

**Administrative Data Quality
Document**



**Population Estimates and Projections
for Northern Ireland**

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1. Introduction

National Statistics published by the Population Statistics section within Demography and Methodology Branch (DMB), NISRA are based on data gathered from statistical censuses and surveys, and data extracted from its own and other organisations' administrative or management systems. By using data which are already available within administrative or management systems, rather than collecting data afresh, this limits the overall burden placed on data providers and also avoids the cost of implementing dedicated data collection exercises. In addition, the information extracted from such systems often has the advantage of being more timely than statistical data and, when compared with data from surveys (and particularly sample surveys), can also deliver data with a greater breadth of coverage.

Under the UK Statistics Authority's fourth Principle within their [Code of Practice for Official Statistics](#), producers of Official Statistics are required to ensure that:

- Official Statistics are produced to a level of quality that meets users needs, and
- users are informed about the quality of statistical outputs.

In addition, the UK Statistics Authority issued a [statement](#) in January 2015 informing statistics producers that a [Regulatory Standard for the Quality Assurance of Administrative Data](#) had been published in response to concerns about the quality of administrative data that emerged during its assessments of statistics on police recorded crime¹. The Standard recognises the increasing role that administrative data are playing in the production of Official Statistics and clarifies the Authority's expectations for what producers of Official Statistics should do to assure themselves of the quality of these data. The standard is supported with an [Administrative Data Quality Assurance Toolkit](#) which provides helpful guidance to statistical producers about the practices they can adopt to assure the quality of the data they utilise.

The purpose of this paper is to document the data sources that are utilised in the production of Population Estimates and Projections for Northern Ireland and to document the results of the quality management actions that have been undertaken for assuring the suitability of the data sources for this purpose.

This document details information on the data assurance and audit arrangements for all the data sources used in the production of population estimates and projections.

¹ <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/correspondence/letter-from-sir-andrew-dilnot-to-bernard-jenkin-mp-150114.pdf>

The information collated in this report also reflects the most recent review of data by considering the UK Statistics Authority's toolkit. Annex A reflects the results of applying the toolkit risk/profile matrix to each of the data sources. Given that changes to data sources are inevitable, this report will be periodically updated to reflect the outcomes of ongoing reviews.

2. Background

National Statistics relating to Population Estimates and Projections for Northern Ireland are produced by the Population Statistics section within DMB. They are widely used in policy development in areas such as housing, healthcare and education, as well as being used to allocate public funds to the Northern Ireland Executive through the Barnett formula². The statistics are also of interest to those involved in research & academia, and are widely used to express other statistics as a rate, thus enabling comparisons across the United Kingdom and other countries.

A range of statistical products (SPs) are routinely published by Population Statistics and include:

- SP01. Population and migration estimates, Northern Ireland. This report is published annually and presents counts by age and sex for the population of Northern Ireland (SP01.a) and for areas within Northern Ireland (SP01.b). The population estimates for Northern Ireland as a whole are produced using the cohort component methodology, where the annual population is calculated by "rolling forward" changes in births, deaths and migration from the most recently available Census data. Estimates for areas within Northern Ireland follow a bottom-up approach, where population estimates for Super Output Areas are first produced using the average of the Components of Change, and the Ratio Change³ methodologies. All other geographical areas within Northern Ireland are added up from these. All sub-region population estimates are constrained to the Northern Ireland population estimates⁴.
- SP02. Estimates of the population aged 85 and over, Northern Ireland. This report is published annually and presents an analysis of population estimates for those aged 85 and over, aged 90 to 99 and 100 or more for Northern Ireland. The estimates by single year of age from 0 to 89 use the cohort component

² A mechanism used by Her Majesty's Treasury to adjust the amounts of public expenditure allocated to the Devolved Administrations. See paragraphs 2.1 and 2.2 of a NI Assembly research paper for a brief summary of how this works in Northern Ireland which can be found at <http://archive.niassembly.gov.uk/finance/2007mandate/research/090320.pdf>

³ 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.

⁴ Further information on Population Estimates is available at <http://www.nisra.gov.uk/demography/default.asp17.htm>.

method. To produce single year of age estimates of the population aged 90 and over, NISRA have adopted the Kannisto-Thatcher Survivor Ratio Method⁵, an internationally recognised method used to provide a more detailed breakdown of the older population by age.

- SP03. Population estimates for Small Areas. Currently this report is published annually and presents counts for the population of Census Small Areas within Northern Ireland. Population estimates of Super Output Areas are broken down to Census Small Area level using the apportionment method⁶. In short, this method breaks down the 'known' population of a larger area into smaller areas using an indicator of population for the smaller areas. Inherent in this method is the assumption that the relationship between the indicator of the population and the true population is the same for each smaller area within the (larger) reference area. For Northern Ireland, the reference areas are Super Output Areas, which by design are relatively homogenous.
- SP04. Population projections for Northern Ireland. This report is currently published every two years⁷ and presents an estimate of the future population of Northern Ireland by age and sex. Projections are produced by the Office for National Statistics (ONS) on behalf of NISRA and are based on different underlying assumptions relating to births, deaths and migration which are applied to the most recent population estimates. The projections are trend-based (i.e. they do not anticipate possible changes to Government policy).
- SP05. Population projections for areas within Northern Ireland. This report is currently published every two years and presents population projections for areas within Northern Ireland by age and sex. These statistics are produced by NISRA and are consistent with the Northern Ireland population projections produced by the ONS.
- SP06. Northern Ireland Household Projections. This is a commissioned report which (based on available resource/funding) is published following updated population projections and contains analyses of the household projections

⁵ The Survivor Ratio Method for Estimating Numbers at High Ages, Thatcher R, Kannisto V, Andreev K, 2002. <http://www.demographic-research.org/Volumes/Vol6/1/>.

⁶ This method breaks down the 'known' population of a larger area into smaller areas using an indicator of population for the smaller areas.

⁷ The frequency of this product is currently under review as part of the ONS Consultation on Changes to ONS Products 2015. See the word version of the consultation document for more information at <http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/consultations/consultation-on-changes-to-ons-products-2015/index.html>

for both Northern Ireland, and areas within Northern Ireland (down to Local Government District level). The statistics are calculated by applying assumptions about household formation to the most recent population projections.

The production of these statistics requires the use of a number of data sources (DSs) in their development and/or quality assurance (see list below). These data sources are mainly administrative sources, with the exception of Census data. Whilst not being an administrative data source, Census data has been retained for this document for completeness and due to the fact that it has a very important role in the development of population estimates and projections. Relevant detail on the collection, supply, content and quality assurance of the data sources is given in the sections that follow.

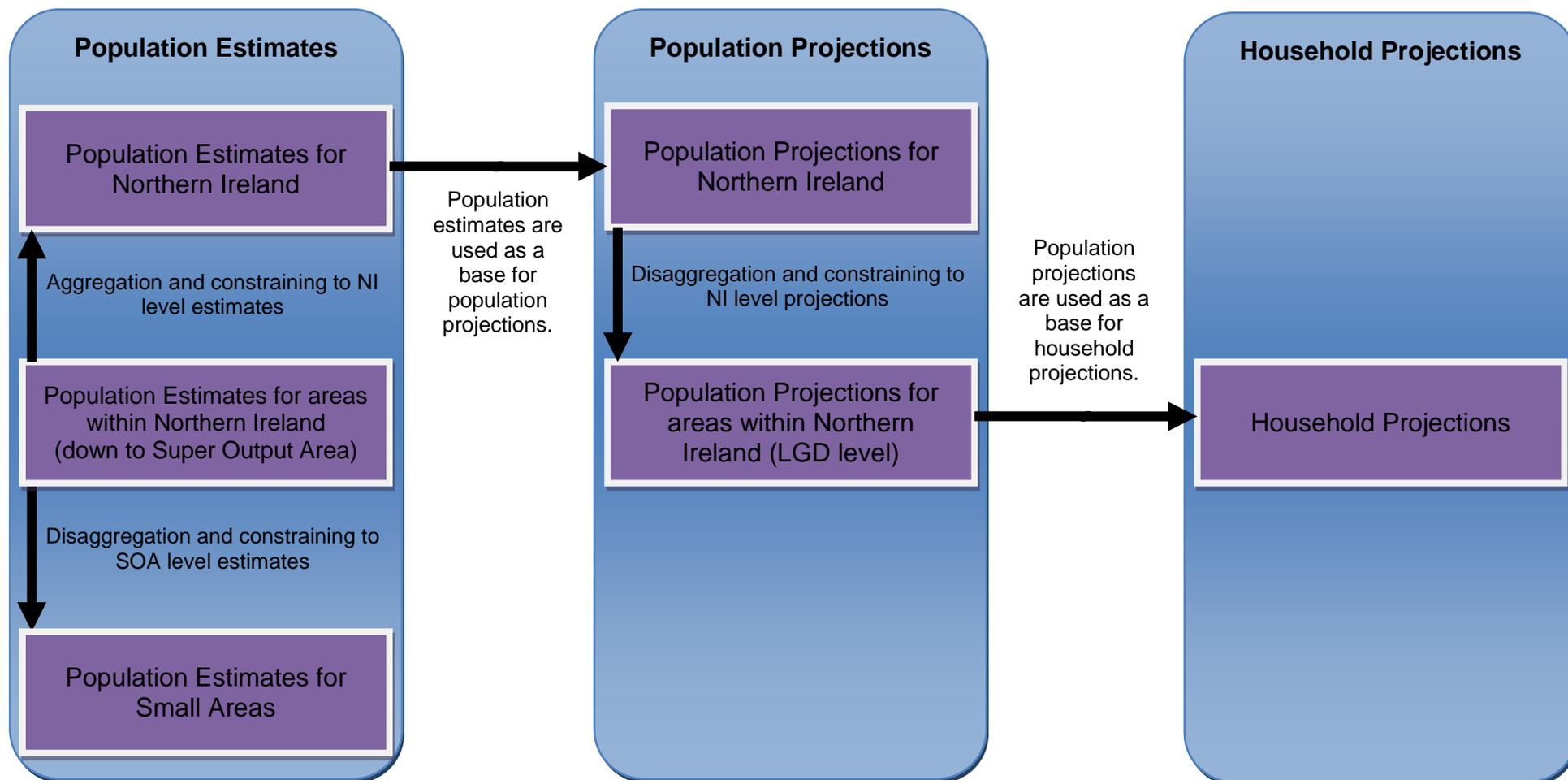
- DS01. 2001 Census (Population data)
- DS02. 2011 Census (Population data)
- DS03. General Register Office (GRO) Registers of Births, Deaths, Marriages, Civil Partnerships and Adoptions
- DS04. Medical Card Register (NHAIS) (Flows)
- DS05. Social Security Agency Benefits Computer Systems
- DS06. Schools Information Management System (SIMS)
- DS07. HESA - Enrolments at higher education
- DS08. Child Benefit database
- DS09. NI Electoral Roll
- DS10. Armed Forces Data
- DS11. 2011 Census (Household / Communal data)

The individual statistical products can be classified into three distinct categories, namely:

- **Population Estimates:** SP01, SP02 and SP03.
- **Population Projections:** SP04 and SP05.
- **Household Projections:** SP06.

It is important to note that within these categories, as each statistical product is released they often contribute to future products (for example, estimates become a base for projections). The diagram below shows how each statistical product is dependent on the other.

Figure 1: Flow Diagram of Statistical Products



For the purposes of this paper, in order to enhance readability, there is an assumption that no further quality assurance steps are taken on the data sources when moving from one statistical product to another. In addition, only the primary purpose of the data source is reported on. If there are any secondary purposes relating to the use of the data source for the quality assurance of statistical products, these are not reflected.

