018">The IOP is intended to provide a general measure of quarterly changes in the volume of output of the production industries. This is defined as those businesses in sectors B, C, D and E of the Standard Industrial Classification 2007 (SIC07). As well as the overall index of production there are four separate indices: for Manufacturing, for Electricity, Gas, Steam and Air conditioning, for Water Supply, Sewerage and Waste management and for Mining and Quarrying. Furthermore there are 10 further indices for manufacturing sub-sectors. The report provides UK figures for comparative purposes where possible. The Northern Ireland Index of Production has existed in Northern Ireland since 1949.</p>

	<p>Its primary use is as a short-term economic indicator, being used as an indicator of industrial activity.</p> <p>Currently there is one source of data. The data are obtained from the NI Quarterly Sales Inquiry (QSI). As Eurostat advocate the use of turnover data deflated by producer prices the vast majority of the QSI returns are turnover data however a very small number of businesses return volume output measures.</p> <p>There are a variety of users of the NI IOP data – local government, economic analysts, academics, businesses and the general public. Through our regular Economic and Labour Market Statistics Users meetings users have raised the need for a Production Exports Index. As a result we have just started to collect information on exports. The question was first asked for the April to June 2010 period.</p> <p>A full summary of usage of the Index is available on the website at <a href="http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production.htm">http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production.htm</a></p> <p>Within government it is used in policy formation, in response to Assembly questions and in presentations to the Executive Sub Committee on the Economy and the independent Economic Advisory Group which includes economists and business leaders.</p> <p>A report by Oxford Economics for Belfast City Council uses both IOP and Index of Services data. <a href="http://www.belfastcity.gov.uk/economicdevelopment/docs/EconomicIndicatorsReport.pdf">http://www.belfastcity.gov.uk/economicdevelopment/docs/EconomicIndicatorsReport.pdf</a></p>
<p><b>Accuracy</b></p>	<p><b>The proximity between an estimate and the unknown true value.</b></p> <p>The Index of Production is a volume index which essentially measures turnover (deflated to a constant price). The methodology is contained in the background notes of the statistics bulletin. <a href="http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production.htm">http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production.htm</a></p> <p>The accuracy of the Index 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 index.</p> <p><b>Coverage errors:</b> The sample is designed to cover all businesses in the production sector and is drawn from the Inter Departmental Business Register. <a href="http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-inter-dept-bus-register.htm">http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-inter-dept-bus-register.htm</a></p> <p>The sample was last refreshed in Q2 2011 and was drawn on a SIC07 basis. Due, in part, to the significant number of companies that fall into the census element, approximately 56% of businesses in the new sample were also in the old sample.</p>

**Non-response errors:** Not all businesses respond to the survey. The characteristics of these businesses may be different from those that do respond. The response rate was 97% in both 2009 and 2010 and 95% in 2011.

**Sampling error:** An estimate drawn from a sample is subject to sampling error, which is dependent on the sample size and the inherent variability of the population characteristic being measured. The sample size for the IOP is approximately 650 businesses and it comprises a census of all businesses in the production sector with 40 or more employees. The remaining selected businesses are allocated to industry strata on the basis of a Neyman allocation to maximise the precision of the sampled element of the survey. Neyman allocation is a sample allocation method that may be used with stratified samples. The purpose is to maximise survey precision (here, of total turnover), given a fixed sample size. It is actually a special case of optimal allocation where one assumes that the cost of sampling is the same for each stratum.

**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 Index.

**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 QSI 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 information to another Northern Ireland survey, for example the Annual Business Inquiry (ABI) or the Manufacturing Sales and Exports Survey (MSES), the information from the QSI surveys can be compared to these surveys. This information is used to understand and explain movements in the data. This has negligible impact on the Index.

**Changes in the seasonal pattern of the data:** The seasonal pattern in a series may change fundamentally if there is a major economic or measurement change. This would mean that the existing parameters set for the X 12 ARIMA seasonal adjustment package may no longer be optimal. Observations after such a change, although they might be following the new pattern in a normal regular fashion, could be viewed as extreme values (outliers) by the seasonal adjustment programme. The effect could be a highly volatile series, subject to large oscillations and revisions. If such a case arose then the seasonal adjustment pattern would need to be reviewed to optimise it. The IOP moved from X11ARIMA to X12ARIMA in October 2010 and the seasonal adjustment parameters were reviewed and optimised at that time. With the move to SIC07 the seasonal adjustment parameters have been revised and optimised for the Q2 2011 results and backseries.

