

QUALITY ASSURANCE OF THE 2011 CENSUS
IN
NORTHERN IRELAND

May 2012

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1 Executive Summary

- 1.1 The delivery of high quality, fit for purpose outputs that meet the needs of users has been at the heart of the work that NISRA has undertaken to plan, develop and implement the 2011 Census in Northern Ireland. As in 2001, the information collected through the Census will be assessed for coverage and completeness and adjusted to take account of any under-enumeration. NISRA acknowledges the joint work that, on behalf of the UK Census Offices, has been led by the Office for National Statistics (ONS) in developing the harmonised Coverage Assessment and Adjustment Methodology.
- 1.2 The purpose of this paper is to outline the Quality Assurance work that will be completed prior to signing-off that the 2011 Census information is ready for the outputs production phase.
- 1.3 Section 3 of the paper provides a useful overview of the Quality Assurance process discussing how quality measures were built into the 2011 Census design, the data that will be available to Census Office for the Quality Assurance work, the approach that will be taken (in terms of using appropriate comparator datasets) and how the results will be signed-off.
- 1.4 Sections 4 and 5 outline the four main phases to the Quality Assurance work along with the five categories of checks that will be undertaken. They also outline the various comparator datasets that will be utilised in the work.
- 1.5 Section 7 of the paper outlines the approach that will be taken to determine appropriate tolerance levels around the various comparator datasets, within which the Census estimates might reasonably be expected to fall. This work acknowledges the level of variance in the comparators themselves due to, for example, definitional and/or coverage differences.
- 1.6 Section 8 of the paper outlines options for improving the Census population estimates should they ultimately be considered too high or too low. The ONS has taken the lead in developing these methodologies on behalf of the UK Census Offices.
- 1.7 Finally section 9 details the various Quality Assurance panels that will be involved in considering the 2011 Census information and signing it off as fit for release.
- 1.8 A presentation of the planned work was given to users during the Census Outputs Information Events held in Belfast, Londonderry and Enniskillen in January and February this year. These events included a question and answer session which provided the opportunity for users to raise any points of clarification about the planned work.

2 Introduction

2.1 The 2011 Census in Northern Ireland was conducted on 27 March 2011, in line with arrangements across the rest of the UK. All of the planning, development, testing and operational aspects for the Census were underpinned by the following high-level strategic aims:

- to provide high quality, value for money statistics that are fit for purpose and meet the needs of users;
- to maximise response rates by actively encouraging public participation in the Census and raising awareness of its important role;
- to protect, and be seen to protect, the confidential personal information collected through the Census; and
- to secure public and user confidence in the final results and deliver them in a timely manner.

2.2 The paper entitled “The 2011 Census of Population in Northern Ireland” provided comprehensive information about how the Census in Northern Ireland would be conducted in order to ensure that the above aims would be achieved. This can be accessed via the following link:

[\[The 2011 Census of Population in Northern Ireland\]](#)

2.3 In keeping with the high-level strategic aims referenced above, the purpose of this paper is to outline the Quality Assurance (QA) work that will be undertaken by NISRA in order to ensure that the outputs released from the 2011 Census in Northern Ireland are of a high quality, fit for purpose and meet the needs of users. An important element of this work will be assessing the extent to which any Census estimate varies from those derived from alternative sources and ensuring that the difference is understood, plausible and can be explained to users.

3 Overview of the Quality Assurance Strategy

Background

3.1 NISRA undertook a number of important quality control measures in the interest of delivering high quality results from the Census in Northern Ireland. These initiatives, which were central to all aspects of the 2011 Census design and methodology, included:-

- the development of an authoritative Census Address Register to support the delivery of Census questionnaires;
- the implementation of a robust field methodology that (a) identified and rectified deficiencies in the Census Address Register through a full address check, (b) followed-up any undelivered questionnaires, (c) followed-up any non-responding households and (d) specifically identified those non-responding households from which a completed questionnaire would have been expected (this is key from a coverage assessment perspective);
- the postal delivery of Census questionnaires by Royal Mail with each questionnaire incorporating a unique barcode associated with each address to facilitate both the delivery and tracking of the questionnaires;
- the provision of an Internet response channel – access to which was through a unique 20 digit internet access code that was printed on the front of each questionnaire;
- the provision of public interface services, including the provision of a dedicated 2011 Census ‘self-help’ website, telephone helpline and a dedicated in-house ‘fulfilment’ team to respond to requests from the general public and get a questionnaire out to any newly identified addresses;
- the implementation of a comprehensive publicity campaign to ensure that everyone realised the importance of the Census and their obligation to take part;
- the development and implementation of a comprehensive requirement specification for the automated systems for data capture and coding with challenging associated service levels and quality control measures; and
- the development of robust ‘Downstream’ processes to, for example,

- ▶ confirm that the captured data was delivered by the contractor in accordance with the agreed specification and service levels;
- ▶ identify and address any duplicate households or individuals in the data;
- ▶ identify any missing items in the data and impute the required values in accordance with methodology agreed across the UK;
- ▶ undertake an assessment of coverage and adjust the results as appropriate; and
- ▶ apply the necessary statistical disclosure control techniques in order to ensure that the confidentiality of the information provided by the general public is protected in the aggregate outputs produced from the Census.

Data Available

- 3.2 The captured data for Northern Ireland was delivered to Census Office over the course of summer 2011 following the Census in three groups as detailed in Annex 1 'The NI Delivery Groups'. The main thrust of NISRA's QA work will focus on the information contained in these delivery groups (referred to as 'Tranche 1' data) and will be completed in advance of the first release of outputs currently planned for the summer of 2012.
- 3.3 The delivery of questionnaires to households started on 14 March 2011, and the information flow through to NISRA commenced in line with the onset of the field operation. As discussed later, this early information (referred to as 'Early Extract' data) was used to monitor return rates for specific geographical areas in NI, examine item non-response, check if there were any systematic errors apparent in the data and provide some insight into how well the questionnaire had been understood by the general public.

Approach

- 3.4 The approach to the QA work will comprise of undertaking a range of pre-defined checks to examine the extent to which the captured data aligns with a variety of appropriate comparator datasets.
- 3.5 Importantly, the strategy recognises that the 2011 Census results will not align precisely with the comparator datasets. To address this, appropriate tolerances will be developed for each comparison to specify where the results should fall in order for the Census information to be considered of acceptable

[\[Quality Report/ User Guide – Northern Ireland Population Estimates\]](#)

- 3.6 The specific checks that will be undertaken are discussed in more detail in section 4 below, along with the comparator datasets that will be used. The approach to the development of the tolerance levels, which mirrors the approach being taken by the Office for National Statistics (ONS) in their QA of the Census results for England & Wales, is discussed further in section 7 below.
- 3.7 The strategy and associated planned checks also recognises that the captured data will be at various stages of completeness as it makes its way through the planned 'Downstream' processes as summarised below. The processes in question have been used to divide the QA work into 4 key phases using the relevant intelligence gathered. These are:-
- **Phase One:** The Fieldwork and Early Extract Data
 - **Phase Two:** Data Load and Validation
 - **Phase Three:** Edit & Imputation and Coverage Assessment & Adjustment
 - **Phase Four:** Protecting the Confidentiality of Individual Census Returns

Each of these phases is discussed in more detail below in section 4 below.

Signing-off the Results

- 3.8 One of the key deliverables from the QA Strategy will be a set of 'approved' population estimates for each Local Government District in Northern Ireland. Three levels of QA Panels will be responsible for the work as described in Section 9, namely,

- The Census QA Team with day-to-day responsibility for the QA Strategy and undertaking the agreed checks,
- NISRA's Demographic Policy Board, including both Census and Demographic experts,
- An Expert QA Panel comprising Census leads, Demography leads and Topic experts drawn from across NISRA and the Census Advisory Group.

3.9 The role of the Expert QA Panel is to sign-off the Census population estimates and make the recommendation to the Registrar General that they are fit for release.

4 The Four Phases of the planned Quality Assurance Work

Phase One – Utilising intelligence from the Fieldwork and Early Extract Data

4.1 Phase one of the QA work, which at the time of publishing this paper was largely complete, was cross-cutting in nature, involving various teams within Census Office (e.g. the fieldwork team, data processing team, communication/publicity team). The aim of this particular phase was twofold, namely,

- to identify any specific enumeration issues that had arisen (e.g. areas of low response) and consider what action might be taken to try and address the problem. The information used to inform this work was derived from a variety of sources, including the field staff, the questionnaire tracking system and the in-house Census Management Information System that was used to monitor return rates by geographical area. The intelligence gathered during this phase did give rise to action being taken in respect of extending the publicity campaign and conducting tailored postal based follow-up exercises in order to encourage response.
- to identify, at an early stage, if (a) the data planned to be delivered by the processing contractor (Lockheed Martin UK Ltd) was being captured and processed in accordance with the agreed data capture requirement specification, (b) if there was any evidence of systematic errors being introduced through, for example, phantom ticks arising from marks on the questionnaire being mistakenly read as proper responses, automated coding errors that require fine tuning and other inconsistencies arising from the manual coding process and (c) how well the questionnaire had been understood by the general public (e.g. had the routing been followed correctly). Importantly, the data used for this phase of the QA work represented whatever had been processed to date and was available at any given point in time rather than the complete data set – analysis of the complete data set will be conducted in subsequent phases of the QA work. Checks on the plausibility of the data provided specifically for this purpose included an examination of :-
 - ▶ item non-response and questionnaire routing;
 - ▶ frequency distributions across the response categories for each question;
 - ▶ frequencies of tick combinations for each single-tick question;

- ▶ frequencies of tick combinations for each multi-tick question;
- ▶ range checks on key variables (e.g. derived age); and
- ▶ internal inconsistencies between responses to particular questions.

