

Background Quality Report – DfI publications from the Continuous Household Survey (CHS)

This report provides information on the quality of the data used to produce the official statistics in the DfI publications from the CHS Survey in 2020/2021:

[Active and Sustainable Travel](#), [Travel to and from School](#) and [Road Safety Issues](#).

It informs users about the quality of the information upon which they may be drawing conclusions and making decisions.

The report is structured around the five quality dimensions for statistical outputs (from the [European Statistics Code of Practice, PDF \(458 KB\)](#)). The UK Statistics Authority's [Code of Practice for Statistics](#) requires that:

Q3.3 *The quality of the statistics and data, including their accuracy and reliability, coherence and comparability, and timeliness and punctuality, should be monitored and reported regularly.*

Introduction

Context for the quality report.

The Continuous Household Survey (CHS) is one of the largest continuous surveys carried out in Northern Ireland. The survey is designed, conducted and analysed by the Central Survey Unit (CSU) of the Northern Ireland Statistics and Research Agency (NISRA). It is based on a sample of the general population resident in private households and has been running since 1983. The survey is designed to provide a regular source of information on a wide range of social and economic issues relevant to Northern Ireland.

Usually, DfI includes six or seven modules in the Continuous Household Survey and these modules vary from year to year. As such content can change but regularly placed modules cover topics such as Road Safety, Travel to/from School, Journey Planning and Walking, Cycling & Public Transport.

Due to the coronavirus (COVID-19) pandemic, data collection for the 2020/21 survey moved from face-to-face interviewing to telephone mode with a reduction in the number of questions. There are two main implications of this:

- Results from the CHS 2020/21 are not directly comparable to previous years due to significant methodology and content changes.
- Output from the survey, in terms of the sample size, range and depth of topics covered, has been reduced from that of previous years, with the subsequent capacity for detailed analysis constrained. With the reduction in the achieved sample due to the lower response rate, the precision of survey estimates is reduced. As such, condensed reports have been published in 2020/21, combining multiple modules where necessary.

Relevance

The degree to which the statistical product meets user needs in both coverage and content.

Each year CSU requests updates to the content of the questionnaire modules or proposed new modules, in consultation with client departments. The questionnaire consists of both a household interview and an individual interview with each person aged 16 and over. Both the household and individual questionnaires consist of core items that are included each year, modules that recur on a regular cycle and ad hoc modules.

Core items include accommodation, tenure, employment status, employment activity, educational qualifications, adult health and family information.

Non-core items include attitudes to walking and cycling, method of travel to school by children, road safety and participation and attendance at sports and leisure activities. For each of these, a population level analysis is included and a breakdown by various sections of society, including Section 75 categories, where possible.

In DfI, modules are reviewed each year to ensure continued relevance to Departmental Policy. This process is managed by statistical staff, who liaise with relevant policy managers to ensure suitable content is developed and that timescales and analysis outputs are understood and useful to policy customers. With the reduction in the number of questions for the CHS in 2020/21, policy managers were contacted to ensure that the most important questions were retained.

Accuracy and Reliability

The proximity between an estimate and the unknown true value.

The survey is asked to a representative sample of the Northern Ireland population therefore there are no major coverage issues. The CHS sample is drawn from the NISRA Address Register which contains address information for every property in NI, excluding those people living in institutions.

Information on data processing –

Data is collected by telephone interview using CATI (Blaise), and the interviews are spread equally over the 12 months from April to March. Data is returned from the field via FTP dial up. Data is downloaded onto secure network drives and processed through the CHS data management system. Data is coded and fully validated by CSU statistical staff.

Information on quality control and quality assurance –

The CHS uses the ONS Primary and Secondary Harmonised questions as far as possible and where appropriate. Questions are pre-tested before they go into field. The CATI questionnaire is scripted in Blaise which allows CSU staff to define range and consistency checks for each question and to control routing throughout the questionnaire.