The data sources utilised by Population Statistics, and the statistical products they relate to, including an indication of their primary use, are summarised in the table below⁸:

⁸ A detailed data flow diagram showing how the data sources are used in the production of statistics is available at: http://www.nisra.gov.uk/archive/demography/population/Diagram_PopStat.pdf

Statistical Product Data Source	Population Estimates								Population Projections				Household Projections	
	SP01.a* Estimates (NI)		SP01.b* Estimates (Areas in NI)		SP02 Estimates (85+)		SP03 Estimates (Small Area)		SP04 Projections (NI)		SP05 Projections (Areas in NI)		SP06 Household Projections	
	C	QA	C	QA	C	QA	C	QA	C	QA	C	QA	C	QA
DS01: 2001 Census (Population Data)	✓		✓		✓		✓							
DS02: 2011 Census (Population Data)	✓		✓		✓		✓							
DS03: General Register Office (GRO) Register of Births, Deaths, Marriages, Civil Partnerships and Adoptions	✓		✓		✓		✓		✓		✓			
DS04: Medical Card Register (NHAIS)	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			
DS05: Social Security Agency Benefits Computer Systems		✓	✓			✓	✓							
DS06: Schools Information Management System (SIMS)			✓				✓							
DS07: HESA - Enrolments at Higher Education			✓				✓							
DS08: Child Benefit Database			✓											
DS09: NI Electoral Roll		✓		✓				✓						
DS10: Armed Forces Data	✓		✓				✓							
DS11: 2011 Census (Household/ Communal data)													✓	

C = contribute; QA = quality assure

* Estimates for Northern Ireland as a whole are referred to as SP01.a, while sub-Northern Ireland estimates are referred to as SP01.b, due to their methodologies differing slightly.

The UK Statistics Authority's Code of Practice for Official Statistics requires all producers of Official Statistics to publish, in consultation with the National Statistician, a 'Statement of Administrative Sources' which lists any administrative data source used for the production of Official Statistics. In compliance with this requirement, the Department of Finance's (DoF) [Statement of Administrative Sources](#) on the NISRA website contains information on the data sources utilised by the Population Statistics section within DMB in the production of its statistics.

In addition, in response to the UK Statistics Authority's [Regulatory Standard](#), the sections that follow detail the results of the quality management actions that have been undertaken by Population Statistics to assure the suitability of the data sources used for the purposes of producing population estimates and projections for Northern Ireland. The results reflect the application of the [Administrative Data Quality Assurance Toolkit](#) (provided by the UK Statistics Authority) and therefore include for each data source (where available):

- Details of the operational context and data collection arrangement,
- Details of the supplied data, including communication channels with the supply partners,
- Documentation of the Quality Assurance principles, standards and checks applied by the data suppliers, and
- Documentation of the quality assurance undertaken by Population Statistics (as the data producer).

Furthermore, Annex A includes reference information detailing the quality assurance toolkit matrix score given to each data source mentioned in this paper. These scores relate specifically to the Risk/Profile matrix, which attempts to measure the level of risk of data quality concerns alongside the public interest profile of the statistics.

Details of how these scores apply to the overall assurance given to each data source are contained within the [toolkit](#).

DS01. 2001 Census (Population Data)

Data Supplier: NISRA Census Office

Supplier info: Census Office is a branch within the Northern Ireland Statistics and research Agency (NISRA) and is responsible for undertaking the Census of Population and Housing in Northern Ireland. The 2001 Census in Northern Ireland was conducted on 29 April 2001, in line with arrangements across the rest of the United Kingdom.

Data type (counts or unit records) Counts

Data Content: Census population by sex and single year of age (and geography)

Supply Schedule: One off delivery

Use of Data: Contribution:
SP01: Population and migration estimates, Northern Ireland.
SP02: Estimates of the population aged 85 and over, Northern Ireland.
SP03: Population estimates for Small Areas

Data Source Information

The Census is widely acknowledged as playing a fundamental and unique role in the provision of comprehensive and robust population statistics. Census information is needed to inform policy, to plan services for specific groups of people and, especially, to make effective use of resources by directing them to where they are needed.

The Census provides the basis for deriving many social and economic indicators, such as:

- population estimates;
- employment and unemployment rates;

- birth, death, mortality and fertility rates;
- equality monitoring – in particular, census information on age, sex, ethnicity, religion, and disability helps to identify the extent and nature of disadvantage and to measure the success of equal opportunities policies; and
- grossing-up sample survey data – in particular, the Census underpins socio-economic surveys carried out by government and the private sector as the survey results are grossed to census population estimates; without the Census, such surveys would be less reliable or would need to be larger and more costly.

The Census also drives the targeting of local services and is an excellent source of data for social science research purposes.

The 2001 Census was taken on Sunday 29th April 2001 and sought to include every household and individual in Northern Ireland. In contrast with previous censuses, forms were hand delivered by enumerators to a member of each household with respondents asked to return their completed form by post. Further information on the 2001 Census methodology, including details of the collection process is available in chapter 2 of the 2001 Census [Definitions Volume](#).

Every effort is made to ensure everyone is counted in a Census. However, no Census is perfect and inevitably some people are missed. This under-enumeration does not usually occur uniformly across all geographical areas or across other sub-groups of the population such as age and sex groups. Therefore, it is accepted best practice to assess the extent of any under-enumeration, usually by means of a post-enumeration survey (the Census Coverage Survey). In the 2001 Census this assessment and subsequent adjustment for under-enumeration was referred to as the One Number Census (ONC). Details of this process are available in the [One Number Census Evaluation](#) report.

It has been estimated from the 2001 Census Coverage Survey that households identified by enumerators, but from which a form was not returned, accounted for 3.0 per cent of the population. Some households were also missed by enumerators, or some people were not included in Census returns. The Census Coverage Survey has estimated that this represents a further 1.8 per cent of the population. It is thus estimated that 95.2 per cent of the population in Northern Ireland responded to the 2001 Census. More details on the 2001 Census response rate, including a measure of precision of the ONC process, are available in sections 3 and 4 of the [Methodological Approach to the Census](#) paper.

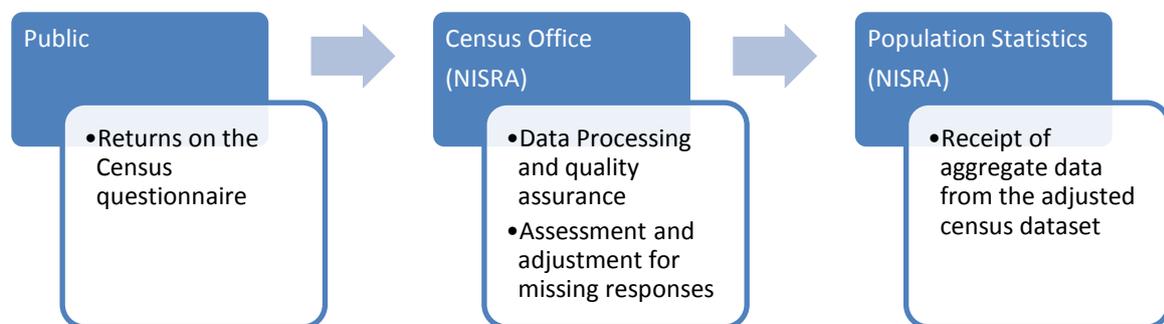
Data supply and communication

Population data supplied by Census Office is used primarily by Population Statistics for the purposes of developing population estimates. Census data are fundamental to the development of estimates as they provide a baseline from which estimates can be calculated. Furthermore, as new censuses become available, the previous census continues to have importance as it is used in the calculations when rebasing the estimates.

Statisticians within Population Statistics are located in close proximity to the Census operational and statistical processing teams, therefore allowing for frequent informal contact to discuss statistical methodologies and quality assurance. In addition close working relationships between the offices has allowed the population statistics section of DMB to be involved in the processing steps to both assess the census counts for under-enumeration and to quality assure the final results.

The data provided includes Census counts by sex and single year of age and geography (most detailed available) and is supplied via secure transfer between the offices. The data are handled according to the terms of a Census confidentiality undertaking which is signed by staff within Population Statistics.

Figure 2: Flow of 2001 census data to population statistics



Quality Assurance undertaken by data supplier

The Census processing project aimed to create, as a final result, a database that at person level reflected the most accurate estimate of the Northern Ireland population possible. This was achieved by firstly scanning the tick-box and hand-written information which the public provide on Census forms, and secondly matching the results of a Census Coverage Survey (designed to measure how the census did in counting households and people by interviewing a cross-section of the population) with the results from the 2001 Census to highlight under enumeration. Under

enumeration was assessed and corrected for by imputing additional individuals under the ONC process.

Statistical staff within Census Office ran detailed validation checks as part of the ONC and subjected the Census results to detailed quality assurance checks and data validation exercises at all stages of data processing⁹.

Population Statistics Quality Assurance

It is important to note that the reported 2001 Census figures were derived from enumerated people plus an estimate of additional people to account for Census under-enumeration. As such, overall Census estimates are subject to a level of record and item imputation.

Given the high profile nature of the Census, and the associated detailed quality assurance measures that are inherent in the production of Census outputs (which involved statisticians within Population Statistics), the Census estimates require minimal QA once delivered to DMB. However, data received from the Census is subject to some verification against more up to date available administrative sources for the purposes of i) validating (to a degree) the imputation methodologies and ii) adjusting counts to account for the time difference between Census Day (29th April) and the reference data for mid-year population estimates (30th June).

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> • Census data provide the widest possible coverage of the population and are subject to a range of rigorous and robust quality assurance procedures. • They represent the best estimate of the entire population of Northern Ireland on Census Day (29 April 2001). • Census data are available down to small geographical areas. 	<ul style="list-style-type: none"> • The Census is subject to sampling error through the use of the Census Coverage Survey to adjust for Census under-enumeration. • Coverage in the 2001 Census was estimated to be 95.2% of persons usually resident in Northern Ireland. However, adjustments were made to account for under-enumeration based on the results of a follow up coverage survey. • There are a number of statistical

⁹ Further details of this process are available at <http://www.nisra.gov.uk/archive/census/2001/evaluation/data-validation.pdf>.

	<p>techniques applied to raw Census data to impute missing persons and information. While the imputation methodologies are accepted as being fit-for-purpose, noise exists in the data at the detailed level.</p> <ul style="list-style-type: none">• Pre and post tabular disclosure control techniques are applied to Census data before it is released. This introduces further noise to the data which can have an effect at the detailed level.
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While there are some weaknesses with census data in terms of noise levels and the data being adjusted for under-enumeration and imputation of missing variables, the Census is regarded as the best estimate of the population of Northern Ireland. Its use as a base for population statistics is regarded as fit-for-purpose since the noise in the data has minimal impact at the aggregate level for which data are required for population estimates.

DS02. 2011 Census (Population Data)

Data Supplier: NISRA Census Office

Supplier info: Census Office is a branch within the Northern Ireland Statistics and research Agency (NISRA) and is responsible for undertaking the Census of Population and Housing in Northern Ireland. The 2001 Census in Northern Ireland was conducted on 27 March 2011, in line with arrangements across the rest of the United Kingdom.

Data type (counts or unit records) Counts

Data Content: Census population by sex and single year of age (and geography)

Supply Schedule: One off delivery

Use of Data: Contribution:
SP01: Population and migration estimates, Northern Ireland.
SP02: Estimates of the population aged 85 and over, Northern Ireland.
SP03: Population estimates for Small Areas

Data Source Information

As mentioned for DS01, the Census is widely acknowledged as playing a fundamental and unique role in the provision of comprehensive and robust population statistics including population estimates.

