

Standard Report on Methods and Quality for Building and Construction Inquiry 2018

Standard Report on Methods and Quality for

Building and Construction Inquiry

This documentation applies to the reporting period:

2018

Last edited: 02.09.2020

Central Statistics Office Skehard Road Cork T12 X00E

Tel.: +353-21-4535000

www.cso.ie

Table of Contents

1 Overview

2 General Information

- 2.1 Statistical Category
- 2.2 Area of Activity
- 2.3 Organisational Unit Responsible, Persons to Contact
- 2.4 Objectives and Purpose; History
- 2.5 Periodicity
- 2.6 Client
- 2.7 Users
- 2.8 Legal basis

3 Statistical Concepts, Methods

- 3.1 Subject of the Statistics
- 3.2 Units of Observation/Collection Units/Units of Presentation
- 3.3 Data Sources
- 3.4 Reporting Unit/Respondents
- 3.5 Type of Survey/Process
- 3.6 Characteristics of the Sample/Process
- 3.7 Survey Technique/Data Transfer
- 3.8 Questionnaire (including explanations)
- 3.9 Participation in the Survey
- 3.10 Characteristics of the Survey/Process and its Results
- 3.11 Classifications used
- 3.12 Regional Breakdown of Results

4 Production of the Statistics, Data Processing, Quality Assurance

- 4.1 Data Capture
- 4.2 Coding
- 4.3 Data Editing
- 4.4 Imputation (for Non-Response or Incomplete Data Sets)
- 4.5 Grossing and Weighting
- 4.6 Computation of Outputs, Estimation Methods Used
- 4.7 Other Quality Assurance Techniques Used

5 Quality

- 5.1 Relevance
- 5.2 Accuracy and Reliability
 - 5.2.1. Sampling Effects, Representativity
 - 5.2.2. Non-Sampling Effects
 - 5.2.2.1 Quality of the Data Sources used
 - 5.2.2.2 Register Coverage
 - 5.2.2.3 Non-response (Unit and Item)
 - 5.2.2.4 Measurement Errors
 - 5.2.2.5 Processing Errors
 - 5.2.2.6 Model-related Effects
- 5.3 Timeliness and Punctuality
 - 5.3.1 Provisional Results
 - 5.3.2 Final Results
- 5.4 Coherence
- 5.5 Comparability
- 5.6 Accessibility and Clarity
 - 5.6.1 Assistance to Users, Special Analyses
 - 5.6.2 Revisions
 - 5.6.3 Publications
 - 5.6.3.1 Releases, Regular Publications
 - 5.6.3.2 Statistical Reports
 - 5.6.3.3 Internet
 - 5.6.4 Confidentiality

6 Additional documentation and publications

1.Overview

The Building and Construction Inquiry (BCI) was established in 2009, it is an annual survey and covers approximately 56,500 firms in the private (i.e. non-State) sector. It covers firms whose main activity is construction of buildings, civil engineering or specialised construction activities. From 2008, the business activity classification used in this survey is based on the Statistical Classification of Economic Activities in the European Community, i.e. NACE Rev. 2.

The Building and Construction Inquiry is a sample survey covering all enterprises. It consists of a census of enterprises with 10 or more persons engaged and in addition a random sample of the smaller units stratified by activity (NACE Revision 2) and employment size class. The BCI is collected by Post and Electronic Survey forms.

The Census of Building and Construction first appeared as a separate census in 1966. Prior to that, data on the building and construction sector was collected and published in the Irish Statistical Bulletin/Irish Trade Journal as part of the Census of Industrial Production (first inclusion in the 1926 Census). It was first published as a separate release document in 1981. Data since 1981 is available electronically on the CSO website www.cso.ie via Databases.

2.General information

2.1 Statistical Category

Primary statistical survey.

2.2 Area of Activity

Structural Business Statistics - Construction

2.3 Organisational Unit Responsible, Persons to Contact

Structural Business Statistics Division - Data Collection Unit Suzanne Foley Tel: +353 21 4535233 Email: construction@cso.ie Brendan Lynch Tel: +353 21 4535541 Email: construction@cso.ie Structural Business Statistics Division - Results Analysis and Publication Sorcha O'Callaghan Tel: +353 21 4535523 Email: business_stats@cso.ie Deirdre O'Connor Tel: +353 21 4535206 Email: business_stats@cso.ie

2.4 Objectives and Purpose; History

The BCI covers firms in the private (i.e. non-state) sector whose main activity is construction of buildings, civil engineering or specialised construction activities. It consists of a census of enterprises with 10 or more persons engaged and in addition a random sample of the smaller units stratified by activity (NACE Revision 2) and employment size class.