Phase Two – Utilising intelligence following the Data Load and Validation stage of ‘Downstream’ processing

- 4.2 As part of the data processing contract, Lockheed Martin UK (LMUK) were obligated to formally deliver the Northern Ireland Census data to NISRA in three waves, referred to as the NI ‘Delivery Groups’. In summary, the three Delivery Groups covered Belfast and surrounding area, east of Northern Ireland and west of Northern Ireland and was referred to as the ‘Tranche 1’ data (see Annex 1 for further detail on the Local Government District areas included in each Delivery Group). Once the data was delivered by the contractor and had been successfully loaded and validated as part of the agreed internal ‘Downstream’ processes, NISRA were contractually obligated to accept or reject the data within a specified timeframe (i.e. 12 weeks).
- 4.3 The key focus of this phase of the QA work on the ‘Tranche 1’ data was to repeat and build on the Phase One activities undertaken on the ‘Early Extract’ data. This work was pivotal to the decision making process regarding formally accepting or rejecting the ‘Tranche 1’ data. It was also particularly important as the data in question, unlike the ‘Early Extract’ data, would ultimately be reflected in the final outputs after passing through the remaining planned ‘Downstream’ processes (e.g. Edit & Imputation, Coverage Assessment & Adjustment and Statistical Disclosure Control).
- 4.4 The additional activities undertaken during Phase Two of the QA process included examining:-
- if the accuracy levels for both the data capture process and the data coding process were in accordance with agreed Service Levels;
 - if the Data Capture Requirement Specification had been correctly implemented;
 - if the number of households, communal establishments and people in the captured data from those that had responded to the Census looked plausible;
 - if the age/ sex distributions and age/ sex ratios that could be derived from the captured data from those that had responded to the Census looked plausible; and

- the diagnostics from agreed 'downstream' processes such as range checks and reconciling multiple responses (e.g. when a household returns both an internet response and a paper questionnaire).

Phase Three – Utilising intelligence following the Edit & Imputation and Coverage Assessment & Adjustment stages of 'Downstream' processing

4.5 While completion of a Census questionnaire is a legal requirement, the reality is that a minority of individuals will not comply fully with the Census. Detailed statistical processes are used to address the coverage issues that arise as a result of this and make adjustments to the Census counts to ensure that the outputs from the Census provide the best estimate of the true population.

4.6 In order to ensure that Census outputs across the UK are comparable, similar processes are being applied to each of the Censuses in the UK. The ONS has taken the lead in developing the statistical methodology, and accordingly further detail on the statistical methodology used for the Northern Ireland Census can be found at the following link:

[\[ONS Statistical Methodology - Coverage Assessment and Adjustment\]](#)

4.7 The methodologies described on the ONS website (above) will be applied in Northern Ireland, subject to necessary, but minimal, changes that reflect differences in Northern Ireland. A number of Northern Ireland specific issues are addressed in the additional links below. For example, the geographic base for Northern Ireland Census outputs is obviously specific to Northern Ireland and a paper outlining the proposed approach can be found at the following link:

[\[Policy for main geographic outputs from the 2011 Census\]](#)

4.8 The two main adjustment components, which are implemented as part of the internal 'Downstream' processes are outlined below:-

- **Edit & Imputation** - this acknowledges that Census returns are sometimes incomplete (that is, respondents do not answer every question) and sometimes inconsistent (for example, in the 2001 Census, some respondents recorded parent-child relationships the 'wrong-way-round', recording the child as the parent). The purpose of edit and imputation processes is the production of a dataset that is internally consistent, and has no relevant missing values for any returned questionnaire.

- **Coverage Assessment & Adjustment** - this acknowledges that some people will not have been included in a Census return, and some people may have been included more than once (for example, the child of a separated couple may have been included in both of their returns). This has been addressed primarily through a Census Coverage Survey in which about 14,000 households were visited, by trained survey interviewers who conducted a detailed survey that focussed on determining the number of people living at each household on Census Day. Comparison of the responses to the Census and to the Census Coverage Survey will inform adjustments to the Census counts that lead to Census outputs that are best estimates of the true population, taking account of any people missed or double-counted by the Census. Intelligence gathered through (a) the development of the Census Address Register, (b) the field operation and (c) administrative data sources accessible to NISRA are used to inform the adjustment required. A more detailed discussion of the methodology can be found at the link given in paragraph 4.6.

- 4.9 The preceding paragraphs describe how the information in Census returns is adjusted for incomplete returns and coverage. Following the application of these processes, the Census data is expected to represent the best estimate of the true population (along with its associated characteristics) in Northern Ireland. These estimates form the basis of Census outputs and the third phase of QA is designed to ensure that those outputs are plausible and in line with other evidence. This will be achieved by comparing the data with a raft of relevant comparator datasets, and making any minor adjustments that may be considered necessary in light of the evidence that emerges. Phase 3 of the QA process is described in more detail in Section 5.

Phase Four – Protecting the Confidentiality of Individual Census Returns

- 4.10 While most Census outputs take the form of statistical counts, there is a risk that information about an individual person could be deduced from Census outputs. For example, if everybody in a particular geographic area was aged under 50 years old apart from one old-age pensioner living in a single person household, a cross-tabulation of age and general health would reveal the response of that pensioner to the Census question on general health.
- 4.11 One of the high-level strategic aims for the Census was to protect, and be seen to protect, the confidential personal information collected through the Census and, accordingly, respondents were assured on the Census questionnaire that the information they provide will be treated as confidential. To this end, statistical disclosure control techniques are applied as part of the

- 4.12 The main thrust of the QA work in this phase is to ensure that the application of the statistical disclosure control techniques has been effective in terms of affording the necessary protection.
- 4.13 Through consultation events which have been ongoing since 2004, users of Census information have indicated a strong preference for a pre-tabular statistical disclosure control methodology as this would ensure that any outputs are additive and have consistent cell counts. In response to this, the ONS has taken the lead in developing a statistical disclosure control approach that will (a) meet these requirements and (b) be consistent and harmonised across the UK. Details of the Statistical Disclosure Control methodology for the 2011 Census can be found at the following link:

<http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-prospectus/new-developments-for-2011-census-results/statistical-disclosure-control/index.html>.

5 Phase 3 - Quality Assurance checks and comparator data that will be used

- 5.1 The main thrust of the QA checks that will be undertaken will concentrate on the Census estimates at both the Northern Ireland and Local Government District levels. The QA team will of course have the capability and scope to examine the Census data at lower level geographies should that be considered necessary as part of the QA review process – and the appropriate comparator data is available to support these analyses.
- 5.2 The planned checks will concentrate on the usually resident population of Northern Ireland (i.e. those who, at the time of the Census, had lived in Northern Ireland, or who were intending to stay in Northern Ireland, for 12 months or more – this is consistent with both the official UN definition of the resident population and with the Mid-Year Population Estimates) and will fall into 5 main categories, namely,
- **Category 1:** those that provide the necessary assurance that the household count (both occupied and vacant) and communal establishment count is correct;
 - **Category 2:** those that provide assurance that the number of people in both the overall population and main population sub-groups is correct, and that the distribution of households by household size and the average household size is correct;
 - **Category 3:** those that provide assurance that the overall distributions of people by age and sex are correct;
 - **Category 4:** those that provide assurance that the distributions for key Census variables is correct; and
 - **Category 5:** those aimed at assessing the variation in return rates across Local Government Districts and within Local Government Districts.
- 5.3 As acknowledged in paragraph 3.5, in view of the fact that the 2011 Census results will not align precisely with the comparator datasets, appropriate tolerances will be developed for each comparison to specify where the results should fall in order for the Census information to be considered of acceptable quality. This is discussed further in section 7.

Category 1: Household/ Communal Establishment Counts

- 5.4 Considerable effort was invested in advance of the Census to develop an authoritative Census Address Register, covering both residential households

- 5.5 Importantly, representatives from the various Local Government Districts were heavily involved in the development of the Census Address Register (and hence it's underlying coverage and quality) through their involvement in the Pointer Stakeholder Forum. Through this work, we ensured that the Census Address Register took note of the latest information available from key stakeholders across Northern Ireland. In addition, NISRA liaised with each individual Local Government District regarding the Census Address Register in summer 2010.
- 5.6 The Census Address Register development work was trialled in both the 2007 Census Test and the 2009 Census Rehearsal. Furthermore, the enumeration methodology recognised that the Census Address Register would not be perfect and incorporated important activities to rectify any deficiencies. These included:-
- assigning each member of the field staff responsibility for a fixed geographical area with a clear boundary and list of addresses and tasking them to conduct a full 'on the ground' address check.
 - following-up any questionnaires that Royal Mail were unable to deliver
 - following-up any non-responding households to try and secure a response
 - in the absence of a response, indicating whether they considered that a response should reasonably be expected from the address in question.
- 5.7 All of the above activities enabled NISRA to keep track of how the initial 'truth deck' in the form of the Census Address Register changed throughout the Census Operation.
- 5.8 Against this background, the Census Address Register will play a pivotal role in quality assuring both the estimated number of households and communal establishments that emerge from the Coverage Assessment & Adjustment process. Further intelligence on the count of occupied households based on Patient Register data will also be utilised. In respect of Communal Establishments, the main control will be the information provided by the manager on the number of residents that were present on Census night.

Category 2: People Counts (Overall population and main sub-populations)

- 5.9 The main thrust of the checks in this category will be conducted to gain assurance that (a) the number of people in the population as a whole and in particular population sub-groups are correct, (b) the distribution of households by household size is correct and (c) that the figures for average household size are correct. Where necessary, the distribution of the Census population estimate at Super Output Area (SOA) and Output Area (OA) levels within each Local Government District will also be examined. Differences between the Census estimates and the comparator sources across SOAs and OAs will be reviewed to identify any systematic differences, for example where the census estimates tend to be generally higher or lower than comparator sources, and to identify outliers.
- 5.10 The main population sub-groups that will be considered will include students and migrants.

Students

- 5.11 Census estimates of students in full-time education aged 18 or over, will be checked by single year of age and sex. This includes students in further and higher education. The checks will cover all students (regardless of whether they live in communal establishments or in households) as it is imperative to ensure that students are counted at their usual address during term time. Given that students tend to be geographically clustered, checks will be carried out within each Local Government District at SOA level.

Migrants

- 5.12 Internal migration within Northern Ireland and from England & Wales and Scotland will be assessed using responses to the 2011 Census 'address one year ago' question.
- 5.13 The 'address one year ago' question will also be used to identify international migrants who previously lived outside the UK. The number of short and long-term migrants will both be assessed by age and sex. Short-term migrants are distinguished from long-term migrants using responses to the 2011 Census 'date of arrival' and 'intention to stay' questions for people whose country of birth was outside Northern Ireland.

