Northern Ireland Quarterly Construction Bulletin
Background Information

The Northern Ireland Quarterly Construction Bulletin provides various measures of growth (expressed as a percentage) for construction output. The quarter-on-quarter change provides the most recent measure of how construction output is changing. Comparisons are also provided with the same quarter one year earlier where possible.

Tables 1.1-1.2 of the Bulletin, present each construction output series as index numbers. An index number is a convenient form of expressing a series in a way that makes it easier to see changes in that series. The numbers in the series are expressed relatively with one number in that series chosen to be the 'base' (usually expressed as 100) and other numbers being measured relative to that base. For example, a value of 102.4 means that the level of output is 2.4% higher than the base year=100. The Northern Ireland Construction Output series currently uses 2016 as the base year for comparisons.

Indices are created by dividing the current quarter (Chained Volume Measure) value of construction output by the average of the base year (2016) and multiplying by 100.

General Information about the QCE

This Northern Ireland Quarterly Construction Bulletin provides information on the output of the construction industry in Northern Ireland. The statistics are derived from the Quarterly Construction Enquiry (QCE). This is a statutory survey of construction firms operating in Northern Ireland collected under the [Statistics of Trade and Employment (Northern Ireland) Order 1988](). Each quarter, a sample of construction firms are asked to provide details of the value of construction activity they have undertaken in a specified period. The survey also covers public sector organisations which carry out their own construction activity.

The survey measures construction output carried out only in Northern Ireland.

The sample of construction firms for the QCE is selected from the Northern Ireland extract of the Inter-Departmental Business Register (IDBR). The IDBR includes all businesses registered for VAT and employers with employees in PAYE schemes.

The sample for the QCE covers Sections 41-43 (Construction) of the Standard Industrial Classification 2007 on the IDBR, with the exception of 41.1 (Property Developers).

Definitions and Statistical Explanations

Construction activity measured by QCE includes general construction and demolition work, construction and repair of buildings, civil engineering, installation of fixtures and fittings and any other building completion work. The following definitions are used in the QCE to describe Construction Activity:

New Work is any new construction activity, for example, factory and office extensions, major re-construction, major alterations, site preparation and demolition.

Repair and Maintenance is all on-site work not defined as new construction, for example, housing conversions, extensions and improvements.

Housing Output is defined as all public and private sector construction activity (New Work and Repair & Maintenance) associated with Housing.

Infrastructure Output is defined as all public and private sector construction activity (New Work and Repair & Maintenance) associated with the following:

- Roads/ Bridges/ Car Parks/ Footpaths
- Water/ Sewerage
- Electricity (power stations and distribution networks, for example, lines and transformers, etc.)
- Gas (Gas storage and distribution facilities, pipelines and gasometers, etc.)
- Communications (television, telephone and radio masts, exchanges, cables and conduits, etc.)
- Air Transport (Airports, air traffic control facilities, radar installations, etc.)
- Railways, Harbours, Waterways

Other Output is defined as all public and private sector construction activity (New Work and Repair & Maintenance) associated with the following:

- **Industrial:** Factories, Warehouses, Oil, Steel and Coal
- **Non-industrial:** Schools/ Colleges/Universities, Hospitals/Health Centres, Offices/Banks, Shops/Garages, Hotels, Clubs/Cinemas/Other Entertainments, Churches, Agriculture, Miscellaneous.

The following is not included as output:

- VAT charges;
- Payments made to consultants or architects.

In all returns, work done by sub-contractors is **excluded** to avoid double-counting since sub-contractors are also sampled.

Current Prices (value)

Current prices are the actual or estimated recorded monetary value over a defined period. They show the value expressed in terms of the prices of that period.

Chained Volume Measures (CVM)

A chained volume series is a series of data from successive years, put in constant price terms by computing the production volume for each year in the prices of the preceding year, and then chain-linking the data together to obtain a time-series of production figures from which the effects of price changes (for example, monetary inflation or deflation) have been removed.

Deflation and Seasonal Adjustment

It is common for the value of a group of financial transactions to be measured in several time periods. The values measured will include both the change in the volume sold and the effect of the change of prices over that year. Deflators adjust the value series to take out the effect of price changes to give the volume series. Deflation of construction output is carried out sectorally (for example, New Work Housing, New Work Infrastructure) using a range of relevant tender price and Output Price Indices (OPIs) supplied by the Office for National Statistics (ONS). Users are advised that these deflators are UK deflators and are not regional NI deflators.

