
Mid-Year Small Area Population Estimates for Scotland: Methodology Guide

Published on 27 August 2015

A National Statistics publication for Scotland

National Statistics are produced to high professional standards set out in the National Statistics Code of Practice. They undergo regular quality assurance reviews to ensure that they meet customer needs.



Contents

Introduction	3
1. An Introduction to Small Area Population Estimates	4
2. Methodology for Producing Small Area Population Estimates	7
3. Future Developments	17
4. Contact Us	19
5. Notes on statistical publications	21
6. Related organisations.....	23

Introduction

The National Records of Scotland (NRS), produces detailed annual estimates of the resident population of Scotland as at 30 June each year.

This paper describes in detail the current methodology used by NRS to produce the annual mid-year small area population estimates, with reference to the mid-2014 small area population estimates based on the 2011 Census.

The most authoritative population estimates come from the census, which takes place every 10 years, the most recent being held in March 2011. Population estimates from the census are updated each year with elements of population change in the previous 12 months to produce the annual mid-year estimates. These are considered the official estimates of the Scottish population.

1. An Introduction to Small Area Population Estimates

This section describes the various population estimates produced by National Records of Scotland (NRS), what they are used for and how the population is defined.

Coverage and Availability of Population Estimates

Coverage

The latest Population Estimates can be found on the NRS website. The available estimates are split under three sections:

Mid-Year Population Estimates

The latest annual mid-year population estimates for Scotland and its constituent NHS Board and Council areas. This section also includes historical data back to 1982 and a time series dataset back to 1855.

Special Area Population Estimates

This section contains the Small Area Population Estimates for both 2001 and 2011 Data Zone geographic boundaries and estimates for Settlements and Localities. Population estimates for Scottish Parliamentary Constituencies, UK Parliamentary Constituencies, Nomenclature of Units for Territorial Statistics (NUTS) and Urban/Rural classification categories can also be found here.

Estimates of Special Populations

Estimates of the population split by marital status, country of birth, nationality and estimates of the very old (including centenarians) are available here.

Availability

Population estimates for Scotland, Council and NHS Board areas for a particular mid-year (30 June) normally become available around ten months after the reference date.

These estimates are followed by:

- Small Area Population Estimates (SAPE) at 2011 Data Zone level along with Urban/Rural population, Scottish Parliamentary Constituencies and the UK Parliamentary Constituencies.
- Estimates of Special Populations: Centenarians.
- Estimates of Special Populations: Country of Birth and Nationality (these are published using different methods and are based on the Annual Population Survey/Labour Force Survey).
- Population for Special Areas: the population of Settlements and Localities.

Published estimates split by sex for all ages are rounded to the nearest ten at Council area level to avoid implying spurious accuracy and for ease of aggregation.

Data sets may be viewed on screen in Hyper Text Markup Language (HTML) format or downloaded free of charge in Portable Document Format (PDF), Excel or Comma Separated Value (CSV) format. Other data not published on the web are available on request, for example historic estimates¹.

Footnote

1) Contact details can be found in Section 4 of this publication.

Uses of Small Area Population Estimates

Mid-year small area population estimates currently have a wide variety of uses within central government, as well as being used by local authorities and health bodies, other public bodies, commercial companies and individuals in the private and academic sector.

These uses can be categories into two broad groups:

- Where the absolute numbers are of key importance. This may be in terms of allocating financial resources from central government, planning services or grossing up survey results. Some of the main central government uses are concerned with resource allocation, and
- Where the population figures are compared with other figures such as the numbers of births or deaths in the calculation of rates and ratios.

Definition of the Population

The small area population estimates for mid-2011 onwards are based on the 2011 Census and 2011 Data Zone boundaries and relate to the usually resident population. In simple terms, this means that population estimates are estimates of people where they usually live. The usually resident population does not always coincide with the number of persons to be found in an area at a particular time of the day or year. The daytime populations of cities and the summertime populations of holiday resorts will normally be larger than their usually resident populations.