- 5.14 Other important population sub-groups (e.g. children, those of compulsory school age, the elderly etc) will be consider as part of the age/sex checks falling into category 3.
- 5.15 A variety of comparator datasets will be used for the checks in category 2, including:-

Table1 – List of Comparator Datasets

Item to be checked	Comparator data that will be considered
Overall Population counts	General Register Office Births data
	NISRA Demography and Methodology Branch Small Area Population Estimates
	NISRA Demography and Methodology Branch Mid -Year Population Estimates
	National Health Service Patient Register data (Two datasets - "standard" and "active")
	Department of Education NI School Census data (2009/10 and 2010/11)
	HM Revenue and Customs (HMRC) Child Benefit data
	Department for Work and Pensions (DWP) Pensions data
	NI Electoral Roll data
	NISRA 2001 NI Census
Number of occupied households/ House size	2011 Household Projections
	NHS Standard Patient Register data
	2001 Census
Students	Higher Education Statistics Agency data
	NI Department of Employment and Learning Further Education data
Migrants	Migration data provided by NISRA's Demography and Methodology Branch.

Note: All comparator datasets will be adjusted to reflect the position on Census Day by either ageing-on or ageing-back the data as appropriate.

- 5.16 Metadata for each of the comparator datasets referred to above can be found at Annex 2. The information has been contextualised in terms of their application in the QA of the 2011 Census estimates. Many of these datasets are used as the basis of statistics used in the Northern Ireland Neighbourhood Information Service (NINIS). Accordingly, further generic supporting metadata for the comparator datasets in question can be found at <http://www.ninis.nisra.gov.uk>.

Category 3: Overall Distribution by age and sex

- 5.17 For the most part, the age/sex comparisons will be undertaken using 5 year age categories. However, the QA team will have the functionality to run the comparisons for single year of age, provided the relevant comparator data supports such comparisons. The checks will include:-

- comparing overall age/ sex distributions;
- generating and comparing sex ratios by age, where the sex ratio is defined as the number of males per female.
- generating and comparing fertility rates by using the number of births in the numerator and the Census population estimate in the denominator; and
- generating and comparing mortality rates (by sex) by using the number of deaths in the numerator and the Census population estimate in the denominator;

5.18 The comparator data to be used to check the overall population counts (see the table above) will also be used in these checks.

5.19 Calculating and analysing rates of fertility and mortality can be a useful alternative way of assessing Census population estimates given the accuracy of compulsory birth and death registrations.

5.20 Fertility rates will be calculated on the basis of the 2011 Census estimates for women aged 15-44 within each Local Government District. These will then be compared to results that have already been published for previous years to check that the results are plausible. In respect of mortality rates, age/sex standardised mortality rates will be generated using 2011 Census estimates and then compared to the mortality rates for previous years.

Category 4: Distributions for key Census Variables

5.21 The content of the 2011 Census questionnaire was shaped through extensive consultations with users and agreed by the Northern Ireland Assembly as part of the Census legislative process.

5.22 While many of the questions included in the 2011 Census questionnaire were either identical, or very similar, to questions that were asked in the 2001 Census, a number of new questions were included. The table below details those questions which were either identical to, or very similar to, a 2001 question.

Table2 – 2011 Census Questions compared to 2001

Question Type	Questions	Key Comparator data
Identical to the question asked in 2001	<p><u>Household Questions</u> Type of accommodation Self-contained accommodation Number of rooms Number of cars/vans available</p> <p><u>Individual Questions</u> Schoolchild/student in full-time education Term-time address Country of birth Ethnic group Religion Caring for others Employment status Employer's business</p>	2001 Census
Similar to the questions asked in 2001	<p><u>Household Questions</u> Residents and Visitors Type of central heating Tenure</p> <p><u>Individual Questions</u> Legal marital or same-sex civil partnership status Address one year ago Ability in Irish Disability Health Qualifications Employers Name Hours worked Address travelled to for work/study Type of transport to work/study</p>	2001 Census

5.23 Work will be undertaken to ensure that the Census distributions for the identical and similar questions highlighted in Table 2 above are broadly comparable with those observed in the 2001 Census. In respect of the new questions that were introduced in 2011 (e.g. household adaptations, last country lived in, date arrived in Northern Ireland, passports held, national identity, main language, ability to speak English, ability in Ulster-Scots, health conditions, voluntary work) work will also be undertaken to ensure that the distributions look plausible. Such checks will be based on relevant information from sample surveys and/or administrative data sources.

Category 5: Variation in return rates

- 5.24 Work will also be undertaken to assess the variation in return rates both across and within Local Government Districts (e.g. at SOA level). The thrust of the work will be twofold, namely, (a) to ensure that the figures are accurate and can be explained and (b) to be satisfied that the Coverage Assessment & Adjustment process can cater for the variation. Information on the return rates from the 2001 Census will provide useful insight for this work as will the intelligence gathered through the creation and maintenance of the 2011 Census Address Register. Where potential problems are identified a range of additional intelligence can be considered. Additional intelligence includes the findings from debriefings with the Field Operations Team and Census Area Managers on any problems with the field operation. It will also draw on the detailed information provided by the Questionnaire Tracking system.

6 Other important aspects of the Quality Assurance Work

The 2011 Census Quality Survey

- 6.1 In line with arrangements across the rest of the UK, Census Office undertook the 2011 Census Quality Survey, participation in which was voluntary. The field work for the survey, which was conducted by NISRA's Central Survey Unit (CSU) between the 6 June 2011 and 9 July 2011, covered some 2500 households, 70% of whom participated. By way of summary, CSU's experienced field staff conducted face-to-face interviews with Census respondents asking them to answer a number of the 2011 Census questions again – this process was facilitated through the use of 'show cards' which contained copies of the Census questions. The analysis from the survey will seek to establish the extent to which inconsistent responses were given between participation in the Census and participation in the Census Quality Survey, which in turn will provide insight into the overall quality of the information collected in the Census.

Census Non-Response Link Study

- 6.2 The Census Non-Response Link Survey will match respondents in relevant NISRA social surveys, (including the Labour Force Survey, the Survey of Living Conditions and the Living Costs and Food Survey) to the Census. The work will have two primary benefits, namely:
- It will provide insight into the characteristics of non-respondents to the social surveys in question; and
 - It will provide insight into the dependency adjustment that may need to be applied as part of the Coverage Assessment & Adjustment process following the matching of the Census Coverage Survey to the Census.
- 6.3 Results from the matching will be particularly useful to assess whether there is systematic under-coverage of individuals from households where a Census form was returned.

7 Devising Tolerances at LGD level

- 7.1 Each of the core comparator checks will have a pre-defined tolerance range which will be used to identify potential discrepancies between Census estimates and the comparator data. Using tolerances recognises that although comparator data provide a good estimate of the indicator in question, the comparators themselves will contain error and variance. In addition there may well be definitional and coverage differences to take into account.
- 7.2 Understanding of the Census and comparator sources will improve during the QA process. Thus, during the QA process tolerances will be reviewed to assess how effectively they identify Census estimates requiring further investigation.
- 7.3 There are three types of method used to set tolerances, which are each described in detail below:
- Diagnostic Range (multiple comparators)
 - Set Percentage (single comparator)
 - Change Over Time (single comparator)

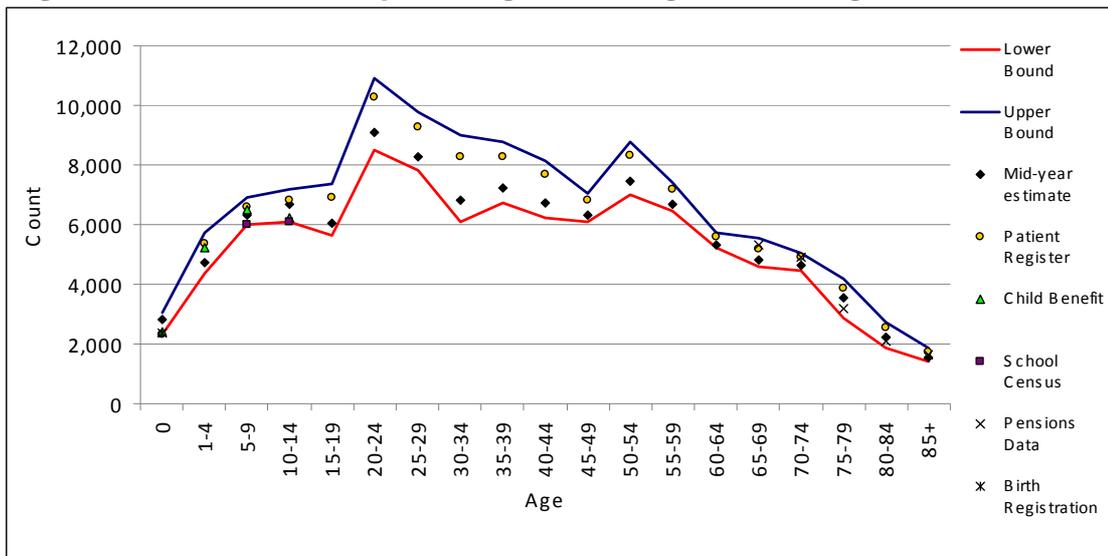
Diagnostic Range

- 7.4 The Diagnostic Range approach was first used in the QA of the 2001 Census estimates of age and sex. The same basic approach will be used again in 2011 for a number of checks. The Diagnostic Range is defined as: ***the midpoint of the range of different comparators plus or minus the range itself***. By defining the Diagnostic Range in this way the range is broadly between 2 and 2.5 standard deviations beyond the extreme values of the range of comparators.
- 7.5 For the 2011 Census QA, Diagnostic Ranges are calculated for each LGD and each category checked. In the case of age/sex for instance, different Diagnostic Ranges are calculated for each single year of age and each five-year age group. The width of the Diagnostic Range reflects variation in comparator sources.