The 2011 Census in Northern Ireland was conducted on 27 March 2011, in line with arrangements across the rest of the United Kingdom. Contrary to the 2001 Census collection methodology (i.e. hand delivery of forms and post-back), paper questionnaires were issued by post to every known domestic address. The public were given the option to complete the paper form and return it by post, or to use an identification code provided on the paper questionnaire to make a Census return online.

The data collection operation covered a wide range of activities in addition to delivering the questionnaires and receiving the completed returns. However, as with the 2001 Census, a great deal of focus was given to the data collection activities. The enumeration was conducted in a way that was designed to achieve the most complete coverage with efficient use of resources, while maintaining the public's acceptance and confidence in the importance and security of the Census. More detail on the data collection operation is available in chapter 4 of the [2011 Census General Report](#).

The Census is subject to a number of potential sources of statistical error, despite the fact that it was designed to be a full enumeration of the whole population and thus, in theory, free from sampling error which is usually the main source of error in sample surveys. The Census is actually subject to sampling error through the use of the Census Coverage Survey to adjust for Census under-enumeration. The effect of this sampling error on the Census Day population estimate has been calculated as equivalent to a 95 per cent confidence interval about the population estimate (1,810,900) of +/- 11,000, or roughly 0.6 per cent of the estimated population.

Further information on the 2011 Census methodology, including details of the collection process, information/quality assurance procedures and accuracy assessments is available in the 2011 Census [Methodology Overview](#) paper.

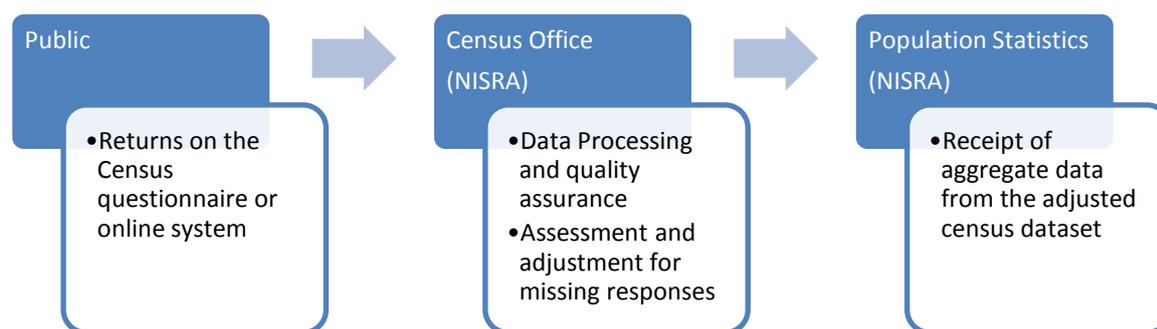
Data supply and communication

Population data supplied by Census Office is used primarily by Population Statistics for the purposes of developing population estimates. The most up to date census data are fundamental to the development of estimates as they provide a baseline from which estimates can be calculated.

Statisticians within Population Statistics are located in close proximity to the Census operational and statistical processing teams, therefore allowing for frequent informal contact to discuss statistical methodologies and quality assurance. In addition close working relationships between the offices has allowed the population statistics section of DMB to be involved in the processing steps to both assess the census counts for under-enumeration and to quality assure the final results.

The data provided includes Census counts by sex and single year of age and geography (most detailed available) and is supplied via secure transfer between the offices. The data are handled according to the terms of a Data Sharing Agreement and staff within Population Statistics sign a Census confidentiality undertaking.

Figure 3: Flow of 2011 census data to population statistics



Quality Assurance undertaken by data supplier

From the outset, NISRA recognised the importance of considering the overall Census design along with the key operational aspects from a quality perspective (for example, address register development, field work, assistance to the general public, publicity and advertising, data capture and processing).

The purpose of the Quality Assurance (QA) work undertaken by Census Office was to ensure that the outputs released from the 2011 Census in Northern Ireland were of a high quality, fit for purpose and met the needs of users. As such, quality management, control and assurance were integral throughout the 2011 Census operation. An important element of this work was to assess the extent to which Census estimates varied from those derived from alternative sources, ensuring that any differences observed were understood, plausible and could be explained to users.

Census Office undertook several important quality control measures, which were central to all aspects of the 2011 Census design and methodology. Full details of the QA approach for the 2011 Census is available in the [2011 Quality Assurance Report](#).

Population Statistics Quality Assurance

It is important to note that the reported 2011 Census figures were derived from enumerated people plus an estimate of additional people to account for Census [under-enumeration](#). The estimation of under-enumeration in the 2011 Census involved statisticians from Population Statistics in the lead on identifying the characteristics of non-responders. As such, overall Census estimates were already subject to a level quality assurance and validation by Population Statistics personnel.

Given the high profile nature of the Census, and the associated detailed quality assurance measures that are inherent in the production of Census outputs (which

also involved statisticians within DMB), the Census estimates require minimal QA once delivered to Population Statistics. However, data received from the Census is subject to some verification against more up to date available administrative sources for the purposes of i) validating (to a degree) the imputation methodologies and ii) adjusting counts to account for the time difference between Census Day (27th March) and the reference data for mid-year population estimates (30th June).

By way of example, the 2011 mid-year population estimates were created from the 2011 Census with small adjustments made covering the time difference March and June. In addition, following analysis of administrative data and consideration of Census 2011 imputation rates, a small adjustment (-2%) was made to estimates of those aged 16 and 17 in 2011, whilst maintaining the size of the total population. More detail is described on page one of the NISRA population estimates [Methodology Report](#).

In addition, in line with the [Population Statistics Revision Policy](#), updates are made to population statistics following a new Census. These updates take the form of:

- deriving a new population base, and
- revising the annual population estimates rolled forward from the previous Census as required.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> • Census data provide the widest possible coverage of the population and are subject to a range of rigorous and robust quality assurance procedures. • They represent the best estimate of the entire population of Northern Ireland on Census Day (27 March 2011). • Census data are available down to small geographical areas. 	<ul style="list-style-type: none"> • The Census is actually subject to sampling error through the use of the Census Coverage Survey to adjust for Census under-enumeration • Coverage in the 2011 Census was estimated to be 92% of persons usually resident in Northern Ireland. However, adjustments were made to account for under-enumeration based on the results of a follow up coverage survey. • There are a number of statistical

	<p>techniques applied to raw Census data to impute missing persons and information. While the imputation methodologies are accepted as being fit-for-purpose, noise exists in the data at the detailed level.</p> <ul style="list-style-type: none">• Pre tabular disclosure control techniques are applied to Census data before it is released. This introduces further noise to the data which can have an effect at the detailed level.
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While there are some weaknesses with census data in terms of noise levels and the data being adjusted for under-enumeration and imputation of missing variables, the Census is regarded as the best estimate of the population of Northern Ireland. Its use as a base for population statistics is regarded as fit-for-purpose since the noise in the data has minimal impact at the aggregate level for which data are required for population estimates.

DS03. General Register Office (GRO) Registers of Births, Deaths, Marriages, Civil Partnerships and Adoptions

Data Supplier: NISRA DMB Vital Statistics

Supplier info: The Vital Statistics Team functions within DMB NISRA to provide statistics on vital events registered by the General Register Office (GRO) for Northern Ireland; these include registrations for births, marriages, divorces and deaths.

Data type (counts or unit records) Unit records

Data Content: Birth and Death registration records data by sex, geography and mother's country of residence

Supply Schedule: Annually in March – for population estimates
Biennially in July/August – for population projections

Use of Data: Contribution:
SP01: Population and migration estimates, Northern Ireland.
SP02: Estimates of the population aged 85 and over, Northern Ireland.
SP03: Population estimates for Small Areas
SP04: Population projections for Northern Ireland.
SP05: Population projections for areas within Northern Ireland.

Data Source Information

It is a legal requirement for individuals to register all births and deaths which occur in Northern Ireland and this is done through the General Register Office (GRO). Information is recorded at each birth and death and some of the information will appear in the birth and death registers while some of the information is not recorded in the register (e.g. Population Statistics Act information).

The Registrar General is required to publish available statistical information on the number and condition of the population. As such, the Vital Statistics team within

DMB NISRA produces data on births, deaths, marriages, civil partnerships and adoptions from civil registration events which are registered with the General Register Office (GRO). Data are produced on a daily, weekly, monthly, quarterly and annual basis depending on user requirements.

A [process map](#) detailing the data collection process is available on the Vital Statistics website.

The Vital Statistics team has published Quality Assessments of the births and deaths data that they hold. The purpose of the assessment papers is to inform users about the quality of Birth and Death Statistics in Northern Ireland and associated outputs. The documents provide a range of information that describes the quality of the data and details any points that should be noted when using the outputs. They are available at <http://www.nisra.gov.uk/demography/default.asp2.htm>. In addition, the data produced by Vital Statistics is subject to a [revisions and errors policy](#).

Data supply and communication

Data supplied by Vital Statistics is used by Population Statistics for the purposes of developing population estimates and projections. Births and Deaths data are fundamental to the development of estimates and projections as they provide key information relating to the natural change in the population of Northern Ireland. These data are also important to analyze trends and make assumptions as to the continuing fertility and mortality rates to be applied within population projections.

Vital Statistics and Population Statistics producers all work within the same office as part of DMB. Therefore frequent informal discussions take place to understand/quality assure the data and to specify and arrange secure delivery of relevant extracts.

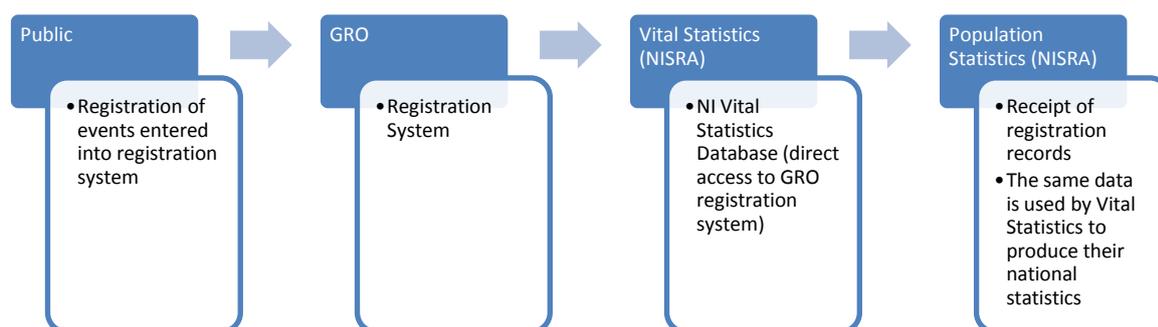
The data provided includes birth and death counts by gender, geography and mother's country of residence. Data are supplied to two different schedules for the products they are required for, namely:

- Annually in March - To contribute to the development of population estimates
- Biennially in July/August – To contribute to the development of population projections

Both deliveries are achieved via secure transfer from Vital Statistics to the Population Statistics team (both within DMB) and are stored in a restricted secure location.

The Vital Statistics team have arrangements in place to protect the security of the data they hold, all of which extend to the Population Statistics team. There is a guarantee that no statistics will be published that are likely to identify an individual unless specifically agreed with them, while at the same time obtaining maximum value from the data they hold for statistical purposes by extending access to bona-fide and authorised third parties. Further information about data access and confidentiality is available in the [Data Access and Confidentiality Policy for Vital Statistics](#).

Figure 4: Flow of births/deaths data to population statistics



Quality Assurance undertaken by data supplier

Statistics which are produced from vital events registered in Northern Ireland are National Statistics¹⁰. As such they are of a high quality and should also have complete population coverage as it is a legal requirement to register any of these events that occur in Northern Ireland. The same data that is used to produce these National Statistics are utilised by population statistics to develop population estimates and projections.