The population base from the 2011 Census underpins the mid-year small area population estimates resident base and is defined as follows:

The 2011 Census has been conducted on a resident basis. This means the statistics relate to where people usually live, as opposed to where they are on census night. Students and schoolchildren studying away from home are counted as a resident at their term-time address. If a member of the armed forces did not have a permanent or family address at which they are usually resident, they were recorded as usually resident at their base address. As in 1991 and 2001, residents absent from home on census night were required to be included on the census form at their usual/resident address. Wholly absent households were legally required to complete a census form on their return. No information is provided on people present but not usually resident.

For most people, defining where they 'usually' live for the purposes of the census is quite straightforward. However for a minority of people the concept of 'usual residence' is more difficult and it may be difficult to apply a general rule to assign people to where they are 'usually' living. Groups included in this category are:

- Students;
- Armed forces;
- Prisoners;
- Seasonal workers;
- Contract workers and others who frequently move with their job;
- Some people living in communal establishments;

- People sleeping rough;
- Foreign students and au pairs;
- People with frequently used second homes in the UK or abroad;
- People who live and work away from a family home for part of the week;
- Children who regularly move between a mother and father's home;
- Adults who live with a partner for part of the time but maintain a separate residence; and
- Any other groups of people with more than one residence.

The usual residence for students and certain members of the armed forces is specifically referred to in the definition of resident population for the 2011 Census given above. For other groups, guidance was provided either on the census form or in the enumerators' instructions.

In general, the definitions used in the 2011 Census are carried through into the population estimates, mainly because the census is used as a base for the population estimates. However, although efforts are made to ensure comparability of definitions in intercensal data and sources used in the population estimates, sometimes it is not possible to obtain data using the same definition as used in the census.

For example, in the International Passenger Survey (IPS), used to estimate international migration, a person is defined as in-migrant and therefore a resident if they are intending to stay in Scotland for at least 12 months. However in the census, NRS made no specific adjustment for the presence of 6-12 months migrants among the persons counted in the census.

More details on the scale of the difference in population count between the enumeration and main output base in Scotland is given in Paper 9 11(09) of the Population and Migration Statistics Committee (PAMS) meeting held on 21 January 2011 (more details available on the NRS website).

In practice, when compiling a population estimate, a number of data sources have to be used, each with its own definition of usual residence. These difference in definition are becoming increasingly important, and are the subject of current research within the National Records of Scotland (NRS) and the Office for National Statistics (ONS).

2021 Census

On 27 March 2014 the National Records of Scotland announced that it intends to focus on planning for a census in 2021, which will be primarily online, while offering alternative modes of completion where necessary. It also aims to make best use of technology and administrative data in its design, building on the online approach used successfully in the 2011 Census. This follows on from the aims of the Beyond 2011 programme, which closed following the recommendation. More details are available from the 2021 Census section of the NRS website.

Other Population Products

National Population Projections

Office for National Statistics (ONS) produces national population projections for the UK on behalf of its constituent countries. The projections by age and sex are

normally produced every second year and the assumptions on which they are based are agreed in consultation with the statistical offices of England, Scotland, Wales and Northern Ireland. The primary purpose of the projections is to provide an indication of future population if current trends in fertility, mortality and migration continue into the future. They are used as a common framework for national planning in a number of different fields. Further information is available on the Population Projections section of the ONS website.

Sub-National Population Projections

Sub-national population projections for areas within Scotland are produced by National Records of Scotland (NRS) and give an indication of future trends in population by age and sex over the next 25 years. They are trend-based projections, which means assumptions for future levels of births, deaths and migration are based on observed levels over the previous five years. They show what the population will be if recent trends in these continue and also show variant projections based on a range of plausible scenarios e.g. high migration, low fertility. The projections do not take into account any future policy changes that have not yet occurred. They are constrained at a national level by the national projections produced by ONS. Further information and data on sub-national projections is available on the NRS website.

Migration Statistics

National Records of Scotland produce mid-year to mid-year estimates of migration within Scotland between Scotland and England, Wales and Northern Ireland and between Scotland and overseas. More information is available in the Migration section of the NRS website.