Worked example of Diagnostic Range

- 7.6 The Diagnostic Range can be demonstrated when applied to 20-24 year old males for a hypothetical Local Government District with two comparator data sources. If for this age group there were 9,102 men in the Mid-Year Population estimates and 10,293 in the Patient Register this would give a range (or difference) of 1,191.
- 7.7 Taking the mid-point of the two estimates gives $9,102 + (1,191 / 2) = 9,697.5$ (9698). Using this, the mid-point +/- the range (9,698 +/- 1,191) gives a Diagnostic Range of 8,507 to 10,889.
- 7.8 A Diagnostic Range is then calculated for each age/sex group using the sources available. Figure 1 shows the Diagnostic Range for all ages based on the hypothetical example above. The lower bound for under one year olds and children aged 5 to 14 have been constrained to the Patient Register and School Census respectively as described below.

Figure 1 – Worked Example of Age/Sex Diagnostic Range



- 7.9 QA Checks using the Diagnostic Range will include a number of households and age/sex distributions. There are two refinements made to the Diagnostic Range approach when applied to age/sex. These are:

- 1) Some comparator data may be used to derive lower bounds (where sources of sufficient quality exist) rather than those generated from the Diagnostic Range e.g. Electoral Register data may be used. Replacing the lower bound of the Diagnostic Range in this way will be in effect controlling to these values. This amendment was introduced following a recommendation made by the Independent Review of Coverage Assessment/Adjustment and Quality Assurance (Plewis, 2011).

Development of the QA approach showed that using the sources in this way narrowed the Diagnostic Range in almost all cases.

The Patient Register count of babies under one year of age is likely to be particularly accurate because of the regular contact with the health system for new born babies. At other ages there is greater uncertainty in the Patient Register because individuals are not required to register when they move (either within Northern Ireland, the UK or when emigrating overseas), there is less likely to be contact with doctors, and because (for young adults in particular) more moves take place. Compulsory birth registration data is of very high quality but is not updated to include changes of address.

- 2) Where the Diagnostic Ranges vary greatly, they will be restricted to ensure that they are not implausibly wide or implausibly narrow, using the evidence available from the appropriate comparator datasets.

Set Percentage

- 7.10 Where only a single comparator dataset is available, it is not possible to use the Diagnostic Range approach. In such cases indicative tolerances will be set after an assessment has been made of the quality and coverage of the comparator data. In such cases, it will be necessary to use set percentages above and below the comparator.
- 7.11 Initially, tolerances will be set at +/- 5% but will be reviewed during the QA process. By way of example, QA checks on Household size will follow this approach.

Change Over Time

- 7.12 The third approach sets tolerances in relation to past trends in comparator data. The approach is used for checks where there is a single comparator data source and a time series of data available.
- 7.13 To use the change over time approach, there was a requirement for the comparator to be particularly well understood and for the comparator data to be of high quality. As births and deaths registration data are both of very high quality (as registration is compulsory) these datasets will be utilised in QA checks of this nature.

8 Options for improving Census Population Estimates should they be considered too low or too high

- 8.1 As outlined earlier, the ONS has taken the lead in developing the Coverage Assessment & Adjustment methodologies that will be applied across the UK. As part of that work they have considered a variety of options for changing the assessment and adjustment approach should the available evidence conclude that the Census estimates are either too low or too high.
- 8.2 One, or a combination, of the following improvements could be deployed:
- revisit coverage estimation (post-stratification by alternative characteristics, post-stratification by re-grouping estimation areas, borrowing strength from other Local Government Districts);
 - adjust coverage estimation to account for between and within household bias; and
 - calibrate the estimates using external data (e.g. NI adjustment, direct calibration for small geographical areas/ population sub-groups).
- 8.3 The improvement to be applied would very much depend on the nature of the problem and will be heavily informed by the intelligence gained during the QA checks already undertaken and our understanding of the different QA data sources and their associated quality.

9 Signing-off the 2011 Census Population Estimates

9.1 The Census population estimates will be subject to three levels of review and sign-off prior to being deemed suitable for release. The three levels will involve:

- The Census Quality Assurance Team,
- The NISRA Demographic Policy Board, and
- An Expert Quality Assurance Panel.

9.2 The role of these groups will be to deliver a set of approved population estimates for each Local Government District in Northern Ireland.

Role of the Census Quality Assurance Team

9.3 At the working level, the Census Quality Assurance Team will have the day-to-day responsibility for undertaking all of the agreed checks. The evidence for the checks and any further checks considered necessary will be discussed with the Head of Census who will approve the work prior to it being presented to the senior leadership team of NISRA's Demographic Policy Board.

Role of the NISRA Demographic Policy Board

9.4 The role of this panel, whose membership includes both Census and NISRA's demography leads, will be to review the evidence presented by the Census Quality Assurance Team with the aim of signing-off the Census population estimates at Local Government District level for review by the Expert Panel. The group may defer their decision and ask for further exploratory work to be undertaken should they consider that additional supporting information is required (e.g. for lower-level geographies, or with the tolerance methodology amended). Once content with the results, the Board will approve them for release to the Expert Panel for review.

Role of the Expert Quality Assurance Panel

9.5 In moving to the final stage of the review, the Demographic Policy Board panel will be strengthened by a small number of Topic Experts from across NISRA and the Census Advisory Group. The Expert Panel will be responsible for signing-off the estimates and making the recommendation to the Registrar General for Northern Ireland (NISRA's Chief Executive) that the Census

Protocols

- 9.6 All of the above arrangements will be conducted in accordance with the relevant National Statistics Protocols.

Northern Ireland Delivery Groups and their associated Local Government Districts (LGDs)

Delivery group	Downstream Processing Code	Description	LGD Code	LGD Name
Delivery Group 1	DG509	Belfast and Surrounding Area	95GG	Belfast
			95II	Castlereagh
			95SS	Lisburn
Delivery Group 2	DG527	East of Northern Ireland	95AA	Antrim
			95BB	Ards
			95CC	Armagh
			95DD	Ballymena
			95FF	Banbridge
			95HH	Carrickfergus
			95LL	Craigavon
			95NN	Down
			95QQ	Larne
			95VV	Newry & Mourne
			95WW	Newtownabbey
Delivery Group 3	DG539	West of Northern Ireland	95XX	North Down
			95EE	Ballymoney
			95JJ	Coleraine
			95KK	Cookstown
			95MM	Derry
			95OO	Dungannon
			95PP	Fermanagh
			95RR	Limavady
			95TT	Magherafelt
			95UU	Moyle
95YY	Omagh			
95ZZ	Strabane			

Comparator Datasets used in the Quality Assurance exercise – Metadata

Comparator Dataset Metadata Tool : Births	
Geographic Coverage:	Super Output Area Local Government District Northern Ireland
Source:	The General Register Office via Demography and Methodology Branch Northern Ireland Statistics and Research Agency
Classification and Format:	Administrative dataset provided in Excel format.
National Statistics Data?	Yes
Theme?	Population
Description of Data	<p>Births registrations are obtained from the General Register Office (GRO). Counts provided to Census for Quality Assurance purposes are based on the date of occurrence.</p> <p>Births to mothers who are resident outside Northern Ireland are counted separately, as there are a considerable number of mothers from outside Northern Ireland (most resident in the Republic of Ireland) who give birth in Northern Ireland every year.</p> <p>Counts of all births for the past two years are provided to get an indication of the numbers in the 0-1 age group.</p> <p>In the 2011 Census Quality Assurance process Births data is used, in conjunction with other datasets, to assess the coverage and quality of the Census estimates of 0 and 1 year olds.</p> <p>Specifically, it will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels, • Fertility at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels; and, • Sex Ratios (i.e. the number of males per female) at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels. <p>In addition, the data is used by NISRA's Demography and Methodology Branch to compile estimates of Migration that will be used as part of the 2011 Quality Assurance process.</p>

Topic Coverage	All births for the two years prior to Census day (27 th March 2011) by the geographical area of the mother's usual residence are included (see above).
Accuracy	<p>For Census Quality Assurance purposes, Births data are considered to provide robust and reliable estimates of the 0 and 1 year olds.</p> <p>However, it is also worth noting that births may not be registered for up to 42 days after the birth and therefore births occurring, for example, in December of a given year may not be registered until January of the next year.</p> <p>Various quality checks are carried out on births and stillbirths data. Examples of births registration checks include:</p> <ul style="list-style-type: none"> • Mother's and father's age at time of birth is calculated along with age at marriage, where applicable, and extreme values or large differences in mother's and father's ages are manually checked with GRO by tracing the parents birth/marriage certificates to confirm the date of birth. • Place of birth is checked against country of birth to ensure they correspond. • If a birth is recorded as a multiple birth all other siblings are traced in the births and/or stillbirths to ensure figures are accurate. • Check all stillbirths have a valid gestation period. • Any large numbers of previous live and/or still births are queried and confirmed with GRO by rechecking the initial data provided by the informant or tracing previous sibling's birth certificates.
Timeliness	For Census Quality Assurance purposes, the extract was taken in July 2011 reflecting the time period 28 th March 2009-27 th March 2011 thus including all those who were age 0 or age 1 on Census Day.
References	<p>http://www.nisra.gov.uk/archive/demography/publications/vital_stats_QA.pdf</p> <p>http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-124---statistics-on-demography-and-vital-events-in-northern-ireland.pdf</p> <p>http://www.nisra.gov.uk/archive/demography/publications/births_deaths/births_2009.pdf</p>

Comparator Dataset Metadata Tool : Small Area Population Estimates

Geographic Coverage:	Super Output Area	Variables: 5 year age bands Sex Super Output Area
Source:	Department of Finance and Personnel Demography and Methodology Branch Northern Ireland Statistics and Research Agency	
Classification and Format:	Derived from a composite of administrative and statistical datasets, provided in Excel format.	
National Statistics Data?	Yes	
Theme?	Population	
Description of Data	<p>The Small Area Population Estimates (SAPE) provide an estimate of the population in Northern Ireland by 5 year age bands and Sex at SOA Level. For the purposes of 2011 Census Quality Assurance work, these have been rolled forward to Census Day (27th March 2011).</p> <p>The SAPE can be regarded as a composite of all comparator datasets and 'aged-on' Mid-Year Population Estimates.</p> <p>The most commonly used methods for producing the Small Area Population Estimates are as follows:</p> <ul style="list-style-type: none"> • The Cohort Component method. • The Ratio Change method. <p>The central feature of the Cohort Component method is that it seeks to estimate population change by taking account of the components of change from one time period to another (i.e. births, deaths and migration).</p> <p>In the Ratio Change method, selected indicators of population change are used to update the population from some earlier or base period. The method assumes an unchanged relationship over time between the chosen indicator and the true population.</p> <p>The inherent uncertainty in the estimation process has been managed by adopting the mixed approach to the production of the statistics, ensuring that all the available information is brought to bear in producing the estimates.</p> <p>In the 2011 Census quality assurance process SAPE are used, in conjunction with other datasets to assess the coverage and quality of the Census Estimates.</p> <p>Specifically, this data will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Super Output Area level. • Sex Ratios (i.e. the number of males per female) at Super Output Area level. 	
Timeliness	The 2010 SAPE were published in September 2011. For 2011 Census Quality Assurance purposes, these estimates have been rolled forward consistent with the Local Government District level Mid-Year Population Estimates approach.	
Accuracy	The Small Area Population Estimates have been produced and quality assured using all of the available intelligence from a range of comparator data sources including the Mid-Year Population Estimates.	