The overall purpose of the BCI is to collect and publish annual structural statistics on enterprises in the construction sector together with enterprises in certain trades which are allied to the construction sector. This data is published nationally and provided to Eurostat.

2.5 Periodicity

This survey is carried out annually.

2.6 Client

Nationally, the survey is carried out under Statutory Instrument no 44/2013 while at EU level the survey is carried out under Council Regulation (EC EURATOM) NO 295/2008.

2.7 Users

- Eurostat
- □ Government
- □ Economists
- □ Other CSO sections
- □ The general public
- Professional Bodies
- □ University students and other interest groups for research purposes

2.8 Legal basis

Statutory instrument

This is a statutory survey under SI 44/2013

Implementing Commission Regulation

Regulation (EC) No 295/2008 of the European Parliament and of the Council of 11 March 2008 concerning structural business statistics (recast) Text with EEA relevance, published in the Official Journal of 9/4/2008.

Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains Text with EEA relevance, published in the Official Journal of 30/12/2006.

3. Statistical Concepts, Methods

3.1 Subject of the statistics

The subject of the statistics is to produce structural information on miscellaneous accounting variables for the Construction Industry on an annual basis. Such variables include:

- Number of Persons engaged
- Wages and Salaries
- Production Value
- □ Intermediate Consumption
- □ Gross Value Added

3.2 Units of Observation/Collection Units/Units of Presentation

An enterprise is defined as the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision making especially for the allocation of its current resources.

Data is collected at firm level from enterprises whose main activity is construction of buildings, civil engineering or specialised construction activities. These firms are classified to Divisions 41 – 43 of the NACE Industrial Classification of Economic Activity in the European communities (NACE Rev 2).

The survey is made up of a census of construction enterprises that employ 10 or more and a random sample of the smaller units stratified by activity (NACE Revision 2) and employment size. The BCI is drawn from the Business Register. In 2018 there were approximately 57,000 enterprises known to the CSO to have been engaged in construction activity of which approx 4,500 enterprises were surveyed.

Monetary figures are published in units of €000's; persons engaged are published in absolute figures. Data is broken down in the publication by activity (NACE Rev 2), by employment and turnover (Euro "000").

3.3 Data sources

None - this is a primary survey

3.4 Reporting Unit/Respondents

Respondents - Enterprises with Zero or more persons engaged.

3.5 Type of Survey/Process

The BCI covers all enterprises classified according to NACE Rev 2, Divisions 41 - 43.

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

Approximately 4350 enterprises classified in NACE Rev 2, divisions 41 - 43 (all building and construction) are surveyed. The Business Register provides the sampling frame from which the enterprises to be surveyed are drawn.

3.6.2 Sampling Design

The survey sample consists of the census of enterprises with 10+ employees plus a random sample of the smaller units stratified by activity (NACE Rev 2) and employment size class.

3.7 Survey Technique/Data Transfer

Survey forms are issued by post and electronically and returned forms are then scrutinised for any discrepancies prior to scanning. Returned survey forms are scanned and verified. The scanned data and the data from electronic returns are transferred to the CSO's Data Management System (DMS), where it can be viewed and amended as required. SAS programs are used for the transfers and management of the survey. Postal reminders, emails, telephone calls are used to seek the return of forms from non-respondents. Edits are run on the scanned data and any required changes are made to the data.

3.8 Questionnaire (incl. Explanations)

There are two types of questionnaires used in the BCI.

An 'enterprise' questionnaire is sent to all enterprises whose activity is primarily construction. The type of 'enterprise' questionnaire depends on the size of the enterprise. The most detailed form (Form L) is generally sent to all enterprises with twenty or more persons engaged. A less detailed form (Form S) is sent to enterprises with between zero and nineteen persons engaged.

Individual forms and instructions on how to complete same are available on the CSO website as follows:

Building & Construction Forms

3.9 Participation in the survey

This is a statutory enquiry and therefore participation is compulsory under SI 44/2013.

3.10 Characteristics of the Survey/Process and its Results

The BCI is made up of a census of construction enterprises that employ 10 or more and a random sample of the smaller units stratified by activity (NACE Revision 2) and employment size. The survey is aggregated and published at 3-digit NACE level, classified according to NACE Rev 2, divisions 41 - 43. Results are grossed for non-response. The object of the survey is to produce information on key accounting variables for the Construction Industry on an annual basis. Such variables include

- □ Number of persons engaged
- $\hfill\square$ Wages and Salaries
- Acquisitions and Sales of Capital Assets
- Production Value

Production value represents the net selling value of work done during the year, whether sold or not. It is valued exclusive of VAT. It incorporates an element of double counting arising from the fact that

work done on a subcontract basis by firms in a particular sector for other firms in the same sector is included in the turnover figures provided by both firms. However, in the calculation of Gross Value Added this double counting is eliminated.