Household Estimates and Projections

National Records of Scotland produces estimates and projections of the number of households in Scotland. The household projections are based on the population projections and observed trends in household size. The latest household estimates and household projections can be found in the Households section of the NRS website.

Other outputs

National Records of Scotland also produces a range of other outputs and more information can be found in the Statistics section of the NRS website.

2. Methodology for Producing Small Area Population Estimates

Introduction

Small area population estimates for Scotland and its special areas are made using the cohort component method. This is a standard demographic method and is used by several other national statistics institutions that also have access to high quality data sources for the components of population change.

Mid-year small area population estimates are made for the population resident on 30 June of the reference year. The starting point for the estimates is the resident population on 30 June in the previous year.

This population, by single year of age, is then aged on by one year (for example all four-year-olds become five-year-olds one year later). Those who have been born

during the 12 month period prior to the mid-year point are then added on to the population and all those who have died during the 12 month period are removed according to their age, sex, and their usual place of residence.

The other factor to be taken into account in estimating the small area population is the movement of people in and out of Scotland from the rest of the UK and from overseas (international migration). Internal migration includes both cross-border moves between the four constituent countries of the UK, which affect the total Scottish Population and moves between data zones within Scotland. Movements of people within Scotland, including changes in special populations (such as the Armed Forces and Prison Population) contribute to population change at data zone level.

Migration is the most difficult part of the population estimate process to estimate precisely, as migratory moves are not registered in the UK, either at the national or local level. The best proxy data available on a national consistent basis are used to estimate migration. National Records of Scotland (NRS), with the Office for National Statistics (ONS), is continually researching ways of ensuring and improving the quality of the population estimates. This research includes analysis of possible new data sources that may become available.

Summary of the Cohort Component Method

The cohort component method can be summarised as follows:

Take the previous mid-year resident population and age-on by one year.

Then estimate the population change between 1 July and 30 June by:

- Adding births occurring during the year.
- Removing deaths occurring during the year.
- Allowing for migration to and from the area.

Adjustments are also made for some special population groups that are not captured by the internal or international migration estimates: members of the armed forces and prisoners. These populations have specific age structures, which remain fairly constant over time. Therefore these groups are not aged-on with the rest of the population. Such populations are referred to as 'static populations'.

Quality Assuring the Data

When the Population and Migration Statistics team within NRS receives data for the various components, checks are carried out and comparisons made with previous years' data to gauge consistency and completeness of coverage. The data are then processed electronically to produce the mid-year estimates. Quality assurance takes place at each stage of this process, as well as on the data before being used in the population estimates.

More information on the quality of the data received from NRS Vital Events team can be found on the [NRS website](#).

More information on the NHS Central Registry can also be found on the [NRS website](#).

More information on the quality of patient registers can be found in the research papers in the 2021 Census section of the [NRS website](#).

Procedures During Census Years

The method above describes how mid-year small area population estimates are calculated for years when there is no census. For census years such as 2011, a slightly different approach is necessary. The starting point for the base population is that estimated by the census. In 2011 this was as at 27 March. Rather than ageing on the population by one year, the population only needed to be aged on by the period of time between the census and 30 June (three months in 2011) which is calculated using dates of birth provided on the census. Similarly, the components only needed to account for change during this period rather than a whole year.

In 2011 an adjustment was made to the initial census base population used for the mid-year estimates. This was to account for difference in where armed forces personnel were instructed to complete their census forms and our standard definition of 'usual residence'. The adjustment largely increased numbers in areas with barracks and correspondingly decreased numbers elsewhere in the country compared with the census population. The mid-2011 population assumed no changes in the total number of personnel between 27 March and 30 June.

The Order of Production

Population estimates for Scotland, Council and NHS Board areas are produced first. Estimates for small areas (2011 Data Zones) are produced in the same way and constrained to the Council area estimates (2011 Data Zones were designed to nest into Council areas although small boundary changes since 2011 mean their borders may no longer align precisely). The 2011 Data Zone population estimates are then aggregated to various geographies e.g. urban/ rural populations or feed into the calculation of settlement and locality population estimates on a 'best-fit' basis.