The data is subject to further validation checks including treatment of outliers and detailed consistency checking including non-credible checks. A 100% check of all coded data is undertaken by statistical staff to ensure that coding procedures are of a high standard. All

completed CHS interviews are back-checked with respondents to ensure that interviews are valid. Interviewers undergo intensive induction training and are trained (face-to-face) before working on CHS.

Sample Design and Sampling Frame –

The CHS is based on a systematic random sample of 9,000 addresses drawn each year from the NISRA Address Register. The addresses on the NISRA Address Register are sorted by district council and ward, so the sample is effectively stratified geographically. A starting point in the sampling frame is randomly selected and then every nth (fixed interval) is selected by counting through the frame. The questionnaire is usually split into two versions with DfI modules being asked to around 4,500 households.

However as explained in the Context section, the 2020/21 questionnaire was significantly reduced to facilitate telephone interviewing. Therefore only one overall version of the questionnaire was produced with DFI modules being asked to the entire sample of 9,000 households.

Response Rate –

Due to restrictions relating to COVID-19, the target response rate on CHS was 15%. That is, obtaining interviews at 15% of eligible addresses. Addresses which are vacant, derelict etc. and which do not contain people are deemed to be ineligible. In 2020/21 the response rate achieved on the CHS was 16% (1,440 households).

The findings reported for 2020/21 are based on 1,885 respondents, aged 16 and over.

Non Response Error/Bias –

Non-response bias on CHS is measured by comparing the characteristics of the achieved sample with the distribution of the same characteristics in the sampling frame or Census. A chi square goodness-of-fit test showed that the CHS sample was not representative of the population by age, sex and deprivation quintiles when compared with the 2020 Mid-Year Population Estimates for Northern Ireland published by [NISRA 25 June 2021](#).

As a result, separate weights were produced for age, sex, deprivation quintile and combinations of these variables. It should be noted that this is the first year that weights for deprivation quintiles have been produced. DfI carry out checks on each module to determine whether weighting should be applied and each publication will inform the reader whether weights have been applied or not.

Proxy responses –

On CHS, there are no proxy interviews. The household schedule is answered by the first adult to be interviewed on behalf of the whole household.

Imputation rates –

No imputation of data occurs on CHS.

Sampling Error –

Since the CHS data is based on a sample rather than the whole populations it is subject to sampling error. Sampling error is the difference between the estimate derived from a sample and the 'true' value that would result if a census of the whole population were taken under the same conditions.

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.

The CHS runs on a financial year cycle (Apr-Mar) and the data is updated three months after the close of the data collection cycle. Data is normally provided to module owners in and around the July that follows the completed financial year. For example, the CHS results based on the 2020/21 survey cycle became available in June 2021.

Given available resource in the Branch, ASRB aim to publish all DfI publications by the end of the financial year in which data are received. That is all data received in June 2021 should have been analysed and published by the 31st March 2022. Order of publication is prioritised through liaison with policy customers and through ASRB's understanding of departmental priorities.

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.

For each module that DfI include on the CHS, a report is published (in line with The Public Sector Bodies (Websites and Mobile Applications) (No. 2) Accessibility Regulations 2018) complete with infographics and data tables in both Excel and ODS format and these are published on the ASRB homepage:

<https://www.infrastructure-ni.gov.uk/topics/dfi-statistics-and-research>.

The main report for each module contains a 'Technical Notes' section, outlining important information of the survey including data collection methods, an assessment of data quality, respondent information, information on weighting and other associated survey information.

In 2020/21, due to a reduction in survey content, a condensed 'Active and Sustainable Travel' report including data from multiple modules was produced. This was produced in

HTML format for the first time, incorporating accessibility to the production process and interactive charts to ensure continuity of access and ease of use.

Information from the CHS is published on the CSU website:

<https://www.nisra.gov.uk/continuous-household-survey>.

A bespoke information request service is available to all users of CHS. CHS data is deposited annually in the UK Data Archive and is available to any user wishing to carry out individual analysis.

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.