Data on vital events is normally provided to a District Registrar in a District Registration Office by one or more informants, such as the parents of a baby or a close relative of the deceased. The information is entered on to an electronic system which has many built-in checks and, if an inaccurate or invalid value is entered or a particular field is left blank, a warning message will be given and the registration cannot be completed until the relevant error is fixed.

Vital Statistics statisticians liaise directly with the administrative officials who enter the data to stress the quality of accurate data and to inquire into the accuracy of individual records. They also make quality assurance checks using trend analysis, bounds checking, internal within (and across) record consistency and also visual

¹⁰ An [assessment](#) of Northern Ireland Population, Migration and Vital Event statistics was undertaken by the UK Statistics Authority in July 2011. A [letter of designation](#) was issued in April 2012.

analysis of data to assess data quality, liaising with staff in GRO over any anomalies found in the data. A new registration system has been developed in conjunction with the Vital Statistics statisticians and now includes many of the validation checks that were previously done manually. This new system came into effect on 23/2/16.

More detail about the specific quality assurance checks undertaken by the data provider is available in the [Northern Ireland Quality Assurance of Vital Statistics Data](#) report.

Population Statistics Quality Assurance

Given the close working between the Vital Statistics and Population Statistics teams within DMB, the quality assurance measures undertaken by Vital Statistics are considered adequate for the purposes the data are used for by the Population Statistics team. Furthermore, bespoke data extraction steps for population purposes can be undertaken by Vital Statistics.

For example, Population Statistics request that individual records are extracted based on the date of occurrence, not registration. Births to mothers who are resident outside Northern Ireland should be excluded, as there are a significant number of mothers from outside Northern Ireland (mostly resident in the Republic of Ireland) who give birth in Northern Ireland every year. For deaths, it is assumed that the small number of non-resident deaths in Northern Ireland is compensated by deaths of Northern Ireland residents abroad.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> • Information supplied at birth / death registration is generally believed to be correct since willfully supplying false information may render the informant liable to prosecution for perjury. • Validation checks are built in to the system upon entering the information, which greatly reduces the risk of errors when registering events. A new registration system came into effect on 23/2/16 and additional validation 	<ul style="list-style-type: none"> • Births to non-resident mothers are not included, as evidence from Great Britain and the Republic of Ireland suggests that there is an imbalance between the number of non-Northern Irish mothers giving birth in Northern Ireland on one side, and Northern Ireland mothers giving birth outside Northern Ireland on the other. • There are small numbers of non-resident deaths in registered in

<p>checks were incorporated.</p> <ul style="list-style-type: none"> • The data source is used to produce National Statistics relating to Vital Events. The same data are used for population estimates and projections. • Unit record data are available, enabling analysis at the small area level. 	<p>Northern Ireland but these are compensated by deaths of Northern Ireland residents abroad.</p>
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These data are used to produce National Statistics. Births and deaths data from the GRO are seen to be of high quality due to the legal requirement for such information to be registered accurately. Any weaknesses with the data are negligible when used for the development of population estimates and projections.

DS04. Medical Card Register (NHAIS)

Data Supplier: Business Services Organisation (BSO) Information and Registration Unit (IRU).

Supplier info: The Business Services Organisation provides a broad range of regional business support functions and specialist professional services to the health and social care sector in Northern Ireland. The IRU, among other areas, is responsible for:

- the registration and transfer of patients onto and between GP Practices within Northern Ireland and the rest of the UK,
 - the transfer of medical records between GP Practices within Northern Ireland and the rest of UK, and
 - the archiving of Medical Records of patients no longer registered with a GP Practice in Northern Ireland.
-

Data type (counts or unit records) Counts and unit records

Data Content:

A. Record level list of all persons on the Medical Card Register (whether living, dead or gone away).

B. Control total counts of additions/exits from the medical card register. These include the number of persons by quarter that have come from England, Wales, Scotland, Isle of Man, Abroad, or Enlisted and Forces Dependents.

Supply Schedule:

A. Data are supplied quarterly (by financial year) and, assuming a three month lag with registrations, relates to the previous three months' data:

- Q1 Apr-Jun (relating to Jan-Mar): available mid-Sep
- Q2 Jul-Sept (relating to Apr-Jun): available mid-Dec
- Q3 Oct-Dec (relating to Jul-Sep): available mid-Mar
- Q4:Jan-Mar (relating to Oct-Dec): available mid-Jun

B. Quarterly (as for A but received one month earlier).

Use of Data:Contribution:

SP01: Population and migration estimates, Northern Ireland.

SP02: Estimates of the population aged 85 and over, Northern Ireland.

SP03: Population estimates for Small Areas

SP04: Population projections for Northern Ireland.

SP05: Population projections for areas within Northern Ireland.

QA:

SP01: Population and migration estimates, Northern Ireland.

SP02: Estimates of the population aged 85 and over, Northern Ireland.

SP03: Population estimates for Small Areas.

Data Source Information

The Business Services Organisation (BSO) was set up in April 2009 to provide a range of business support and specialist professional services to other health and social care bodies. These services include procurement, technology support, human resources, legal services, family practitioner services, counter fraud and internal audit. Recently enacted legislation also permits the BSO to provide services beyond our Health and Social Care remit.

Medical Card Register data are taken from the National Health Authority Information (NHAIS) registration system which links to all GP practices in Northern Ireland and is a register of all persons currently or previously registered for primary care health services in Northern Ireland. Registrations are collected from GP systems through dedicated links and/or by contacting BSO directly. The registrations data are primarily collected from NHAIS to calculate the Global Sum payments¹¹ each quarter, but is becoming more frequently used outside of BSO for the purposes of academic and social research.

Compared with the NI population estimates, the Medical Card Register has a list inflation of approximately five per cent. This can be due to a number of factors including, but not limited to:

¹¹ The Global Sum Payment is the payment to GP practices for services provided to their registered patients.

- people leaving Northern Ireland and not telling their GP,
- cross border workers living in the Republic of Ireland and receiving NHS treatment if they work in Northern Ireland,
- people from Great Britain registering as dental only and having a dentist in Northern Ireland,
- if a death occurs outside Northern Ireland and the GP does not know this, the person may never be removed (BSO will not be informed by GRO as the death is outside of their jurisdiction), and
- people living in the Republic of Ireland may register using a Northern Ireland address, even if not entitled (a Counter Fraud unit within BSO are working on reducing this).

The BSO Information and Registration Unit produces Official Statistics as part of its function. As such, NISRA statisticians within BSO adhere to the Code of Practice for Official Statistics. Official Statistics published by BSO are based on several sources of administrative data which are listed within their [Statement of Administrative sources](#). This document provides a summary of the arrangements for provision of access to the data and auditing the quality of it, along with procedures for handling changes, discontinuities and ensuring security of the statistical processes which use the data.

Data supply and communication

Statisticians within Population Statistics have direct contact with NISRA statisticians in DoF and BSO regarding the specification and supply of Medical Card Register data. The data provided is done so quarterly under the terms of a Service Level Agreement and includes the following:

- Unit record data - A record level list of all persons on the Medical Card Register (whether living, dead or gone away).
- Counts data - Control total counts of additions/exits from the medical card register. These include the number of persons by quarter that have come from England, Wales, Scotland, Isle of Man, Abroad, or Enlisted and Forces Dependents.

Unit record Data

Unit record level data from the Medical Card Register is received from BSO by DoF statisticians working in NISRA. The data are transferred via secure file transfer

protocol (sftp) or physical collection, and is encrypted and password protected before delivery. Once received, DoF statisticians in NISRA geo-reference the unit records and subsequently send the data on to Population Statistics where it is converted into two parts:

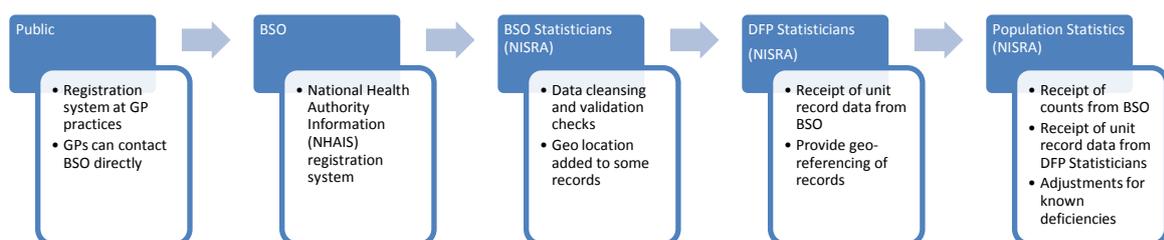
- **Flows data** – information on movers, arrivers and leavers to Northern Ireland.
- **Stock data** – information on the numbers of people by age/sex/area.

The **flows data are** primarily used by Population Statistics for the purposes of assessing the levels of migration within Northern Ireland and, as such, are fundamental to the development of estimates and projections as they provide key information relating to the change in population of Northern Ireland due to migration. These data are also important to analyse trends and make assumptions as to the continuing migration with respect to population projections. The **stock data are** utilised to quality assure population estimates.

Counts data

Counts data from the Medical card register is received directly by Population Statistics in the form of emails from BSO. This information includes control totals for migration flows to/from Great Britain and the rest of the world. As such, it is used to calibrate the migration levels in the development of estimates and projections.

Figure 5: Flow of medical card register data to population statistics



Quality Assurance undertaken by data supplier

A large data cleansing exercise was undertaken during the time NHAIS was brought about in 2004-2006, but at the moment the BSO do not currently have a data quality team. As mentioned, a Counter Fraud Unit within BSO look into fraudulent registrations and claims, and a few projects have been conducted over the years to

update the address quality on the NHAIS system. However, the majority of data cleansing happens outside the NHAIS system.

BSO aims to continually improve how it delivers high quality business services to health and social care. With this in mind they are undergoing a 10 year strategy called Quality 2020 (see [the Quality 2020 document](#)). Further information on the BSO is available on the [BSO website](#).

Prior to sending, the data are cleaned at the end of each quarter by BSO using, for example, the following checks:

- checking countries of origin/destination are complete and the correct codes have been assigned,
- ensuring dates are in the correct format,
- ensuring that information has been collected for all records, and
- checking that reasons for movements are standardised across the records.

Population Statistics Quality Assurance

Once the data are delivered, statisticians within Population Statistics run a number of data consistency and validation checks, including (but not limited to):

- identification and removal of duplicated records,
- identification and imputation of missing data,
- clean up of geographic information (e.g. if Small Area data are missing, postcode level data are used),
- checks for conflicting record entries (e.g. travelling to/from two different/separate locations)

Any issues found are communicated with the data supplier and decisions as to any amendments/adjustments which are required are agreed between the organisations before they are made.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> • The medical card register is a comprehensive source of 	<ul style="list-style-type: none"> • It is recognised that the Medical Card Register is deficient in recording young

<p>information that can be used to estimate migration within and to/from Northern Ireland.</p> <ul style="list-style-type: none"> • Unit record data are available, enabling analysis at the small area level. 	<p>adult males. However, within population statistics, the age distribution of young adult males is adjusted to be similar to the young adult female age distribution.</p> <ul style="list-style-type: none"> • The Medical Card Register is subject to list inflation of approximately 5%. • Differences exist between active and total health card registrations. For example, the lower use of health services by young males is widely acknowledged making the number of active registrations an overly conservative estimate of the population. • Not all outflows are measured fully by the medical card system. As a result, population statistics scale up deregistrations by an additional 67 per cent (i.e. 3 out of 5 persons who leave Northern Ireland to go abroad de-registered from their family doctor). • It is assumed that there is a lag between the date of arrival in Northern Ireland and the medical card registration. Similarly, it is assumed that there is a lag between leaving Northern Ireland and deregistration. This is taken into account when using the Medical Card Register for migration estimates.
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The medical card register is considered the most comprehensive source of information that can be used to estimate migration within and to/from Northern Ireland. Although there are weaknesses with the data, any deficiencies are known and are adjusted for in the development of migration estimates. For example, GB and International Migration estimates from the Medical Card Register are scaled to agreed figures from ONS and NRS.