□ Intermediate Consumption

This represents the value of building materials, fuel, industrial services and other goods and services used in production. The calculation includes payments to subcontractors as part of the cost of industrial services, thereby eliminating double counting from the gross value added figures.

□ Gross Value Added

This is the difference between production value and intermediate consumption and represents the value added by the firm. Because work done by subcontractors is treated as part of intermediate consumption, there is no double counting in this variable.

3.11 Classifications used

In accordance with EU legislation, the NACE REV. 1 classification was used to classify activities from 1991 to 2001. From 2002 onwards results are classified by NACE Rev 1.1. From 2008 onwards, results are classified by NACE Rev 2. A correlation table showing the relationship between headings of the old and new classification is available. Each 4 digit class in NACE REV 2 relates to a specific form of economic activity, e.g. *construction of roads and railways (*NACE 4211).

The scope of the Census extends to NACE section F, Divisions 41 – 43 namely;

NACE 41: Construction of buildings NACE 42: Civil engineering NACE 43: Specialised construction activities

To view the classification, please see

CSO Classifications

3.12 Regional Breakdown of Results

Results are not broken down by region.

4. Production of the Statistics, Data Processing, Quality Assurance

4.1 Data capture

Survey forms are issued by post and electronically and returned forms are then scrutinised for any discrepancies prior to scanning. Returned survey forms are scanned and verified. The scanned data and the data from electronic returns are transferred to the CSO's Data Management System (DMS), where it can be viewed and amended as required. SAS programs are used for the transfers and management of the survey. Postal reminders, emails, telephone calls are used to seek the return of forms from non-respondents. Edits are run on the scanned data and any required changes are made to the data. The IT tools employed are: The CSO in house computer system – Data Management System (DMS), also bought in systems: SAS, Microsoft Excel and PCAxis.

4.2 Coding

The following section codes are used:-

- □ non relevancy reason codes
- □ issue/receipt codes
- □ BCI query codes

4.3 Data Editing

Edit checks are run for each firm to compare figures against previous year's data using SAS programs. Consistency checks are run, and any edits raised are followed up with the enterprise where necessary. Edits are also run to check that the sum of components that make up a total is correct for that variable. Where unusually low or high values for a variable are displayed, a first check is done to see if it is a scanning/verification error. If so, it is corrected, if not, a query is sent to the enterprise for resolution. Other checks include range checks.

4.4 Imputation (for Non-Response or Incomplete Data Sets)

None.

4.5 Grossing and Weighting

The original series was aggregated using grossing factors. This method has been revised in the new series. Instead of grossing to a total population the use of administrative (tax) data is used instead.

For every non-respondent or non- surveyed enterprise a survey return is created using tax information. The primary financial value the survey uses is profit/loss data with estimates for labour costs added to arrive at a value for GVA. This is derived from the administrative data. Other financial variables normally received from the survey form are estimated using actual survey returns as the data is not available from the administrative data. This is done using ratio-estimators. A basic example of the concept would be the ratio of turnover to GVA. If for a particular NACE the ratio of turnover to GVA is 4:1, we would simply multiply the derived administrative GVA by 4 to give us a turnover value.

4.6 Computation of Outputs, Estimation Methods Used

The dataset is created from the Business Register. All enterprises in NACE Section F i.e. divisions 41 - 43 are included.

Results are aggregated and published at 3-digit NACE level.

4.7 Other Quality Assurance Techniques Used

Staff training, questionnaire reviews, survey respondents feedback sought and acted upon, telephone skills for all staff.

5. Quality

5.1 Relevance

The BCI is an important indicator used both nationally and by the EU. It is required by the EU under Council Regulation (EC, Euratom) No 44/2013 concerning Structural Business Statistics.

5.2 Accuracy and Reliability

5.2.1 Sampling Effects, Representativity

5.2.2 Non-Sampling Effects

5.2.2.1 Quality of the Data Sources Used

Administrative data sources used seem to be of satisfactory quality.