Most modules have been included in the CHS where there is no existing data source and as such there is no exact comparison with any other data sources. However, comparisons are made to ensure the demographic breakdowns (gender, age and area) are in line with the mid-year estimates of population. Where a similar question is asked in another survey (e.g. car ownership from the Travel Survey) comparisons are made to check that data are consistent.

All surveys conducted by Central Survey Unit follow harmonisation guidelines produced by ONS. This means that, especially for demographic data, questions are asked in the same way and are therefore comparable.

Usually, where modules or questions have been asked in previous years of the CHS, the latest data are always compared with previous years' data and any significant changes are thoroughly checked and validated. However, the results from the CHS 2020/21 are not directly comparable to previous years due to the significant changes to the survey in terms of methodology and content.

The output from the survey, in terms of the sample size, range and depth of topics covered, has been reduced from that of previous years, with the subsequent capacity for detailed analysis constrained. With the reduction in the achieved sample due to the lower response rate, the precision of survey estimates is reduced. However, breakdowns by various sections of society, including Local Government District and Section 75 groups, have been provided where possible.

Trade-offs between Output Quality Components

Trade-offs are the extent to which different aspects of quality are balanced against each other.

It could be considered that there is some trade-off between 'relevance' and 'accuracy and reliability'. The sample size of the survey means that sometimes limited analysis can take place for specific travel modes, geographic and other sub-population breakdowns.

Continuous Household Survey data are only analysed if the sample size is large enough for robust analysis.

Policy need also means that priorities can drive change in the modules and that leads to a trade-off between 'relevance' and 'comparability' as content can change year to year depending on what need exists. Time series can stop suddenly due to changing priorities.

Assessment of User Needs and Perceptions

The processes for finding out about users and uses, and their views on the statistical products.

Data presented in this report help to meet the information needs of a wide range of internal and external users (see "Relevance" section for more details of users and uses of the CHS reports and data). In addition to the reports, CHS data are used to answer a number of ad-hoc queries throughout the year on a wide variety of topics. Given the model employed to develop modules, user needs are discussed on an annual basis and module content developed to reflect that emerging need and how data already published has been used. Modules are then updated based on learning from those conversations.

ASRB have a mailing list of CHS users for each publication who are notified each time a relevant CHS publication is issued. This list was recently refreshed to ensure it is up to date and that the people on it still wish to receive information about a specific CHS publication, in consideration of GDPR requirements.

There is an on-going ASRB customer satisfaction survey which includes a question on whether ASRB publications meet customers' needs. The link to the survey is issued every time users are notified that a report has been published or an ad-hoc query is answered. Results are collated on a quarterly basis. User needs are prioritised, taking account of resources available and the relevance and feasibility of any additional needs identified.

Performance, Cost and Respondent Burden

The effectiveness, efficiency and economy of the statistical output.

An annual survey control return is completed for the Continuous Household Survey. The compliance burden is calculated from the median time taken to complete the survey and the number of respondents.

The achieved response rate is a good indication of respondent burden. It was 58% for the CHS in 2019/20, the same as in 2018/19 (58%). Response rate was 16% for 2020/21, which

is considerably lower than previous years, but remained above target set due to methodology changes. In general, social surveys have seen a decrease in response rate in recent years.

Confidentiality, Transparency and Security

The procedures and policy used to ensure sound confidentiality, security and transparent practices.

CHS data received by ASRB are anonymised (name/address information is not contained in the database). In addition, the data represent a sample of the population and there is no way for ASRB to identify the sample that was chosen from the population.

The data are held either on a secure and accredited network drive that is only accessible to ASRB staff or within DfI's secure record management system (CM), also with restricted access and subject to standard record retention protocols.

Analysis is only carried out if the sample size is large enough and the data are presented as averages or percentages. There are therefore no small cells which need have disclosure control methods applied. ASRB has produced a statement on its confidentiality processes which can be found in the Department for Infrastructure's Code of Practice for Statistics supporting statements:

<https://www.infrastructure-ni.gov.uk/publications/code-practice-statistics-supporting-statements>

Description required for procedures on Confidentiality, Transparency and Security>