DS05. Social Security Agency Benefits Computer Systems

Data Supplier: The Department for Communities (DfC) Analytical Services Unit (ASU)

Supplier info: ASU provides Statistical and Research services to DfC, its executive agencies and public bodies to inform policy, planning and decision making in the areas of social security, child maintenance and pensions, as well as housing, urban regeneration, community development and voluntary activity.

Data type (counts or unit records) Unit records

Data Content: Pensions and benefits data for people aged 60 and over, by gender & customer postcode (among other categories).

Supply Schedule: Annually in January.

Use of Data:

Contribution:

SP01b: Population and migration estimates for areas within Northern Ireland

SP03: Population estimates for Small Areas

Quality Assurance:

SP01a: Population and migration estimates, Northern Ireland.

SP02: Estimates of the population aged 85 and over, Northern Ireland.

Data Source Information

ASU provides Statistical and Research services to DfC, its executive agencies and public bodies to inform policy, planning and decision making in the areas of social security, child maintenance and pensions, as well as housing, urban regeneration, community development and voluntary activity. The data required by Population Statistics relates to the administration and payment of welfare benefits including pensions.

Official Statistics published by DfC are based on several sources of administrative data which are listed within their [Statement of Administrative sources](#). This document provides a summary of the arrangements for provision of access to the data and auditing the quality of it, along with procedures for handling changes, discontinuities and ensuring security of the statistical processes which use the data. In addition, a revisions policy for the data that DfC produce is available at <https://www.communities-ni.gov.uk/publications/analytical-services-revisions-policy>

Data supply and communication

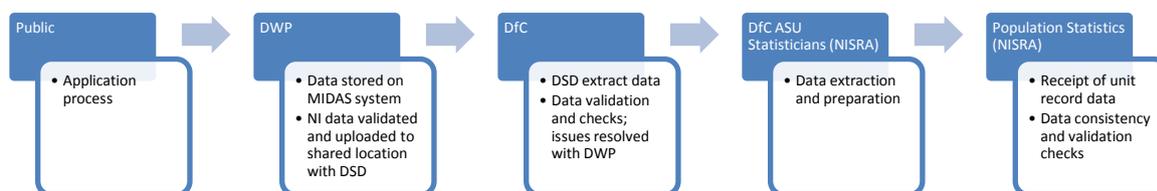
Benefits data supplied by DfC are used by Population Statistics primarily for the purposes of developing population estimates for areas within Northern Ireland and are also used for the QA of estimates at the Northern Ireland level.

Statisticians within Population Statistics have direct contact with NISRA statisticians in DfC ASU regarding the specification and supply of benefits data. The data includes individual records of persons aged 60 and over, on or close to the 30th June each year, in receipt of a number of benefits. In January each year, DfC provides Population Statistics with a download of the required benefits data by placing them in a secure, shared folder between the two offices.

The data supplied is done so under the terms of a Data Sharing Agreement.

DfC ASU has published a [Confidentiality and Access Statement](#), which details the arrangements for maintaining the confidentiality of statistical data. Population Statistics are fully aware of these arrangements and act appropriately to ensure that the confidentiality is maintained. The comprehensive outline within the data sharing agreement reflects this.

Figure 6: Flow of benefits data to population statistics

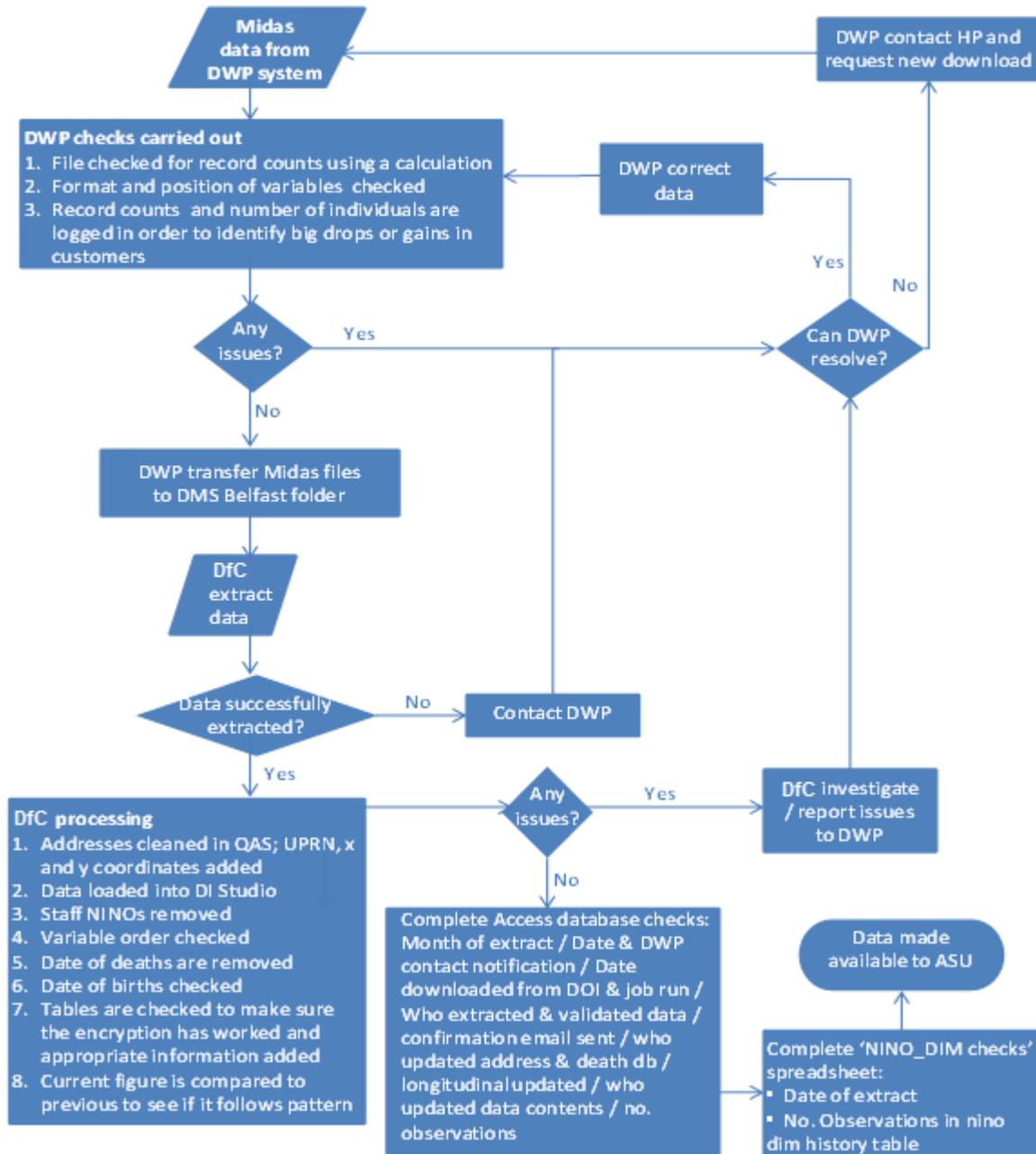


Quality Assurance undertaken by data supplier

A number of checks and validation rules are applied by both DWP and DfC when extracts of benefits data are taken. These include:

- Checking content (variable list and number of records),
- Cleaning addresses,
- Checking birth dates and
- Comparing with previously supplied data to assess trends.

A process map outlining the Quality Procedures undertaken by both DWP and DfC is provided below.



Population Statistics Quality Assurance

Once the data has been received, statisticians within Population Statistics run frequencies to check the data for missing information and figures are compared with those for previous years. Where possible the information is also compared with other data sources.

Processing steps include, but are not limited to:

- Removal of duplicates
- Imputing missing age/sex information (using previous/later years information)
- Correcting/imputing geographic indicators (distributing based on full records)
- Adjusting to account for suspected migration (based on other sources)

The results of the processing steps create a 'cleaned' dataset. This dataset is sent back to the data supplier for safekeeping and for consideration when compiling/QAing the most recent year's data.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none">• The claimants of pension and other age related benefits are an excellent proxy for the population aged 65 and over.• Unit record data are available, enabling analysis at the small area level.	<ul style="list-style-type: none">• Pension data has limitations associated with pension deferment¹².

The claimants of pension and other age related benefits are an excellent proxy for the population aged 65 and over. Any deficiencies with the data are not considered to have a significant impact on population estimates and projections.

¹² State Pension deferral is when individuals put off claiming, or decide to give up getting, their State Pension until a time that suits them.

DS06. Schools Information Management System (SIMS)

Data Supplier: Dept of Education (DE) Statistics and Research Team

Supplier info: Statistics and Research Team provides support to policy areas across DE, including the Education and Training Inspectorate. The team is responsible for the collation, validation and dissemination of data in relation to pupil enrolments, qualifications, attendance, school leaver destinations, school workforce and school meals. It also provides a statistical information service to the wider education sector.

Data type (counts or unit records) Unit records

Data Content: School Census records, by primary, post-primary and special schools

Supply Schedule: Annually in Feb/March.

Use of Data: Contribution:
SP01b: Population and migration estimates for areas within Northern Ireland
SP03: Population estimates for Small Areas

Data Source Information

Information on pupil enrolments is collected annually from schools by DE, as part of what is commonly known as the Schools Census. This data collection exercise is an annual snapshot of pupil and school level data for each pre-school centre, nursery, special, primary, post-primary, hospital and independent school in Northern Ireland. As well as data relating to school enrolments and numbers, information in relation to attendance is collected as part of the overall school return.

The method and level of the Schools Census data collection varies. For primary, special and post-primary schools, data are collected at pupil level via an electronic return, facilitated through computerised school records (i.e. School Information Management System – SIMS). For nursery, hospital, independent, voluntary and

pre-school centres data are collected via a paper return, with data aggregated at centre level. The data are delivered from the Schools in the form of an upload from the SIMS to the “webexchange” system where it is downloaded by DE statisticians and validated. Further information relating to the data collection arrangements is available in DE’s [data collection and validation document](#).

The Department of Education has published a [background quality report](#) on the Northern Ireland School Census. The purpose of the report is to inform users about the quality of School Census statistics in Northern Ireland and associated outputs. The document provides a range of information that describes the quality of the data and details any points that should be noted when using the outputs.

A [statement of administrative sources](#) outlining the administrative data that DE uses in the production of statistics is available on the DE website. This document provides a summary of the arrangements for provision of access to the data and auditing the quality of it, along with procedures for handling changes, discontinuities and ensuring security of the statistical processes which use the data. In addition, a [revisions policy](#) for the data that DE produces is available on the DE website.