Seasonal adjustment aids interpretation by removing seasonal variation due to climate, hours of daylight, holidays or other regular seasonal patterns.

Following a seasonal adjustment review of NI Construction Output statistics carried out by the ONS in November 2017, changes have been made to the seasonality for a number of the construction output series. The table below shows each series and advises users of the seasonality of the series before and after the review. Figures for those output series which are not seasonal are now presented in chained volume measure (2016) prices only.

Revisions

Output Series	Seasonal - Yes or No?	
	Pre-review	Post-review
All Work (AW)	No	No
All New Work (ANW)	No	No
All Repair and Maintenance (ARM)	Yes	Yes*
Index of Housing (IH)	Yes	Yes
Index of Infrastructure (II)	Yes	Yes
Index of Other Work (IOW)	Yes	Yes*
New Housing: Private (NHPR)	Yes	Yes
New Housing: Public (NHPU)	No	Yes
New Infrastructure: Private (NIPR)	No	No
New Infrastructure: Public (NIPU)	No	No
Other New Work: Public (ONWP)	Yes	Yes*
Other New Work: Private (ONWPR)	Yes	Yes
Repair and Maintenance – Housing: Private (RMHPR)	Yes	Yes
Repair and Maintenance – Housing: Public (RMHPU)	Yes	Yes*
Repair and Maintenance – Other Work: Private (RMOWPR)	No	No
Repair and Maintenance – Other Work: Public (RMOWPU)	Yes	Yes
Repair and Maintenance – Infrastructure: Private (RMIPR)	No	No
Repair and Maintenance – Infrastructure: Public (RMIPU)	Yes	Yes
Key: Yes – Seasonal adjustment required **No – Series is not seasonal (no adjustment)**		
* Series remains seasonal but with a modified model or regressors		

Results, particularly for the most recent quarters, are provisional and subject to revision as later information or returns become available for more details please see the Northern Ireland Construction Output Revision Policy.

The Northern Ireland Statistics and Research Agency (NISRA) has developed a revision triangle for the Northern Ireland Index of Construction, giving revision triangles of estimates for all quarters from Q1 2003. This is designed to help users understand the extent to which estimates are revised over time. The revision triangle presents a summary of the differences between the first estimates of growth published and those published three years later for the same reference period. These differences are tested to see if there is a significant difference between them.

Revisions are considered to be biased if the mean revision of the difference from zero is statistically significant. A standard t-test and modified t-test are used to compare the calculated bias in the Northern Ireland Index of Construction series (the mean revision) with the variability of the revisions.

Thus far, the differences between the first estimates of growth published and those published 3 years later for the same reference period have been found to be not significant. This indicates that the estimates are a reliable measure of the construction output at the first date of publication.

In general, revisions to construction output estimates will follow the standard revisions policy shown in the following table.

Frequency and date of revision	Period covered	Reasons
Quarterly	Variable – data can be revised back up to the last four quarters	Late returns; Revised data from firms; Changes to grossing factors
Quarterly	Variable – full quarterly series	Seasonal adjustment
Quarterly	Variable – full quarterly series	Revisions to Deflators

The table to follow highlights the latest revisions to construction output (Total Output) quarter on quarter growth rates compared with those published in the last bulletin. The growth rate is the difference, expressed as a percentage, between the values of output in the latest quarter compared with output in the previous quarter.

Revisions to construction output quarter on previous quarter growth rates			
Year / Quarter	Total Output growth previously published[1]	Total Output growth published in this release[2]	Total Output growth revisions
2018 Oct - Dec (Q4)	-4.5%	-5.0%	-0.5%
2019 Jan - Mar (Q1)	2.8%	0.4%	-2.4%
Apr - Jun (Q2)	-4.7%	-3.1%	1.5%
Jul - Sep (Q3)	3.9%	2.8%	-1.1%

[1] derived from figures published Quarter 2 2019
[2] derived from figures updated Quarter 3 2019

Survey Methodology

A [summary of methods](#) used to compile Northern Ireland Construction Output statistics can be found online.

Survey Quality and Reporting

A [summary quality report](#) for Northern Ireland Construction Output statistics can be found online. It is intended to provide users with information on how the statistics have been compiled and the quality of the information upon which they may be drawing conclusions and making decisions.

Users should be aware that the data presented in this bulletin are estimates, subject to both sampling errors (arising from the fact that the QCE is a survey, not a census) and non-sampling errors (further detail is contained in the Summary Quality Report).