	<p>As such, they are considered to provide robust and reliable estimates for Census Quality Assurance purposes, at the Super Output Area level.</p> <p>Having said that, given the dependency on the Mid-Year Population Estimates, it could be argued that any issues with accuracy in the Mid-Year Population Estimates are also applicable to SAPE (See references below).</p> <p>SAPE are, in part, created from relative changes since 2001 of alternative data sources and hence, cannot be regarded as fully independent of Child Benefit, School Census, Pensions or Patient Registrations.</p> <p>It should also be noted that population turnover can be higher at lower geographical areas as people tend to move into and out of small areas for a variety of reasons. For some age and Sex groups, such as young males, such movements can be difficult to track from administrative sources (See references below).</p>
<p>References</p>	<p>http://www.nisra.gov.uk/archive/demography/population/small_area/SAPEdocFinal.pdf</p> <p>http://www.nisra.gov.uk/demography/default.asp125.htm</p>

Comparator Dataset Metadata Tool : Mid-Year Population Estimates

Geographic Coverage:	Local Government District Northern Ireland	Variables: Single Year of Age Sex
Source:	Department of Finance and Personnel Demography and Methodology Branch - Northern Ireland Statistics and Research Agency (NISRA)	Local Government District Northern Ireland
Classification and Format:	Derived from a composite of administrative and statistical datasets, provided in Excel format.	
National Statistics Data?	Yes	
Theme?	Population	

Description of Data	<p>The Mid-Year Population Estimates provide an estimate of the population of NI by single year of age and Sex at LGD Level. For the purposes of the 2011 Census Quality Assurance work, these have been rolled forward to Census Day (27th March 2011).</p> <p>The estimates for a particular year are derived by taking the population for the preceding year, adding on births and subtracting of the deaths and making adjustments for migration. The estimates were benchmarked to the 2001 Census.</p> <p>Each year the population by single year of age is aged on by one year (for example all two-year-olds become three-year-olds one year later).</p> <p>Birth figures by Sex are obtained from registrations with the General Register Office and any births registered between the 1 July and 30 June in the preceding year are included. Within NI, births are distributed by mapping the mother's home address to LGDs.</p> <p>Death figures by Sex and single year of age are obtained from registrations with the General Register Office and any deaths registered between the 1 July and 30 June the preceding year are included. Within Northern Ireland, deaths are distributed by mapping the deceased person's home address to LGDs.</p> <p>Internal (or within) Northern Ireland migration is estimated between one year and the next by examining changes in the list of patients registered with a family doctor. This data is available by age, Sex and LGD.</p> <p>Migration into Northern Ireland (or <i>in-flows</i>) is estimated from the list of patients registered with a family doctor by counting the number of people who joined or rejoined the list within a one-year period (i.e. this will include people who previously resided here, but left and then returned). This data is available by age, Sex and LGD.</p> <p>Migration flows between UK countries are agreed between the Northern Ireland Statistics and Research Agency, National Records of Scotland and the Office for National Statistics to ensure a zero sum internal migration, for example, the number of people counted as leaving Northern Ireland to go to Scotland is the same as the number of people from Northern Ireland counted as entering Scotland.</p> <p>Migration out of the UK (or <i>outflows</i>) is estimated from the list of patients registered with a family doctor by counting the number of people who de-registered. This data is available by age, Sex and LGD.</p>
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	<p>Data is also used from the Irish Quarterly National Household Survey (QNHS) to estimate migration to the Republic of Ireland.</p> <p>In the 2011 Census Quality Assurance process Mid-Year Population Estimates (MYE) are used to assess the coverage and quality of the Census Estimates in conjunction with other datasets. Specifically, the MYE data will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Northern Ireland, Local Government District (LGD) levels; and • Sex Ratios (i.e. the number of males per female) at Northern Ireland and Local Government District (LGD) levels.
Accuracy	<p>A range of data sources have been used in the production and quality assurance of Mid-Year Population Estimates. These sources are selected based on very high coverage of the population: School Census and Child Benefit data provide excellent coverage of the number of children, whilst the claimants of pension and other age related benefits are an excellent proxy for the population aged 65 and over. Finally, the Health Card Register provides comparators for all age groups.</p> <p>As such, Mid-Year Population Estimates are considered to provide robust and reliable estimates for Census Quality Assurance purposes.</p> <p>A detailed discussion on the quality of Mid-Year Population Estimates can be found in Reference 2 below.</p>
Timeliness	<p>The 2010 Mid-Year Population Estimates were published in June 2011. For Census Quality assurance purposes, these estimates have been rolled forward by ageing the population by 9 months, and adjusting for births, deaths and migration between mid-2010 and Census Day (27/3/2011).</p>
References	<p>http://www.nisra.gov.uk/archive/demography/population/midyear/mye_methodology.pdf</p> <p>http://www.nisra.gov.uk/archive/demography/population/midyear/Quality%20Report%20and%20Users%20Guide%20-%20MYE%20NI%202010.pdf</p> <p>http://www.nisra.gov.uk/archive/demography/population/migration/dev_est_mig.pdf</p> <p>http://www.nisra.gov.uk/archive/demography/population/migration/UK_migration_paper(2005).pdf</p> <p>http://www.nisra.gov.uk/archive/demography/population/migration/NI_Migration_Report(2005).pdf</p>

Comparator Dataset Metadata: Patient Register

<p>Geographic Coverage:</p> <p>Source:</p> <p>Classification and Format:</p> <p>National Statistics Data?</p> <p>Theme?</p>	<p>Super Output Area, Local Government District, Northern Ireland</p> <p>Business Services Organisation, Information and Research Unit, via Demography and Methodology Branch Northern Ireland Statistics and Research Agency</p> <p>Administrative dataset provided in Excel format.</p> <p>No</p> <p>N/A</p>	<p>Variables:</p> <p>Single Year of Age Sex Country of Birth Super Output Area Local Government District Northern Ireland</p>
<p>Description of Data</p>	<p>The Patient Register data provide the number of registrations on the Health Card Register at Super Output Area (SOA) level by Sex and Single Year of Age. Registrations are provided by GPs to the Business Services Organisation who compile and administer the Register.</p> <p>Country of Birth is also provided for those people born outside Northern Ireland who have registered with a GP in Northern Ireland since 2005 (Country of Birth was not recorded prior to this).</p> <p>The Patient Register is the basis for a subset of registrations that contain only health cards with recent activity – the Active Patient Register (see Metadata for the Active Patient Register).</p> <p>In the 2011 Census Quality Assurance process Patient Register data are used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates. Specifically, they will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels; and • Sex Ratios (i.e. the number of males per female) at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels. <p>In addition, the data are used by NISRA's Demography and Methodology Branch to compile estimates of Migration that will be used as part of the 2011 Quality Assurance process.</p>	
<p>Topic Coverage</p>	<p>As a list of where individuals are registered, coverage only extends to those people who have registered with a GP. Certain groups, such as Armed Forces personnel (and prisoners), are excluded from Patient Registers.</p> <p>Individuals intending to stay in the United Kingdom for longer than three months can register with an NHS GP. This will mean that the Patient Register may include some individuals who would be excluded from the 2011 Census definition of usual residence (i.e. individuals who have lived in NI or intended to stay for longer than twelve months). Individuals arriving in Northern Ireland on a Visa are automatically deducted according to the expiry date on the Visa.</p> <p>It is not possible to distinguish between short-term migrants and usual residents on the</p>	

	<p>Patient Register. Furthermore, it is also not possible to identify if people (both short-term migrants and usual residents) who have left NI to live elsewhere have been removed from the Patient Register.</p>
Accuracy	<p>The coverage and accuracy of the Patient Register depends on all patients registering with an NHS GP when they move into or within Northern Ireland.</p> <p>NHS Patient Registers are prone to list inflation, caused by delays in people who have died or moved out of a Health Trust being removed from the relevant Register, duplicate entries, and people having more than one NHS number.</p> <p>The degree of list inflation varies geographically - for instance, it tends to be higher in border areas and areas with large numbers of students, who tend to be slow in re-registering with a GP when they leave higher education.</p> <p>A rough indication for list inflation has been calculated (from the number of records in the Patient Register data and the population estimates) as approximately 4-5%. The issue of list inflation is partly addressed by the Active Patient Register (see Metadata for the Active Patient Register).</p> <p>As such, Patient Register data are considered a robust and reliable source of comparator data for Census Quality Assurance purposes.</p>
Timeliness	<p>This extract was taken in April 2011 and age was calculated as of 27th March 2011 to reflect Census Day.</p>
References	<p>http://www.hscbusiness.hscni.net/services/1802.htm</p> <p>http://www.hscbusiness.hscni.net/services/1785.htm</p> <p>http://www.hscbusiness.hscni.net/1814.htm</p> <p>http://www.nisra.gov.uk/archive/demography/population/small_area/SAPEdocFinal.pdf</p>