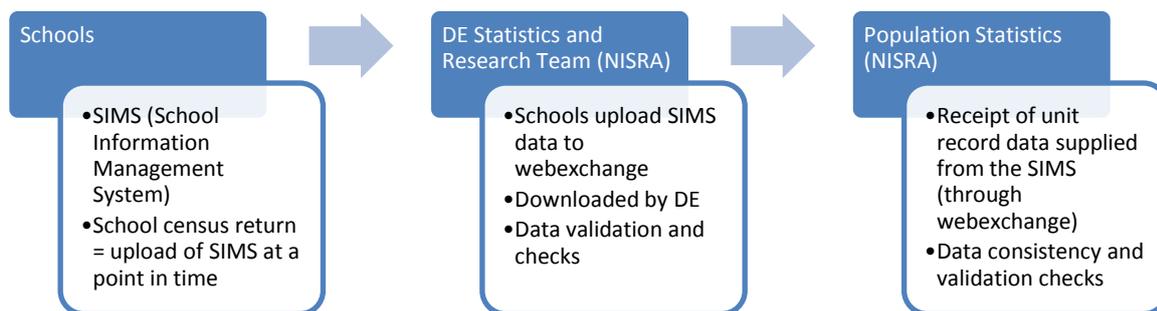
Data supply and communication

School Census data supplied by DE are used by Population Statistics primarily for the purposes of developing population estimates for areas within Northern Ireland.

Statisticians within Population Statistics have direct contact with NISRA statisticians in DE regarding the specification and supply of school census data. The data provided includes individual records of pupils counted in the School Census along with information relating to their schooling stage, gender, date of birth and postcode (both for home address and school address). In February/March each year, DE provides Population Statistics with record level data of these variables for (a) primary schools, (b) post-primary schools and (c) special schools. The data are passed securely from DE to Population Statistics.

The data supplied is done so under the terms of a Confidentiality Agreement.

Figure 7: Flow of schools data to population statistics



Quality Assurance undertaken by data supplier

A number of validations are built into the reporting process in schools, so that schools can verify and correct data before it is submitted. School’s run a report before uploading data that produces a list of errors; they must then check/amend these before they are able to send the return. Once the validation process is complete, the datasets are transferred from schools to DE via upload to a secure network. The data are downloaded from the secure network by DE statisticians and is then is subject to a further set of validation checks, including checking against Education and Library Board information systems for items such as free school meals entitlement.

Population Statistics Quality Assurance

Statisticians within Population Statistics run frequencies to check the data for missing information and figures are compared with those for previous years. Where possible the information is also compared with other data sources.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> • School Census data provides high coverage of the number of children in Northern Ireland. • Unit record data are available, enabling analysis at the small area level. 	<ul style="list-style-type: none"> • School Census figures exclude children who are home educated (estimated to be around 1,000 children, particularly at younger ages); those attending boarding schools outside Northern Ireland but are resident in Northern Ireland; and those registered late with the school.

School Census data provides wide coverage of the number of children in Northern Ireland. Any deficiencies with the data are not considered to have a significant impact on population estimates and projections.

DS07. HESA - Enrolments at Higher Education

Data Supplier: Dept for the Economy (DfE) Analytical Services Unit (ASU)

Supplier info: ASU provides a core statistical and economic service to DfE's Further and Higher Education Divisions. As part of this the branch analysis and disseminates statistics collected by the Higher Education (HE) Statistics Agency that relate to HE institutions in Northern Ireland and NI domiciled HE students throughout the UK.

Data type (counts or unit records) Unit records

Data Content: Higher Education microdata for specific academic years by:

- full date of birth
- gender
- institution of higher education
- identifier for campus (to distinguish UU Jordanstown, Magee and Coleraine campus)
- postcode of term-time accommodation (or country of institution)
- postcode of home accommodation
- full-time or part-time indicator
- country of domicile (NI and non-NI)

Supply Schedule: Annually in February

Use of Data: Contribution:
SP01b: Population and migration estimates for areas within Northern Ireland
SP03: Population estimates for Small Areas

Data Source Information

The [Student record](#) collects individualised data about students active during the reporting period. A wide range of data items are collected, including:

- the student's entry profile and personal characteristics,
- module and course level data,
- funding information, and
- qualifications awarded.

The detail of the different items collected can be found in the [Data Items page](#) located on the HESA website.

Students who are studying overseas or who come to the UK for a period of less than eight consecutive weeks during their programme of study are not included in the Student record but are instead included in the Aggregate Offshore Record. This is a complementary annual return which provides a headcount of students studying through the provider's provision overseas.

All HESA records are collected on the basis of the HESA reporting period. The reporting period is from 01 August year 1 to 31 July year 2. For example, the 2014/15 Student record was collected in respect of the activity which took place between 01 August 2014 and 31 July 2015. Further information is available on the 'coverage of the record' section of the [HESA Website](#).

The Higher Education Microdata that HESA collects is accessible through DfE's ASU for the purposes of reporting on higher education statistics for Northern Ireland. DfE statisticians adhere the Code of Practice for Official Statistics and, as such, the statistics produced by ASU comply with the code. Further information on how DfE ASU complies with the code is available on the DfE website and includes a [Statement of Compliance](#), a [Statistics Revisions Policy](#), and a [Confidentiality Statement](#).

In addition, DfE have published a [Statement of Administrative Sources](#) which provides a summary of the arrangements for provision of access to the data and auditing the quality of it, along with procedures for handling changes, discontinuities and ensuring security of the statistical processes which use the data.

Data supply and communication

Data supplied by DfE is used by Population Statistics to develop population estimates for areas within Northern Ireland. The data are specifically used to address the undercount of students at their term-time address from the Medical Card Register, and conversely, the overcount of students at their home addresses.

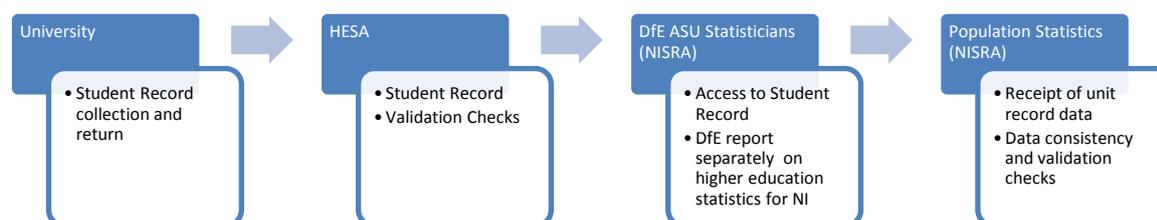
Statisticians within Population Statistics communicate with colleagues within DfE by email and telephone. Discussions are held on an annual basis to review the data provision arrangements with a view to maintaining/updating the data requirements and/or delivery schedule. These discussions also result in an updated Data Access Agreement being drafted and signed on an annual basis.

The data provided includes Higher Education microdata for specific academic years by:

- full date of birth
- gender
- institution of higher education
- identifier for campus (to distinguish UU Jordanstown, Magee and Coleraine campus)
- postcode of term-time accommodation (or country of institution)
- postcode of home accommodation
- full-time or part-time indicator
- country of domicile (NI and non-NI)

In February each year, data relating to the Higher Education microdata are provided by DfE via secure data delivery and is done so in accordance with a data access agreement. In addition, Population Statistics agrees to adhere to the [HESA Services Standard Rounding Methodology](#) when using the data.

Figure 8: Flow of HESA data to population statistics



Quality Assurance undertaken by data supplier

DfE acknowledges its adherence to the UK Statistics Authority Code of Practice for Official Statistics and the National Statistician’s guidance on quality. As such, DfE has published a number of [quality reports](#) which relate to the production of their statistics. As part of this quality information, DfE provides a link to the HESA website which details the quality measures that are inherent in the collection and validation of higher education data. This information is available at https://www.hesa.ac.uk/index.php?option=com_studrec&Itemid=232&mnl=11051.

Population Statistics Quality Assurance

Statisticians within Population Statistics run frequencies to check the data for missing information and figures are compared with those for previous years. Where possible the information is also compared with other data sources. Further comparisons of numbers and totals are made with published figures to ensure accuracy and consistency. Checks are also carried out on the term-time address because, predominantly, first-year students may not know the postcode of their term-time address, or would enter the postcode of the university’s student administration. Such geo-spatial issues are resolved by spreading these records over student areas related to universities.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> HESA data provides information for students who move from the parental home to their place of study, which have not been captured by the medical card register. 	<ul style="list-style-type: none"> Inaccuracies exist with the term-time address since first-year students may not know the postcode of that residence, or they would enter the postcode of the university’s student

<ul style="list-style-type: none">• Unit record data are available, enabling analysis at the small area level.	administration.
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HESA data are used to account for students who move from the parental home to their place of study, which have not been captured by the medical card register. While inaccuracies exist for first year students' term-time address, this is a known issue which is catered for by spreading these records over student areas related to universities. Given this approach, the impact of such inaccuracies is not deemed to be significant when producing population estimates for small geographic areas.

DS08. Child Benefit Database

Data Supplier: HM Revenue and Customs

Supplier info: HM Revenue and Customs the UK's tax and customs authority, responsible for making sure that the money is available to fund the UK's public services and for helping families and individuals with targeted financial support. Included in their remit is the administering of Child Benefit.

Data type (counts or unit records) Counts

Data Content: Child benefit records by geography, sex, age, and year.

Supply Schedule: Annually in May/June

Use of Data: Contribution:
SP01b: Population and migration estimates for areas within Northern Ireland

Data Source Information

Child Benefit is a tax-free payment that you can claim for your child. It is usually paid every four weeks but in some cases can be paid weekly. The payment can be claimed by anyone who qualifies. Child Benefit became a means-tested benefit in January 2013 and since then claimants are liable to a 'High Income Child Benefit charge' if they or their partner has an individual income of more than £50,000 per year. Claimants affected have the option to opt-out of receiving Child Benefit.

Information on child benefit is reported by HM Revenue & Customs (HMRC) from the Child Benefit Computer System. Extracts are taken on 31st August each year and supplemented with additional cases as identified from a further extract on 30th November. This identifies new claims that started between 31st August and 30th November but are in relation to a child born prior to 31st August. Claimants are required to inform HMRC if there are changes to their circumstances in the intervening period.

Most HMRC Official Statistics are based on administrative sources. Quality assurance processes are designed into the operational systems that collect the data and further quality checks are added by analysts using the data for analytical purposes. These checks include manual and automated checking processes. Further information on the data source is available in the [HMRC Statement of Administrative Sources](#). This document provides a summary of the arrangements for provision of access to the data and auditing the quality of it, along with procedures for handling changes, discontinuities and ensuring security of the statistical processes which use the data.

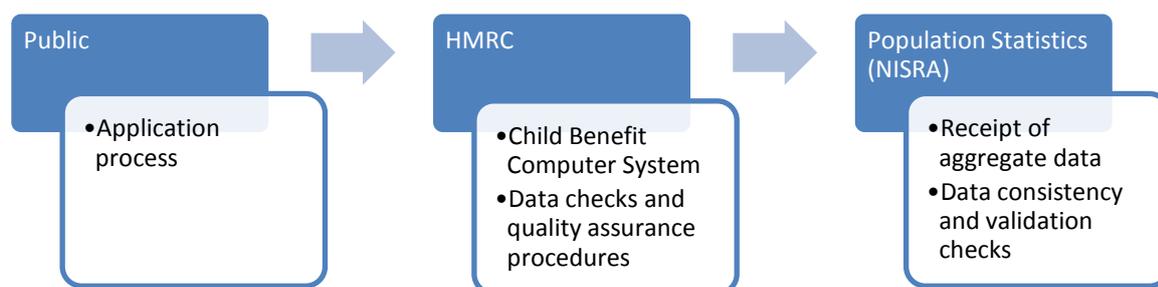
Data supply and communication

Data supplied by HM Revenue and Customs is used by Population Statistics to develop population estimates for areas within Northern Ireland. The data are specifically used in the ratio change methodology for population estimates for areas within Northern Ireland as an indicator of population change for those aged 2-15.

Statisticians within Population Statistics communicate with colleagues within HM Revenue and Customs by email and telephone. Discussions are held on an annual basis to review the data provision arrangements with a view to maintaining/updating the data requirements and/or delivery schedule. If bespoke data delivery is not available (due to resource issues for example) it is possible for Population Statistics to utilise publicly available data on the HMRC website.