5.2.2.2 Register Coverage

The sample is taken from the CSO's Business Register. All enterprises in NACE Rev 2 Section are covered. The quality of the register used for sample selection is very important. Updates to the register are made continually throughout each year, to improve the quality of the register. Data is obtained via postal and electronic means. There may be some duplicates when the census is first taken, however these are then removed each year when discovered. Companies that have been discovered to be non-relevant are also removed.

5.2.2.3 Non- response (Unit and Item) Unit non – response

In 2018, Non-Response was in the order of 54%.

To help reduce unit non-response, the company is contacted. Grossing Factors are calculated using employment figures.

The main reasons for unit non-response are:

- □ A company may no longer be at the address that is on file. These are investigated by the section.
- □ A company may receive two forms in the case of a duplicate
- □ A company may have ceased trading
- □ A company may request an extension to the return due date.

Item non - response

To help reduce item non-response:

□ The company is contacted.

5.2.2.4 Measurement errors

Measurement errors are not formally calculated, however the following measures have been put in place:- Types of errors – a respondent may give incorrect data; the form/questionnaire may lead to the recording of wrong values. Examples include – missing employment figures, missing contact details.

Some solutions:

- □ comparison of data at local level. Current data is compared with data for T-1 (previous year's data).
- $\hfill\square$ there are built in edit checks
- □ training of staff so that they have good knowledge of the local units they are responsible for
- □ design of questionnaire is monitored and changes are made if necessary

5.2.2.5 Processing errors

Survey forms are issued by post and electronically and returned forms are then scrutinised for any discrepancies prior to scanning. Returned survey forms are scanned and verified. The scanned data and the data from electronic returns are transferred to the CSO's Data Management System (DMS), where it can be viewed and amended as required. Edits are then run on the keyed data using PC SAS. Any edits that arise are analysed and records are corrected as appropriate following clarification with the company. Edits are run for each unit.

Data Capture

Less data capture errors are likely to arise due to scanning and verification, however data can be keyed manually if there are scanning/verification errors.

Data Editing

Edits are run as outlined in section 4.3. Any inconsistencies are queried with the firm. Any changes required are keyed manually.

5.2.2.6 Model-related effects

The use of Administrative data to impute for a range of financial variables is making the assumption that certain enterprises financial structures are similar. This may not always be the case.

5.3 Timeliness and Punctuality

5.3.1 Provisional results

Provisional data should be sent to Eurostat in T+ 10 months. Provisional data is not published nationally.

5.3.2 Final results

Under EU regulation, final data must be sent to Eurostat by T+18 months.

5.4 Coherence

Prior to aggregation the data is thoroughly checked for consistency with National Accounts and Balance of Payments sections of the CSO. Any major discrepancies are discussed and resolved.

5.5 Comparability

Comparisons are made with previous year's data. Due to the use of comparable methodology, certain main variables from the BCI (Number of Employees, Wages and Salaries, Production Value, Intermediate Consumption and Gross Value Added) can be compared over time and with other European states on the Eurostat website:

5.6 Accessibility and Clarity

5.6.1 Assistance to Users, Special Analyses

The BCI is published on the CSO website, see section 5.6.3.3. The questionnaire is available at the following link:

Building & Construction Forms

Background notes are also available here:

Building & Construction Inquiry Background Notes

Data is transmitted to Eurostat electronically via Edamis.

Historical data is available from the CSO's Database direct, see section 5.6.3.3.

Specific user requests are acceded to where possible, and where confidentiality issues do not arise.

5.6.2 Revisions

Revisions are made to previous years data where necessary. This can be due to receiving late returns, or amendments being required to existing returns. Data for Building & Construction Inquiry (BCI) 2008 - 2016 was revised in conjunction with the publication of BCI 2017 data.

5.6.3 Publications

5.6.3.1 Releases Regular Publications

Not applicable

5.6.3.2 Statistical Reports

Statistical Yearbook Business in Ireland

5.6.3.3 Internet

Final data for 2018 and historical fata for previous years can be found at

Databank tables for Building & Construction Inquiry

5.6.4 Confidentiality

All information supplied to the CSO is treated as strictly confidential. The Statistics Act 1993 sets stringent confidentiality standards: Information collected may be used only for statistical purposes, and no details that might be related to an identifiable person or business undertaking may be divulged to any other government department or body.

7 Additional documentation and publication

As part of the EU regulation underpinning the BCI, data is transmitted to Eurostat at T+10 and T+18, this data is published on Eurostat's website at

Eurostat - Annual detailed enterprise statistics for Construction

The entry for this statistic under StatCentral (the portal to Ireland's official statistics) is at

http://www.statcentral.ie/viewStat.asp?id=127