Comparator Dataset Metadata: Active Patient Register

Geographic Coverage:	Super Output Area, Local Government District, Northern Ireland	Variables: Single Year of Age Sex Country of Birth
Source:	Business Services Organisation, Information and Research Unit, via Demography and Methodology Branch Northern Ireland Statistics and Research Agency	Super Output Area Local Government District Northern Ireland
Classification and Format:	Administrative dataset provided in Excel format.	
National Statistics Data?	No	
Theme?	N/A	
Description of Data	<p>The Active Patient Register data provide the number of “live records” on the Health Card Register at Super Output Area (SOA) level by Sex and Single Year of Age. Registrations are provided by GPs to the Business Services Organisation who compile and administer the Register.</p> <p>Country of Birth is also provided for those people born outside Northern Ireland who have registered with a GP in Northern Ireland since 2005 (Country of Birth was not recorded prior to this).</p> <p>A record is considered as “live” if there has been any activity in the previous 24 months. Activities include the dispensing of prescriptions, treatment by a dentist or an optician, or changes in the registration details such as change of address or change of family doctor. Such activities can be seen as evidence of residence.</p> <p>In the 2011 Census Quality Assurance process Active Patient Register data are used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates. Specifically, they will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels; and • Sex Ratios (i.e. the number of males per female) at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels. <p>In addition, the data are used by NISRA’s Demography and Methodology Branch to compile estimates of Migration that will be used as part of the 2011 Quality Assurance process.</p>	
Topic Coverage	<p>As a list of where individuals are registered, coverage only extends to those people who have registered with a GP. Certain groups, such as Armed Forces personnel (and prisoners), are excluded from Patient Registers.</p> <p>Individuals intending to stay in the United Kingdom for longer than three months can register with an NHS GP. This will mean that the Patient Register may include some individuals who would be excluded from the 2011 Census definition of usual residence (i.e. individuals who have lived in NI or intended to stay for longer than twelve months). Individuals arriving in Northern Ireland on a Visa are automatically deducted according to the expiry date on the Visa.</p>	

	<p>It is not possible to distinguish between short-term migrants and usual residents on the Patient Register. Furthermore, it is also not possible to identify if people (both short-term migrants and usual residents) who have left NI to live elsewhere have been removed from the Patient Register.</p>
Accuracy	<p>The coverage and accuracy of the Patient Register depends on all patients registering with an NHS GP when they move into or within Northern Ireland.</p> <p>NHS Patient Registers are prone to list inflation, caused by delays in people who have died or moved out of a Health Trust being removed from the relevant Register, duplicate entries, and people having more than one NHS number.</p> <p>The degree of list inflation varies geographically - for instance, it tends to be higher in border areas and areas with large numbers of students, who tend to be slow in re-registering with a GP when they leave higher education.</p> <p>A rough indication for list inflation has been calculated (from the number of records in the Patient Register data and the population estimates) as approximately 4-5%. However, the activity indicator (indicating "live" status) provides further assurances that individuals are still in Northern Ireland and, therefore, addresses the issue of list inflation. For example, when comparing the Northern Ireland total number of Patient Register records (1,888k) to those that are active (1792k), the difference of 5% is comparable with the estimated list inflation.</p> <p>As such, Active Patient Register data are considered a robust and reliable source of comparator data for Census Quality Assurance purposes.</p>
Timeliness	<p>This extract was taken in April 2011 and age was calculated as of 27th March 2011 to reflect Census Day.</p>
References	<p>http://www.hscbusiness.hscni.net/services/1802.htm</p> <p>http://www.hscbusiness.hscni.net/services/1785.htm</p> <p>http://www.hscbusiness.hscni.net/1814.htm</p> <p>http://www.nisra.gov.uk/archive/demography/population/small_area/SAPEdocFinal.pdf</p>

Comparator Dataset Metadata Tool : School Census

<p>Geographic Coverage:</p> <p>Source:</p> <p>Classification and Format:</p> <p>National Statistics Data?</p> <p>Theme?</p>	<p>Super Output Area Local Government District Northern Ireland</p> <p>Department of Education, Northern Ireland via Demography and Methodology Branch Northern Ireland Statistics and Research Agency</p> <p>Administrative dataset provided in Excel format.</p> <p>Yes</p> <p>Children, Education and Skills</p>	<p>Variables:</p> <p>Single Year of Age (5-15 years) Sex Super Output Area Local Government District Northern Ireland</p>
Description of Data	<p>The School Census takes place in October of each year and provides a count of all pupils attending schools in Northern Ireland at their usual residence. Data is collected from schools using both paper forms and electronic data interchange.</p> <p>The School Census gathers a variety of information on pupils including, for example, details on their gender and year group. Schools are classified according to type (for example, nursery, special, primary, post primary, voluntary, independent) to allow analysis of various sectors to take place.</p> <p>In the 2011 Census quality assurance process School Census data are used to assess the coverage and quality of Census estimates of children aged 5 - 15 years old. Specifically, they will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels; and • Sex Ratios (i.e. the number of males per female) at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels. <p>Because of the timing of the Census of the population (27th March 2011), data from the School Census in both 2010/11 and 2011/12 academic years have been utilised for Census Quality Assurance purposes.</p>	
Topic Coverage	<p>All pupils on the school roll, whether or not accommodated in the school premises, are included in the School Census. For Census Quality Assurance purposes this includes each child who was a registered pupil in the school on 8 October 2010 and 7 October 2011 respectively (see: Reference 1) and who has attended for at least one day.</p>	
Accuracy	<p>The coverage and accuracy of School Census data clearly depends on the quality and accuracy of records maintained by the schools. While they do not include children who are home educated, who attend independent schools or who board outside Northern Ireland, they are considered to provide robust and reliable estimates of those aged 5-15 years (i.e. compulsory school age) for Census Quality Assurance purposes. Such numbers are small in Northern Ireland.</p>	
Timeliness	<p>School Census for the 2010/11 and 2011/12 academic years took place in October 2010 and October 2011 respectively. For Census Quality Assurance purposes, the age of children was calculated as on Census day (27th March 2011).</p>	

References

http://www.deni.gov.uk/index/32-statisticsandresearch_pg/32-statistics_and_research_statistics_on_education_pg/32_statistics_and_research-numbersofschoolsandpupils_pg/statistics_and_research-school_census_documentation.htm

http://www.deni.gov.uk/index/32-statisticsandresearch_pg/32-statistics_and_research_statistics_on_education_pg/32_statistics_and_research-numbersofschoolsandpupils_pg/statistics_and_research-school_census_documentation/statistics_and_research-primary_non_im.htm

http://www.deni.gov.uk/enrolments_assessment_requirements_action_plan-2.doc

Comparator Dataset Metadata Tool : Child Benefit

<p>Geographic Coverage: Super Output Area Local Government District Northern Ireland</p> <p>Source: Her Majesty's Revenue and Customs (HMRC) via Demography and Methodology Branch Northern Ireland Statistics and Research Agency</p> <p>Classification and Format: Administrative dataset provided in Excel format.</p> <p>National Statistics Data? Yes</p> <p>Theme? Economy</p>	<p>Variables: Single Year Of Age Sex Super Output Area Local Government District Northern Ireland</p>
<p>Description of Data</p>	<p>Child Benefit is available to families with children who are:</p> <ul style="list-style-type: none"> • under 16; • over 16 and up to age 20, and in education or training that qualifies for Child Benefit; or • 16 or 17, have left education or training that qualifies for Child Benefit and are registered for work, education or training with an approved body. <p>In the 2011 Census quality assurance process, Child Benefit data (i.e. the information on the children that the benefit is paid in respect of) are used to assess the coverage and quality of the Census Estimates in conjunction with other datasets.</p> <p>Specifically, they will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels; and • Sex Ratios (i.e. the number of males per female) at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels.
<p>Topic Coverage</p>	<p>As a list of benefit claimants, coverage only extends to those individuals who claim Child Benefit. Child Benefit is not means tested and hence has good coverage of the population aged under 16. The May 2011 download has been used to address the possible effect of late registration of new born babies and recent migrants.</p>
<p>Accuracy</p>	<p>The coverage and accuracy of Child Benefit data depends on all those who are entitled to the benefit, actually claiming it.</p> <p>Child Benefit data are extracted directly from the Child Benefit Computer System (CBCS) and sent securely and electronically to Her Majesty's Revenue and Customs (HMRC).</p> <p>Robust Quality Assurance checks are in place to ensure that a) no records go missing during the transfer process, b) any duplicates are identified and removed, and c) that the numbers of claimants of the benefit (and their associated children) are consistent with previous data.</p> <p>In addition, the data are cross checked against other administrative sources, notably registrations of newborn children and population estimates compiled by the Office for National Statistics. Quality assurance is carried out at the UK, country, region and local</p>

	<p>authority level.</p> <p>For Census Quality Assurance purposes, Child Benefit data are considered to provide robust and reliable estimates of those aged under 16.</p>
Timeliness	<p>For Census Quality Assurance purposes, extracts were taken from February and May 2011 downloads and provided to Demography Branch in June 2011. The ages of children are calculated (using a combination of both extracts) as on Census Day (27th March 2011).</p>
References	<p>http://www.hmrc.gov.uk/stats/child_benefit/menu.htm</p> <p>http://www.hmrc.gov.uk/stats/child_benefit/chb-geog-aug10.pdf</p> <p>http://www.dsdni.gov.uk/index/stats_and_research/stats-publications/stats-family-resource/family_resources/frs-2009-10</p>

Comparator Dataset Metadata Tool : Electoral Register

Geographic Coverage:	Local Government District Northern Ireland	Variables: 5 year age bands Local Government District Northern Ireland
Source:	Electoral Office for Northern Ireland (EONI) via Demography and Methodology Branch (DMB) Northern Ireland Statistics and Research Agency	
Classification and Format:	Administrative dataset provided in excel format.	
National Statistics Data?	No	
Theme?	N/A	
Description of Data	<p>The Electoral Register lists the names and addresses of everyone registered to vote in Northern Ireland.</p> <p>For Census purposes, people were registered/counted at their usual residence if they were:</p> <ul style="list-style-type: none"> • a British, Irish or Commonwealth citizen, or a citizen of a Member State of the European Union, • over 17 or had turned 17 by 30 November 2011; and, • were resident in Northern Ireland for the three months (prior to their entry on the Electoral Register). <p>Electoral Office for Northern Ireland supplies counts of registered voters by electoral ward. NISRA's Demography and Methodology Branch then uses the individual addresses to derive Local Government District.</p> <p>In the 2011 Census Quality Assurance process Electoral Register data are used, in conjunction with other datasets to assess the coverage and quality of the Census Estimates. Specifically, they will be used to check the estimates of the age distribution of "All Persons" age 18 and over, at Northern Ireland and Local Government District (LGD) levels.</p> <p>In addition, the data are used by NISRA's Demography and Methodology Branch to compile estimates of Migration that will be used as part of the 2011 Quality Assurance process.</p>	
Topic Coverage	Prisoners, persons resident in a mental hospital, and citizens from outside the UK, Ireland, Commonwealth or another EU state are excluded from the Electoral Register. Furthermore, the Electoral Register does not contain information on Sex.	
Accuracy	<p>Clearly, only those who have elected to register to vote will be included in the Electoral Register.</p> <p>NISRA's Demography and Methodology Branch have completed an exercise to assess the level of coverage in the Electoral Register data. By comparing counts of All Persons in the Electoral Register with All Persons in the Mid-Year Population Estimates (at NI level), percentage coverage for each 5 year age band was estimated as:</p>	