The data provided includes child benefit records by geography, sex, age, and year. It is provided annually in May/June by email. The data are based on an extract from the Child Benefit Computer System taken on 31st August each year and supplemented with additional cases as identified from a further extract on 30th November. This identifies new claims that started between 31st August and 30th November but are in relation to a child born prior to 31st August.

Figure 9: Flow of child benefit data to population statistics



Quality Assurance undertaken by data supplier

Child Benefit data are extracted directly from the Child Benefit Computer System (CBCS) and sent securely and electronically to HMRC. Throughout the transfer process accompanying header and footer records ensure that no records go missing during the extraction process.

When the data are loaded into HMRC's computer environment additional checks are put in place to ensure duplicate records are removed. A further suite of quality assurance takes place to ensure consistent numbers of claimants and children are in receipt of Child Benefit compared with previous data.

Finally 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 authority level.

Further information is available in the [Child Benefit Quality Report](#), and in the [Child Benefit Statistics: Geographical Analysis Paper](#).

Population Statistics Quality Assurance

Data are received and rechecked for missing data and duplicates. Figures and totals are also checked with previous/published data to ensure accuracy. Data are then compared with population statistics of children in order to ensure consistency in general trends.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none">• Child Benefit data provides high coverage of the number of children in Northern Ireland.• Opting out due to the 'High Income Child Benefit' accounts for just under 3 per cent of children in Northern Ireland meaning that this data still offers sufficient coverage.	<ul style="list-style-type: none">• Child Benefit became a means-tested benefit in January 2013 and since then claimants are liable to a 'High Income Child Benefit charge' if they or their partner has an individual income of more than £50,000 per year. Claimants affected have the option to opt-out of receiving Child Benefit. In Northern Ireland, 6,000 claimants opted out of claiming for 11,600

	<p>children, compared to 435,100 children for whom Child Benefit was received in August 2014.</p> <ul style="list-style-type: none"> • The database includes information from claimants who previously claimed but then opted out, but will not include children for whom Child Benefit was never claimed (for example, newborns or recently arrived in Northern Ireland prior to January 2013). • Caution has to be taken when using figures for 16-18 year-olds, as receipt of this benefit is dependent upon attendance in full-time education. • Due to lags in registration, counts from Child Benefit are only comparable from age two onwards.
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Since the child benefit data are specifically used in the ratio change methodology for population estimates for areas within Northern Ireland as an indicator of population change for those aged 2-15, the risk of quality impacts on the overall estimates is considered to be low.

DS09. NI Electoral Roll

Data Supplier: Electoral Office for Northern Ireland

Supplier info: The Electoral Office for Northern Ireland is an independent, non-partisan body which assists the Chief Electoral Officer for Northern Ireland in running elections and compiling the electoral register.

Data type (counts or unit records) Counts

Data Content: Data on the electorate by wards and 5 year age bands.

Supply Schedule: Annually: reflecting the list as of the 1st July in a given year.

Use of Data: Quality Assurance:
SP01: Population and migration estimates, Northern Ireland.
SP03: Population estimates for Small Areas

Data Source Information

The Electoral Register is a list of the names and addresses of those who are entitled to vote. The Chief Electoral Officer who maintains the register is required to meet legislative registration objectives relating to the comprehensiveness and accuracy of the register. To achieve these objectives he can request data from other authorities as specified in the Representation of the People (Northern Ireland) Regulations 2008. The list of authorities includes the Business Services Organisation, The Registrar General of Births and Deaths, schools and colleges, district Councils, Northern Ireland Housing Executive and the Department for Work and Pensions. These sources are used to both maintain the register and to verify the information held by the Electoral Office. The information held is name, address, DOB, NINO, nationality and these are verified prior to inclusion on the register.

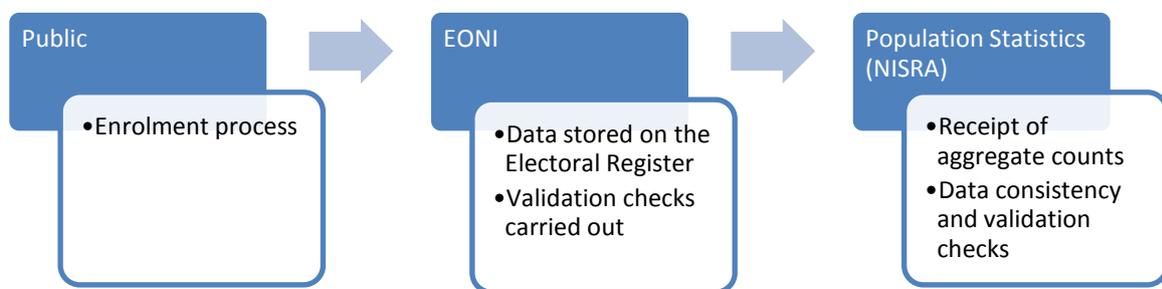
Data supply and communication

Data supplied by EONI is used by Population Statistics to quality assure population estimates. The data are specifically used for the QA of population estimates.

Statisticians within Population Statistics communicate with colleagues within EONI by email and telephone. Discussions are held on an annual basis to review the data provision arrangements with a view to maintaining/updating the data requirements and/or delivery schedule.

The data provided includes information on the electorate (as of 1st July) by wards and 5 year age. It is provided annually by email.

Figure 10: Flow of electoral data to population statistics



Quality Assurance undertaken by data supplier

Electoral data are “data matched” with quarterly BSO data for dissemination of as many ‘invitations to register’ and follow-up letters as possible, optimising the amount of responses. Collaboration with NISRA and their data matching expertise allows for improvements in accuracy and assisted in removing the need for labour-intensive and time-consuming checking processes.

Data matching was also used to verify the information gathered throughout the year by comparing personal information against that held in the databases of the DWP and BSO. As a result the information held on the register matches on surname, date of birth and national insurance number for over 98% of those registered. Further information on EONI data matching processes can be found in chapter 3 of the [Data Matching Report](#).

Further information on quality assurance carried out by the EONI is available in the annual report. Access to these reports is available on the [EONI website](#). The most recent report relates to [the year 2014-15](#) and provides information on enhancements

made to the register (see page 7 for an example of how NISRA statisticians have collaborated with EONI).

Population Statistics Quality Assurance

Electoral data received by NISRA is aggregated into higher geographies and in general, totals are checked for accuracy. The data are then compared with the mid-year population estimates to analyse the similarities/differences in the numbers and trends.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none">• Provides counts of the electorate by electoral wards within Northern Ireland in order to quality assure estimates.	<ul style="list-style-type: none">• The Electoral Roll covers a sub-section of the population (persons aged 18 years and over who have registered to vote).

Although the Electoral Roll covers only a sub-section of the population, its use as a quality assurance dataset for population estimates is deemed fit-for-purpose.

DS10. Armed Forces Data

Data source name: Armed Forces Data

Data Supplier: Defence Analytical Services and Advice (DASA) within the Ministry of Defence (MOD)

Supplier info: The MOD has two principal roles:

- to provide statistical advice and research to underpin decision making, policy development and evaluation within MOD; and
- to contribute to the department's accountability for its activities through the publication of Official Statistics on Defence, and by answering Parliamentary Questions (PQs), Freedom of Information requests (FOIs) and other requests for information.

Data type (counts or unit records) Counts

Data Content: Number (unrounded) of United Kingdom Armed Forces personnel (Regular Forces Trained and Untrained, located in NI) by age, gender, service and Local Government District in which based.

Supply Schedule: Quarterly data (Jan, Apr, Jul, Oct) within 4 weeks of the MOD publication.

Use of Data: Contribution:
SP01: Population and migration estimates, Northern Ireland.
SP03: Population estimates for Small Areas

Data Source Information

Published MOD statistics relating to Armed Forces personnel are primarily counts of the number of Service personnel in the Armed Forces (or 'strengths'), the number of personnel joining (intake) and numbers of personnel leaving (outflow) all of which are

reported relating to the 1st of the month by various categories of interest and at differing levels of detail.

AF personnel statistics were previously published [quarterly](#), but these are now published [monthly](#).

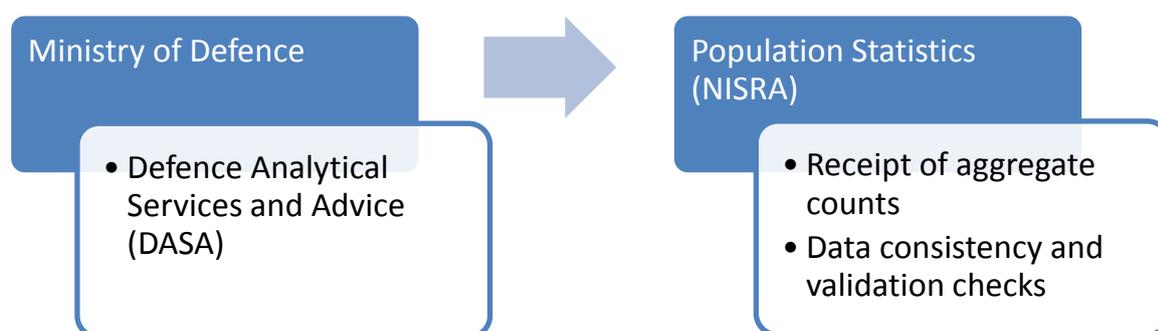
Data supply and communication

Data supplied by the MOD is used by Population Statistics to develop population estimates. The data are specifically used within the cohort component methodology to account for the movement of Her Majesty's Armed Forces.

Statisticians within Population Statistics communicate with colleagues within the MOD by email and telephone. Discussions are held on an annual basis to review the data provision arrangements with a view to maintaining/updating the data requirements and/or delivery schedule.

The data provided includes the number (unrounded) of United Kingdom Armed Forces personnel (Regular Forces Trained and Untrained, located in NI) by age, gender, service (i.e. Land, Air or Sea) and Local Government District in which based. It is provided quarterly by email, within 4 weeks of the relevant MOD publication and is done so under the terms of a Data Confidentiality Agreement.

Figure 11: Flow of armed forces data to population statistics



Quality Assurance undertaken by data supplier

The data goes through a series of automatic validation checks based on previous corrections. As a result of these checks, edits are made to the data to ensure the basic quality of the data and a series of derived fields are also calculated. A “flows” file is then created by comparing the current month's data to the previous month's data by low-level groupings and recording any changes in strengths.

The data are then made available to Defence Statistics' single Service manpower branches (Navy, Army, Air) where they undertake a wide range of validation checks and implement specialist editing rules using their expert knowledge and experience as well as data obtained from other sources within the Department. Regular feedback ensures Defence Statistics staff are kept abreast of any changes or potential issues with the data and statistics, which is fed into the data validation and editing process

'Strength' counts are reported against requirement figures for the Trained UK Full-time Armed Forces, which enables surpluses and deficits to be calculated.

Once the data are confirmed as being accurate the database is queried to produce the range of tables published. These tables undergo several rounds of checking and scrutiny to ensure the outputs are accurate and consistent.

Further information is available in the [Background Quality Report](#).

Population Statistics Quality Assurance

On an annual basis, each year's data are compared with previous data held, and any large differences are investigated. Totals, subtotals, and trends are checked and compared with published data to ensure accuracy.

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
<ul style="list-style-type: none"> • The data goes through a series of automatic validation checks before being made available to Defence Statistics' single Service manpower branches (Navy, Army, Air) where they undertake a wide range of validation checks and implement specialist editing rules using their expert knowledge and experience. • The data undergo several rounds of checking and scrutiny to ensure the outputs are accurate and consistent. 	<ul style="list-style-type: none"> • Due to periods of service, individual members of the armed forces move relatively frequently into and out of the coverage of population estimates. However, the age structure of the armed forces groups remains stable.