Sampling error is the difference between a population value and an estimate based on a sample. In practice, the standard error is often used as an indicator of sampling error. The standard error gives users an indication of how close the sample estimator is to the population value: the larger the standard error, the less precise the estimator.

The Coefficient of Variation (CV) is the ratio of the standard error to the estimate, expressed in terms of a percentage. In general terms, the smaller the CV is the higher is the quality of the estimate. [CVs](#) have been calculated for the main construction output measures (in current prices).

It is difficult to produce standard errors directly for seasonally adjusted series and for volume measures (real prices), but in so far as the standard errors for the unadjusted series are indicators of quality, they will indicate something about the quality of the adjusted series too.

Relevant Links/International Sources of Construction Output Statistics

Similar data for [Great Britain Construction Output](#) is provided by the Office for National Statistics. In 2019, the Great Britain Construction publication was [re-designated as National Statistics](#).

The GB data is derived from the Monthly Inquiry of Activity for Construction and Allied Trades carried out in GB by ONS. Whilst the QCE and Monthly Inquiry of Activity for Construction and Allied Trades are not identical, much of the sample design and methodology on both surveys are similar. A summary of the main sampling rules and methodology on both surveys can be found in the table below.

	NI Quarterly Construction Enquiry (QCE)	GB Monthly Inquiry of Construction Activity and Allied Trades
Frequency of data collection	Quarterly	Monthly
Sampling frame	IDBR	IDBR
Target Population	Businesses classified to construction under Standard Industrial Classification (2007) Section F, Divisions 41-43 (excluding sector 41.1 – Property Developers)	Businesses classified to construction under Standard Industrial Classification (2007) Section F, Divisions 41-43 (excluding sector 41.1 – Property Developers)
Sample Design	Sample population is stratified by turnover with businesses with an annual turnover exceeding £5.25 million always being selected	Sample population is stratified by the employment size group and by industry (SIC) of businesses with businesses with 100 or more employees always being selected

	NI Quarterly Construction Enquiry (QCE)	**GB Monthly Inquiry of Construction Activity and Allied Trades**
Sample size	Around 750	Around 8,000
Include Public Sector DLOs	Yes	No
Definition of Output	Cost of materials; Labour costs; Overheads; Profits; Costs associated with demolition and site preparation; Payments made to subcontractors; The following is not included as output: VAT charges; Payments made to consultants or architects	Cost of materials; Labour costs; Overheads; Profits; Costs associated with demolition and site preparation; Payments made to subcontractors; The following is not included as output: VAT charges; Payments made to consultants or architects
Base year	2016	2016
Weighting and Estimation	Returns are weighted by one. Grossing factors which are computed for each strata derived by dividing the total number of firms in each strata population by the number of firms that returned for that strata.	Returns are weighted using the following: Design weight based on the cell in which a business resides Calibration weight based on register turnover
Deflators	NISRA applies the Output Price Indices (OPIs) described in full in the ONS section on Deflators	Interim solution for construction output price indices, follow the link below to the methodological documentation released by the Office of National Statistics (ONS) that explains in full how each OPI is derived. https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/bulletins/constructionoutputpriceindicesopis/latest
Seasonal Adjustment Model	X13 - Arima	X13 - Arima

International construction output statistics are also compiled by Eurostat.

Publication Policy

The Northern Ireland Construction Bulletin is available to download free from the NISRA website.

Accuracy

In Table 1.4, each of the individual component series is separately deflated and in some cases seasonally adjusted. Therefore the sum of the component series will not necessarily tally with overall figures. For example, the sum of New Work Housing (Public and Private), New Work Infrastructure (Public and Private) and Other New Work (Public and Private) will not sum to All New Work. The same is true for the Repair and Maintenance figures. Equally All New Work and All Repair and Maintenance will not always tally to All Work as Repair and Maintenance has a permanent prior seasonal adjustment at the beginning of the series.

Accessing Data

The tables from the current publication, which include data back to 2000, are now available in Excel, CSV and OpenDocument format.

Planned Methodological Review

In line with best practice, a wider methodological review of the NI QCE is planned to be undertaken over the next number of months. A full update on the methodological assessment will be published alongside any revisions that may occur as a result of the review.

Pre-Release Access

No pre-release access is given.

National Statistics

The United Kingdom Statistics Authority has designated these statistics as National Statistics following a full assessment in March 2012. The assessment was undertaken in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All Official Statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is NISRA's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

User Feedback

As a user of these statistics, we would welcome feedback on this release, in particular on the content, format and structure.

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