	<p><b>Provision of revised data:</b> Revisions to data occur for a number of reasons: late returned questionnaires, incorrect estimates, revised back data, changes in coverage as a result of changes to the Standard Industrial Classification and revisions to seasonal adjustment factors (which are re-estimated every quarter). The IOP revisions policy is published on the IOP section of the website. <a href="http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production/stats-newpage-4.htm">http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production/stats-newpage-4.htm</a></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>Significant revisions to recent data are highlighted in the report to bring them to the attention of users. The IOP bulletin had previously contained information on Revisions Triangles. These triangles presented a summary of the differences between the first estimates of growth published and those published 3 years later for the same reference period. A statistical test had been applied to the average revisions to growth to find out if it is statistically significantly different from zero. Previous revisions triangles were based on SIC03 data. With the move to SIC07 it is not possible to update the current revisions triangles with the data published on a SIC07 basis. Further information on the construction of SIC07 revisions triangles will be announced in due course.</p>
<p><b>Timeliness and Punctuality</b></p>	<p><b>Timeliness refers to the time gap between publication and the reference period. Punctuality refers to the gap between planned and actual publication dates.</b></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. <a href="http://www.detini.gov.uk/publication_schedule_10-18.pdf">http://www.detini.gov.uk/publication_schedule_10-18.pdf</a></p> <p>The Quarterly IOP is published in January, April, July and October and the publication dates are fixed to coincide with the release of the Labour Market Statistics. Every effort is made to meet the publication deadline and in the last 10 years the IOP has always been published on schedule. 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 Quarterly IOP is usually published 3.5 months after the end of the reference period. It is published as a Statistical Bulletin on the DETI website.</p>

<p><b>Accessibility and Clarity</b></p>	<p><b>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.</b></p> <p>IOP 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 IOP statistical bulletin is available on the DETI website and free to download at 09:30 on the day of publication</p> <p>The DETI Statistics Helpline can be contacted either by phone (028 9052 9311) or by email (<a href="mailto:statistics@dfpni.gov.uk">statistics@dfpni.gov.uk</a>)</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>A timetable of future changes to the IOP is available from the IOP website at <a href="http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production/stats-newpage-4.htm">http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production/stats-newpage-4.htm</a></p>
<p><b>Coherence and Comparability</b></p>	<p><b>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.</b></p> <p>The NI IoP and NI IoS both measure like phenomena – the output of businesses in Northern Ireland, and might be expected to behave in a similar fashion. However, since they measure different sectors of the NI economy the indices will not necessarily follow the same trend.</p> <p>The majority of data used to calculate the IOP are sourced from the Quarterly Sales Inquiry. There is no comparable source but when the ABI and MSES data are available checks can be undertaken to ensure consistency between the four quarterly returns and the data returns from these annual surveys.</p> <p>Every effort is made to ensure that the series is comparable over time, and a comparable time series is available back to Q1, 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</p>

	<p>deflated turnover from monthly and/or quarterly surveys, with some industries measured by deflated production, direct volume measures or employment numbers. Component indices are aggregated by annual chain linking for the ONS UK, Welsh and Scottish methodologies and Northern Ireland moved to annual chain linking for the October 2011 publication. Index of Production figures for the UK, Wales and Scotland, respectively, can be accessed through the following links</p> <p><a href="http://www.ons.gov.uk/ons/publications/index.html">http://www.ons.gov.uk/ons/publications/index.html</a>  <a href="http://wales.gov.uk/topics/statistics/theme/economy/econ-indices/?lang=en">http://wales.gov.uk/topics/statistics/theme/economy/econ-indices/?lang=en</a>  <a href="http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/GDP">http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/GDP</a></p>
<p><b>Trade-offs between Output Quality Components</b></p>	<p><b>Trade-offs are the extent to which different aspects of quality are balanced against each other.</b></p> <p>As the IOP 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. The main limiting factor is the availability of quarterly turnover 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><b>Assessment of User Needs and Perceptions</b></p>	<p><b>The processes for finding out about users and uses, and their views on the statistical products.</b></p> <p>ELMS, NISRA has a programme of regular, scheduled Economy and Labour Market Statistics Users meetings. (The last meeting was 11 November 2011). The next meeting is to be confirmed.</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>There is a specific feedback facility on the Index of Production web page. <a href="http://www.business.detini.gov.uk/iop/iopopening.aspx">http://www.business.detini.gov.uk/iop/iopopening.aspx</a></p> <p>Both the specific IOP feedback facility and the wider DETI Statistics User Group allow users to give feedback on their needs and perceptions of the IOP. As the number of users leaving comments on the IOP website is small we have not published an analysis of the comments.</p> <p>Additionally NISRA runs an annual NISRA –wide customer satisfaction survey which incorporates DETI statistics.</p>

<p><b>Performance, Cost and Respondent Burden</b></p>	<p><b>The effectiveness, efficiency and economy of the statistical output.</b></p> <p>The process of producing the IOP is carried out in-house and costs approximately £76,000 per year to run. This is mostly staff costs but also includes the printing and postage of the survey forms. The estimated respondent burden for 2009 was £33,835. Full details on respondent burden for all DETI surveys can be found at <a href="http://www.detini.gov.uk/compliance-report">http://www.detini.gov.uk/compliance-report</a></p>
<p><b>Confidentiality, Transparency and Security</b></p>	<p><b>The procedures and policy used to ensure sound confidentiality, security and transparent practices.</b></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>The data are collected under the Statistics of Trade and Employment (Northern Ireland) Order 1988.  <a href="http://www.statutelaw.gov.uk/legResults.aspx?LegType=All%20Legislation&amp;PageNumber=2&amp;Year=1988&amp;NavFrom=2&amp;activeTextDocId=1014071">http://www.statutelaw.gov.uk/legResults.aspx?LegType=All%20Legislation&amp;PageNumber=2&amp;Year=1988&amp;NavFrom=2&amp;activeTextDocId=1014071</a></p> <p>This requires the Department to ensure the confidentiality of the data. 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>