These data are considered to be very robust, due to the many stages of QA and validation inherent in their production. In addition, the counts and structure of the armed forces in Northern Ireland is known to remain stable over time and therefore any deficiencies in the detail of the data have a negligible impact on population estimates.

DS11. 2011 Census (Household / Communal Data)

Data Supplier: NISRA Census Office

Supplier info: Census Office is a branch within the Northern Ireland Statistics and research Agency (NISRA) and is responsible for undertaking the Census of Population and Housing in Northern Ireland.

Data type (counts or unit records) Counts

Data Content: Detailed information on household composition by age/sex (not relationships)
Communal population by age, sex and area.

Supply Schedule: One off delivery

Use of Data: Contribution:
SP06: Northern Ireland household projections

Data Source Information

See sections DS01 and DS02 for data source details.

Data supply and communication

Housing and Communal data supplied by Census Office is used by Population Statistics for the purposes of developing household projections. The data are used to project age-sex-area-specific trends in household formation, which are then applied to the population projections to create Household Projections.

Statisticians within Population Statistics are located in close proximity to the Census operational and statistical processing teams, therefore allowing for frequent informal contact to discuss statistical methodologies and quality assurance. In addition close working relationships between the offices has allowed the population statistics section of DMB to be involved in the processing steps to both assess the census counts for under-enumeration and to quality assure the final results.

The data provided includes Census communal counts by sex and single year of age and geography (most detailed available) and detailed information on household composition by age/sex (not relationships). The data are supplied via secure transfer between the offices and is handled according to the terms of a Data Sharing Agreement.

Quality Assurance undertaken by data supplier

See sections DS01 and DS02 for supplier quality assurance measures on census data.

Population Statistics Quality Assurance

See sections DS01 and DS02 for producer quality assurance measures on census data

Strengths/Weaknesses of Data Source

Strengths	Weaknesses
See DS01 and DS02.	See DS01 and DS02.

While there are some weaknesses with census data in terms of noise levels and the data being adjusted for under-enumeration and imputation of missing variables, the Census is regarded as the best estimate of the population of Northern Ireland. Its use as a base for population statistics is regarded as fit-for-purpose since the noise in the data has minimal impact at the aggregate level for which data are required for population estimates.

Annex A: Administrative Data QA Toolkit Results

Introduction

A risk/profile matrix for each data source is included within this annex. The matrices reflect the level of risk of data quality concerns and the public interest profile of the statistics determined by a review undertaken by the NISRA Population Statistics team using the information contained within the UK Statistics Authority's [Administrative Data Quality Assurance Toolkit](#).

The levels selected (i.e. low/medium/high) for each matrix element have been established taking the following into account:

Level of risk of quality concerns

- Information available relating to the quality controls in place for the data source.
- Known strengths and weaknesses of the data.

Public interest profile of the statistics

- The perceived public interest relating to the source's main collection purpose.
- The perceived public interest relating to the impact the source has on statistics produced by NISRA Population Statistics section.
- The importance of the data source within the public domain more generally.

For each data source presented below, the Public Interest profile has been set to a default of "Higher" due to the Population Estimates and Projections contributing to the following:

- Government funding calculations (including local area funding);
- Housing Growth Indicator analysis;
- School Planning;
- Transport modelling;
- Deprivation measurements;
- Migration estimates; and
- Economic indicators (for example, unemployment rates).

Only where a data source is deemed to have a very low proportional impact on the statistics produced, is this rating of “Higher” public interest profile reviewed.

Scores are presented for each data source included within this document and are reflective of the determination made by NISRA Population Statistics at the time of writing. Further information regarding the allocation of matrix scores can be made available by contacting us using the details at the end of this document.

Data Source: 2001 Census (Population Data)

Used for: Population and migration estimates, Northern Ireland (C)

Estimates of the population aged 85 and over, Northern Ireland (C)

Population estimates for Small Areas (C)

Matrix Score: A2 - Enhanced Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. Census data are judged to be low risk in terms of quality concerns due to the rigorous quality procedures that have been applied and documented. As such, a score of A1 or A2 is necessary (shown in red box above).

The score of A2 (enhanced assurance) has been selected given that Census information is an important source of population information and provides a base from which population estimates and projections are calibrated.

Data Source: 2011 Census (Population Data)

Used for: Population and migration estimates, Northern Ireland (C)

Estimates of the population aged 85 and over, Northern Ireland (C)

Population estimates for Small Areas (C)

Matrix Score: **A2 - Enhanced Assurance**

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/ A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. Census data are judged to be low risk in terms of quality concerns due to the rigorous quality procedures that have been applied and documented. As such, a score of A1 or A2 is necessary (shown in red box above).

A score of A2 (enhanced assurance) has been selected given that Census information is an important source of population information and continues to be widely used.

Data Source: General Register Office (GRO) Registers of Births, Deaths, Marriages, Civil Partnerships and Adoptions

Used for: Population and migration estimates, Northern Ireland (C)
 Estimates of the population aged 85 and over, Northern Ireland (C)
 Population estimates for Small Areas (C)
 Population projections for Northern Ireland (C)
 Population projections for areas within Northern Ireland (C)

Matrix Score: A2 - Enhanced Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. Births and deaths data are produced by the same organisation as population statistics (DMB, NISRA) and are known to be collected in a robust manner and subject to appropriate QA processes. Therefore the level of risk of quality concerns is judged to be low. As such, a score of A1 or A2 is necessary (shown in red box above).

A score of A2 (enhanced assurance) has been selected due to the importance of this data to population statistics in terms of applying the cohort component methodology.

Data Source: Medical Card Register (NHAIS)

Used for: Population and migration estimates, Northern Ireland (C/QA)

Estimates of the population aged 85 and over, Northern Ireland (C/QA)

Population estimates for Small Areas (C/QA)

Population projections for Northern Ireland (C)

Population projections for areas within Northern Ireland (C)

Matrix Score: A2 - Enhanced Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. This data source forms the basis for the migration element of population statistics and provides information to quality assure population estimates. There is currently an information gap with regards to this data source in terms of documenting all the processes that the data goes through. There are also known deficiencies and inconsistencies with the data (e.g. list inflation and under-recording of young males), but these are adjusted for before the data are applied to population estimates. This could suggest that a level of risk score of high would be appropriate but given that the deficiencies are known, and appropriate adjustments are made, a risk score of medium has been given. As such, a score of A2 or A3 is necessary (shown in red box above).

A score of A2 (enhanced assurance) has been chosen to reflect that work is ongoing with the supplier on enhancing the data source and any adjustments to it are made in agreement with the supplier.

Data Source: Social Security Agency Benefits Computer Systems

Used for: Population and migration estimates, Northern Ireland (QA)

Population and migration estimates for areas within Northern Ireland (C)

Estimates of the population aged 85 and over, Northern Ireland (QA)

Population estimates for Small Areas (C)

Matrix Score: **A1 - Basic Assurance**

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. Social security benefits and pensions data are deemed to be low

risk for quality concerns since their primary use is to quality assure estimates of the older population at the national level. As such, a score of A1 or A2 is necessary (shown in red box above).

The use of this data source at the smaller area level is for calibrating the applied disaggregation methodology. As such, a score of A1 (basic assurance) is deemed appropriate for this data source.

Data Source: Schools Information Management System (SIMS)

Used for: Population and migration estimates for areas within Northern Ireland (C)

Population estimates for Small Areas (C)

Matrix Score: A1 - Basic Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. School Census Data are of low risk in terms of data quality concerns. As such, a score of A1 or A2 is necessary (shown in red box above).

As detailed earlier in this report, the Department of Education has published a raft of information on the quality of the Northern Ireland School Census data. This,

alongside the main use of the data being for producing estimates of a proportion of the population (i.e. the young), results in a score of A1 (basic assurance) being given.

Data Source: HESA - Enrolments at Higher Education

Used for: Population and migration estimates for areas within Northern Ireland (C)

Population estimates for Small Areas (C)

Matrix Score: A2 - Enhanced Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. There is a low risk of quality concerns for this data, given the quality measures that are inherent in the collection and validation of higher education data. As such, a score of A1 or A2 is necessary (shown in red box above).

While some inaccuracies exist for first year students' term-time address, this is a known issue which is catered for by spreading these records over student areas related to universities. Given its importance in accounting for students moving from home to their place of study, and the impact this information has on the determination of migration flows within Northern Ireland, A2 (enhanced assurance) is deemed suitable.

Data Source: Child Benefit Database

Used for: Population and migration estimates for areas within Northern Ireland (C)

Matrix Score: A1 - Basic Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. There is a low risk of quality concerns for this data, given the tight quality assurance measures that are put in place for their collection. As such, a score of A1 or A2 is necessary (shown in red box above).

Although, there are known deficiencies in the data (e.g. partial coverage of 16 to 18 year olds), the overall risk is still considered to be low, given that the data contributes

to estimates for a subset of the population. Therefore, A1 (basic assurance) is deemed suitable.

Data Source: NI Electoral Roll

Used for: Population and migration estimates, Northern Ireland (QA)

Population estimates for Small Areas (QA)

Matrix Score: **A1 - Basic Assurance**

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. Data from the Northern Ireland Electoral Roll are used for quality assurance purposes only and are therefore a low risk of quality concerns. As such, a score of A1 or A2 is necessary (shown in red box above).

Given that this data source is used for quality assurance only, a score of A1 (basic assurance) has been given.

Data Source: Armed Forces Data

Used for: Population and migration estimates, Northern Ireland (C)

Population estimates for Small Areas (C)

Matrix Score: **A1 - Basic Assurance**

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. There is a low level of risk of quality concerns for Armed Forces data as these are collected and provided under strict quality management procedures. As such, a score of A1 or A2 is necessary (shown in red box above).

Given that the counts and structure of the armed forces in Northern Ireland is known to remain stable over time, any deficiencies in the detail of the data have a negligible

impact on population estimates. As such, a score of A1 (basic assurance) has been given.

Data Source: 2011 Census (Household / Communal Data)

Used for: Northern Ireland Household Projections (C)

Matrix Score: A2 - Enhanced Assurance

Risk/Profile Matrix

Level of risk of quality concerns	Public interest profile		
	Lower	Medium	Higher
Low	Statistics of low quality concern and lower public interest [A1]	Statistics of low quality concern and medium public interest [A1/A2]	Statistics of low quality concern and higher public interest [A1/A2]
Medium	Statistics of medium quality concern and lower public interest [A1/A2]	Statistics of medium quality concern and medium public interest [A2]	Statistics of medium quality concern and higher public interest [A2/A3]
High	Statistics of high quality concern and lower public interest [A1/A2/A3]	Statistics of high quality concern and medium public interest [A3]	Statistics of high quality concern and higher public interest [A3]

Justification for Matrix Score

The Public Interest profile has been set to a default of “Higher” due to the contribution that the Population Estimates and Projections statistics has to a wide range of areas. These data are provided from Census Population Data and are, therefore, judged to be low risk in terms of quality concerns due to the rigorous quality procedures in place and the availability of related documentation. As such, a score of A1 or A2 is necessary (shown in red box above).

A score of A2 (enhanced assurance) has been selected given that Census information is an important source of population information and provides a base from which population estimates and projections are calibrated.

Annex B: Further information

Further information on this Quality Document or on Population and Migration Statistics can be obtained from NISRA Customer Services:

Telephone: 028 9034 8160

Fax: 028 9034 8161

E-mail: census.nisra@finance-ni.gov.uk

Responsible Statistician: Brian Green

NISRA

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