	<ul style="list-style-type: none"> • 74% for 20-24, • 80% for 25-29, • 84% for 30-34, • 85% for 35-39, • 88% for 40-44, • 89% for 45-49, • 91% for 50-54, • 92% for 55-59, • 94% for 60-64, • 96% for 65+. <p>The Register is updated every month and a new version is published on 1 December each year. Any person who is eligible can register at any time and many are contacted by the Electoral Office as a result of information obtained from government bodies (such as Driver and Vehicle Licensing Northern Ireland, Local Government District's and the Business Services Organisation) regarding changes of residence.</p> <p>For Census Quality Assurance purposes, Electoral Register data provide a robust and reliable lower bound estimate of the number of individuals (age 18+) at the geographical levels stated above.</p>
References	www.eoni.org.uk

Comparator Dataset Metadata: 2001 Census

Geographic Coverage:	Super Output Area Local Government District Northern Ireland	Variables: Single Year Of Age Sex Super Output Area Local Government District Northern Ireland
Source:	Census Branch Northern Ireland Statistics and Research Agency	
Classification and Format:	Census dataset used in a range of formats as required.	
National Statistics Data?	Yes	
Theme?	Population	
Description of Data	<p>The 2001 Census was taken on Sunday 29th April 2001 and sought to include every household and individual in Northern Ireland as it was compulsory to complete the Census questionnaire.</p> <p>An independent Census Coverage Survey was also conducted to measure how accurately the Census counted both households and individuals by interviewing a cross-section of the population and matching the results to the Census to identify any under-enumeration. Additional households and individuals were then imputed to produce a final database.</p> <p>The method used to assess the under-coverage and adjust the Census database, known as the One Number Census process, was subject to both academic and international peer review. This process enabled estimates to be produced that represented all of Northern Ireland, and has been enhanced for use in the 2011 Census operation.</p> <p>In the 2011 Census Quality Assurance process, 2001 Census data are used, in conjunction with other datasets, to assess the coverage and quality of the Census estimates. The 2001 Census data is primarily used to check those variables in the 2011 Census data that are consistent with those included in the 2001 Census.</p>	
Topic Coverage	Following adjustment for any under-enumeration, the 2001 Census estimates cover every household and individual in Northern Ireland.	
Accuracy	<p>At 95.2%, the response rate for the 2001 Census was considered to be good. The remaining 4.8% of people were imputed through the One Number Census process outlined above.</p> <p>The 2001 Census database has been designated as a National Statistic. It is considered to provide a robust and reliable Comparator dataset for the 2011 Census Quality Assurance exercise.</p>	
Timeliness	The 2001 Census database represents the characteristics of the Northern Ireland population at that time. Although 10 years old, it provides access to a raft of variable distributions for Quality Assurance purposes, that are simply not available from other datasets at the geographical levels required.	
References	http://www.nisra.gov.uk/Census/2001Census.html	

Comparator Dataset Metadata: Household Projections

Geographic Coverage:	Local Government District Northern Ireland	Variables: Household size Household type
Source:	Demography and Methodology Branch Northern Ireland Statistics and Research Agency	Local Government District Northern Ireland
Classification and Format:	Derived from a composite of administrative and statistical datasets, provided in Excel format.	
National Statistics Data?	No	
Theme?	N/A	
Description of Data	<p>The latest Household Projections, published in 2010 were based on the 2008-based Population Projections. The Household Projections model applies the Age-Sex specific probability of household membership to population estimates. The probabilities for 2011 are extrapolations from the trend in household formation between the 1991 and 2001 Census.</p> <p>In the 2011 Census Quality Assurance process Household Projections data are used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates.</p> <p>Specifically, they will be used for the following checks:</p> <ul style="list-style-type: none"> • Number of occupied households at Northern Ireland and Local Government District (LGD); and • Distribution of households by size at Northern Ireland and Local Government District (LGD) levels. 	
Topic Coverage	Household Projections are available by Local Government District. A breakdown is available by size (1, 2 ... 7+ persons) and type (single, couple and other, with/without children).	
Accuracy	The projected household size has been quality assured using information from the Continuous Household Survey. Although, given the methodology for deriving them, Household Projections are not entirely independent from the 2001 Census and Mid-Year Population Estimates; they are considered a robust and reliable source of comparator data for Census Quality assurance purposes.	
Timeliness	For Census Quality Assurance purposes, the Mid-Year Population Estimates have been rolled forward by ageing the population by 9 months, and adjusting for births, deaths and migration between mid-2010 and Census Day (27/3/2011). These estimates were included in the Household Projection model, alongside the 2011 projected probabilities of household membership.	
References	<p>http://www.nisra.gov.uk/demography/default.asp21.htm</p> <p>http://www.nisra.gov.uk/archive/demography/population/household/HProjs_methodology.pdf</p>	

Comparator Dataset Metadata: Migration

<p>Geographic Coverage: Super Output Area Local Government District Northern Ireland</p> <p>Source: Demography and Methodology Branch Northern Ireland Statistics and Research Agency</p> <p>Classification and Format: Administrative dataset provided in Excel format.</p> <p>National Statistics Data? No</p> <p>Theme? N/A</p>	<p>Variables: All Persons Country of Birth Super Output Area Local Government District Northern Ireland</p>
Description of Data	<p>Estimates of international in-migration are based on new health card registrations, as provided by Business Services Organisation (HSC-BSO). Registrations are provided by GPs to the HSC-BSO who compile and administer the Patient Register.</p> <p>Migration out of the UK (or <i>outflows</i>) is estimated from the list of patients registered with a family doctor by counting the number of people who de-registered. This data is available by age, Sex and LGD.</p> <p>Migration flows between UK countries are agreed between the Northern Ireland Statistics and Research Agency, National Records of Scotland and the Office for National Statistics to ensure a zero sum internal migration, for example, the number of people counted as leaving Northern Ireland to go to Scotland is the same as the number of people from Northern Ireland counted as entering Scotland.</p> <p>In the 2011 Census Quality Assurance process migration estimates are used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates.</p> <p>Specifically, the Migration Estimates will be used to check in-migration estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) level, using information from the 'Address One Year Ago' question in the Census.</p>
Topic Coverage	International in-migration for the year up to Census day is available at Northern Ireland, Local Government District (LGD) and Super Output Area level (SOA).
Accuracy	<p>Migration estimates are used as a component of change in the production of Mid-Year Population Estimates. A recent report on long-term international migration has validated these estimates against other comparator data sources such as the Workers Registration Scheme, new National Insurance numbers, etc.</p> <p>Migration estimates are geo-referenced according to the usual address of first registration of health cards; subsequent migration within Northern Ireland and out migration in the period between registration and Census day are not accounted for.</p> <p>As such, Migration Estimates are considered a robust and reliable source of comparator data for Census Quality Assurance purposes.</p>
Timeliness	Migration Estimates for the year up to Census Day (27/3/2011).

References	http://www.nisra.gov.uk/demography/default.asp18.htm http://www.nisra.gov.uk/archive/demography/population/migration/dev_est_mig.pdf http://www.nisra.gov.uk/archive/demography/population/migration/Migration%20Report%202009.pdf
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Comparator Dataset Metadata: Higher Education Statistics (HESA)

Geographic Coverage:	Local Government District Northern Ireland	Variables: Single Year of age (18+) Sex
Source:	Higher Education Statistics Agency (HESA) via NI Department for Employment and Learning (DEL)	Local Government District Northern Ireland
Classification and Format:	Administrative dataset provided in Excel format.	
National Statistics Data?	Yes	
Theme?	Children, Education and Skills	
Description of Data	<p>Higher Education Statistics Agency (<i>HESA</i>) data provide data by single year of age and Sex for each of the following: -</p> <ul style="list-style-type: none"> • NI domiciles at Higher Education Institutions in Northern Ireland (Home & Term time postcode), • Non-NI domiciles at Higher Education Institutions in Northern Ireland (Term time postcode), • NI domiciles at Higher Education Institutions in Great Britain (Home postcode & Higher Education Institutions). <p>In the 2011 Census Quality Assurance process, HESA data are used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates of the student population in NI.</p> <p>Specifically, the HESA data will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/Sex estimates of students age 18+ at Northern Ireland and Local Government District (LGD) levels. 	
Topic Coverage	HESA data reflect a count of all NI domiciled students enrolled at Higher Education Institutions (HEIs) in NI, England, Scotland and Wales (UK) and non NI domiciles at NI HEIs.	
Accuracy	<p>For Census Quality Assurance purpose, HESA data provide a reliable and robust count of the number of NI domiciled students enrolled at Higher Education Institutions in the UK and the number of non NI domiciles at NI HEIs.</p> <p>The data are collected and processed by HESA on behalf of DEL, and are subjected to a range of quality assurance and validation procedures before they are provided to DEL.</p> <p>Further information can be found at References below.</p>	
Timeliness	This extract was taken in February 2011 to reflect the number of students attending Higher Education Institutions in the 2010/11 academic year.	
References	<p>http://www.delni.gov.uk/index/statsandresearch/higher-education-stats/he-statistical-methods.htm</p> <p>http://www.hesa.ac.uk/component/option,com_studrec/task,show_file/Itemid,233/mnl,11051/href_validation.html/</p>	

Comparator Dataset Metadata Tool : Further Education Enrolments

Geographic Coverage:	Local Government District Northern Ireland	Variables: Single Year of Age (18+) Sex
Source:	Department for Employment and Learning, Tertiary Education Analytical Services Branch	Local Government District Northern Ireland
Classification and Format:	Administrative dataset provided in Excel format.	
National Statistics Data?	Yes	
Theme?	Education and Training	
Description of Data	<p>For Census purposes, the Further Education Enrolments data provide counts of individuals (age 18+) enrolled on a vocational course in any Northern Ireland Further Education Institution (NIFEI).</p> <p>The information provided is data derived from the Further Education Statistical Record, a computerised return consisting of an individual record for each enrolment as at 1st November 2010 (referring to academic year 2010/11).</p> <p>Individual Colleges collect the information on Enrolment forms. This information is entered onto the Colleges Management Information System. The Department for Employment and Learning extracts and validates the information provided by the colleges.</p> <p>In the 2011 Census Quality Assurance process, Further Education Enrolments data are used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates.</p> <p>Specifically, they will be used to check the Age/Sex estimates of Students at Northern Ireland and Local Government District (LGD) levels.</p>	
Topic Coverage	Further Education Enrolments data reflect a count of all enrolments (for individuals aged 18+ on a vocational course) at Further Educational Institutions in Northern Ireland. This is a full count of the 2010/11 academic year and is collected at November 2011.	
Accuracy	<p>For Census Quality Assurance purposes, Further Education Enrolments data provide a robust and reliable estimate of the number of individuals (age 18+) enrolled in Northern Ireland Further Education Institutions.</p> <p>The coverage and accuracy of Further Education Enrolments data depends on the administration of individual Colleges and the completion rate of enrolment forms. Furthermore, the data provide no indication of retention or course completion following enrolment.</p> <p>The dataset was created using the May 2010 Central Postcode Directory. Approximately 4% of all enrolments are not assigned to a specific geography due to invalid geo-referencing or non Northern Ireland domicile students.</p>	
Timeliness	This extract was taken to represent all those enrolled on vocational courses for the academic year 2010/11.	
References	http://www.delni.gov.uk/index/statsandresearch/further-education-stats.htm	

Comparator Dataset Metadata: Mortality

<p>Geographic Coverage:</p> <p>Source:</p> <p>Classification and Format:</p> <p>National Statistics Data?</p> <p>Theme?</p>	<p>Super Output Area Local Government District Northern Ireland</p> <p>The General Register Office via Demography and Methodology Branch Northern Ireland Statistics and Research Agency</p> <p>Administrative dataset provided in Excel format.</p> <p>Yes</p> <p>Population</p>	<p>Variables:</p> <p>5 Year Age Bands Sex Super Output Area Local Government District Northern Ireland Age Specific Mortality Rates (2011 & 2001) Age Standardised Mortality Ratios (2011 & 2001) Deaths (2011 & 2001)</p>
<p>Description of Data</p>	<p>Deaths registrations are obtained from the General Register Office (GRO). Counts provided to Census for Quality Assurance purposes are based on the date of registration.</p> <p>Deaths include all deaths which were registered in Northern Ireland including deaths to those who are resident outside Northern Ireland but who died in Northern Ireland, although the numbers of such people are generally small (around 80 per year and are thought to be counter-balanced with NI residents who die elsewhere). Counts of all deaths registered by Sex and 5 year age bands are provided for 2001 and 2011 at LGD level and for Sex and four age groups for 2011 at SOA level.</p> <p>The Mortality comparator data provide the following:</p> <ol style="list-style-type: none"> 1. The number of Deaths Registered for 2011 at Local Government District (LGD) by 5 year age bands (up to 85+) and Super Output Area (SOA) level for four age bands (0-14, 15-44, 45-74 and 75+). 2. The number of Deaths Registered for 2001 at Local Government District (LGD) level by 5 year age bands (up to 85+). 3. The Age Specific Mortality Rates (Crude Death Rates) calculated for 2011 and 2001 at Local Government District (LGD) level by Sex and 5 year age bands. 4. Age Standardised Mortality Rates (ASMR) calculated for 2011 and 2001 at Local Government District (LGD) level by Sex and 5 year age bands. <p>In order to calculate the Crude Deaths Rates, the deaths from a particular year for each Sex and age band are divided by the population for that year (using, for example, Mid-Year Population Estimates or Census) and multiplied by 1,000.</p> <p>The ASMR is the rate that would have been found if the population of NI had the same age-composition (proportion of total population in each 5 year age bands) as a hypothetical European population. The rates are calculated by applying the age-specific rates for each LGD to a theoretical European standard population, expressed per 100,000 persons per year.</p> <p>The General Register Office has supplied NISRA's Demography and Methodology Branch with the number of deaths for 2011. This will be used in conjunction with 2011 Census outputs to calculate 2011 Crude Death Rates and ASMRs which will be checked alongside 2011 and 2001 similar rates.</p>	
<p>Topic Coverage</p>	<p>All deaths registered in 2001 and 2011 by the geographical area of the deceased's usual residence.</p>	

Accuracy	<p>For Census Quality Assurance purposes, deaths data are considered to provide robust and reliable estimates at the geographical levels stated. All deaths should be registered within five days (to allow funeral arrangements to be made). This is with the exception of deaths which have been referred to the coroner. For events such as infant death or suicide, which are likely to be referred to the coroner, it can take some time for the event to be registered.</p> <p>Various quality checks are carried out on deaths data. For example if the deceased is 100 years or older the record is checked with GRO to trace the birth or marriage record where possible to confirm the deceased age.</p> <p>The datasets were created using the Pointer Address database to allocate a unique property reference number (UPRN) and geo-spatial co-ordinates to each home address. These were used to map the address to SOA. Where it has not been possible to assign a unique property reference number to an address using the Pointer database, the Central Postcode Directory (CPD) was used to map home address postcodes to higher geographies. Around 0.2% of all deaths cannot be mapped with the Pointer or the CPD and these remain as unknowns at SOA. At LGD level, if Pointer and the CPD cannot provide the area of the deceased's home address then the LGD (allocated by the Registrar) is used instead. Where the deceased was not resident in Northern Ireland the place of death is used as the deceased's home address.</p>
Timeliness	<p>2001 data was finalised in November 2002. 2011 data was published in April 2012 but will not be finalised until November 2012.</p>
References	<p>http://www.nisra.gov.uk/archive/demography/publications/vital_stats_QA.pdf</p> <p>http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-124---statistics-on-demography-and-vital-events-in-northern-ireland.pdf</p> <p>http://www.nisra.gov.uk/demography/default.asp10.htm</p>

Comparator Dataset Metadata: Pensions

<p>Geographic Coverage:</p>	<p>Super Output Area Local Government District Northern Ireland</p>	<p>Variables:</p> <p>Single Year of Age (61+) Sex Super Output Area Local Government District Northern Ireland</p>
<p>Source:</p>	<p>Department for Social Development via Demography and Methodology Branch Northern Ireland Statistics and Research Agency (NISRA)</p>	
<p>Classification and Format:</p>	<p>Derived from a composite of administrative and statistical datasets, provided in Excel format.</p>	
<p>National Statistics Data?</p>	<p>Data sources used to compile this dataset are National Statistics</p>	
<p>Theme?</p>	<p>Economy</p>	
<p>Description of Data</p>	<p>This data provides counts of males and females by single year of age for those aged 60 and over in each of the geographical areas presented above.</p> <p>There are several benefits that people aged 60 and over can claim. Pension Benefits and Winter Fuel Payment are universal benefits payable to persons over 60.</p> <p>The Department for Social Development (DSD) has supplied anonymised record level data of Pension Benefits and Winter Fuel Payments along with other benefits, including Pension Credit, Disability Living Allowance, Attendance Allowance, and Incapacity Benefit to NISRA's Demography and Methodology Branch (DMB) for processing.</p> <p>For Census Quality Assurance purposes, DMB created a dataset (referred to as 'Pensions Data') of all persons that claim one or more of the benefits listed above. DMB supplied frequencies of the number of persons in this data by sex, single year of age and Super Output Area to Census Office.</p> <p>In the 2011 Quality Assurance process Pensions data is used, in conjunction with other datasets, to assess the coverage and quality of the Census Estimates.</p> <p>Specifically, it will be used for the following checks:</p> <ul style="list-style-type: none"> • Age/sex estimates at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels; and, • Sex Ratios (i.e. the number of males per female) at Northern Ireland, Local Government District (LGD) and Super Output Area (SOA) levels. 	
<p>Topic Coverage</p>	<p>Coverage extends to males 65+ and females 61+ in receipt of non-income related benefits (ages were calculated as of 27th March 2011).</p> <p>Record level data was provided by DSD to DMB. Encrypted National Insurance numbers were used to identify individuals in receipt of multiple benefits. Other variables include sex, age at download and home postcode, the latter being mapped to Super Output Areas using the Central Postcode Directory.</p>	
<p>Accuracy</p>	<p>Evidence from the Family Resource Survey suggests that 100% of pensioners surveyed receive non-income related benefits.</p>	

	<p>As such, Pensions data are considered to provide robust and reliable estimates of males (age 65+) and females (age 61+) for Census Quality Assurance purposes.</p> <p>Claimants are entitled to multiple benefits.</p> <p>In compiling the data provided to Census Office, work was undertaken to quality assure the age and sex of those included in the data and remove any duplicates.</p> <p>Missing age and sex information was derived in accordance with the underlying distribution of records where such information was available.</p>
Timeliness	<p>For Census Quality Assurance purposes, the download dates were :</p> <ul style="list-style-type: none"> • Attendance Allowance 19th March 2011 • Disability Living Allowance 19th March 2011 • Pension Credit 26th March 2011 • Bereavement Benefit 2nd April 2011 • Widows Benefit 2nd April 2011 • Incapacity Benefit 2nd April 2011 • Retirement Pension 2nd April 2011 • Winter Fuel Payments 1st March 2011 <p>This information was used to create age at Census day (i.e. when in receipt of multiple benefits, the age of the claimant was taken from the benefit with a download date closest to 27 March 2011).</p>
References	<p>http://www.dsdni.gov.uk/index/stats_and_research/stats-publications/stats-family-resource/family_resources/frs-2009-10.htm</p> <p>http://www.nisra.gov.uk/archive/demography/population/midyear/Quality%20Report%20and%20Users%20Guide%20-%20MYE%20NI%202010.pdf</p>