Information on populations calculated by aggregating 2011 Data Zones to various geographies on a 'best-fit' basis can be found in the Evaluation of Non Standard Geography Population Estimates section of the NRS website.

Overview of the method

The following figure shows how the population estimates for 2011 Data Zones are produced. All these processes are carried out by single year of age and sex up to age 89. Those aged 90 and over are processed as a single group.

The first main stage is the ageing on by one year of the previous year's resident population. Before ageing on can be carried out however, all armed forces stationed in Scotland and detained prisoners in the previous year are removed from the resident population.

Following ageing on, the main components of change –birth, deaths and net migration are applied. Both migration to and from England & Wales, Northern Ireland and migration to and from the rest of the world must be taken into account. The Prison and Armed Forces populations for the new reference date are then added and a small adjustment is made for changes in the prison population and moves to and from the armed forces. Working at such small levels of geography, once all the above has been carried this may lead to some data zones having negative population estimates at certain ages. For large negatives (-6 or less) these are set back to the previous years' population, for those between -5 and -1 these are set to zero. The resulting estimates are then constrained to the mid-year population estimates at Council areas. After which various manual adjustments are

made, e.g. student areas, and once again constrained to the mid-year population estimates at Council areas, the final result is the population estimates for Scotland and the 6,976 2011 Data Zones which it consist of by sex and age groups.

Births

Data on births are obtained from the compulsory civil registration system administered by National Records of Scotland and the Local Registration Offices. The Population and Migration Statistics team is supplied with data on live births by sex for the period from 1 July of the previous year to 30 June of the current year. Because registration of a birth may legally take place up to 21 days after the birth, the data received refer to the date of birth rather than the data of registration. Births are added to the population at age zero and are allocated to the area of usual residence of the mother. However, for certain hospitals there is a large number of non-resident births registered and allocated to this 2011 Data Zone. As this would result in an inflated population for this 2011 Data Zone a manual adjustment is used to take account of this. The non-resident births are then randomly allocated to other data zones within the Council area. It is assumed that the number of non-resident births registered in Scotland is the as the number of resident births not registered in Scotland.

$$\begin{array}{r}
\text{The previous year's population} \\
- \\
\text{The previous year's armed forces stationed in Scotland} \\
- \\
\text{The previous year's prison population} \\
\longrightarrow \\
\text{Age-on the population by one year} \\
+ \\
\text{Births} \\
- \\
\text{Deaths} \\
+ \\
\text{Net migration*} \\
+/- \\
\text{Net moves into and out of the Armed Forces**} \\
+ \\
\text{The current year's armed forces stationed in Scotland} \\
+ \\
\text{The current year's prison population} \\
+/- \\
\text{An adjustment for changes in prison population} \\
= \\
\text{Estimated population for current year}
\end{array}$$

*Net migration includes in-migrants and out-migrants from England & Wales, Northern Ireland and overseas, including estimates of asylum seekers. For Council, NHS Board areas and 2011 Data Zones this also includes moves within Scotland.

**Movements to and from the armed forces (including dependents) are processed with net migration

Deaths

As for births, data for deaths are obtained from the compulsory civil registration system. The Population and Migration Statistics team is supplied with data on deaths by age and sex for the period from 1 July of the previous year to 30 June of the current year. Data refer to the date of death rather than the date that the death was registered. Deaths are subtracted from the mid-year population by age and sex at the area of usual residence of the deceased. In order for this to work correctly, the age at death is calculated to be the age that the deceased person would have been on 30 June. (This age calculation is carried out by the NRS Vital Events team.) As with births, an adjustment needs to be made for non-resident deaths occurring in Scotland.

Migration is the most difficult component of population change to estimate, as there is no comprehensive system which registers migration in the UK, either moves to or from the rest of the world, or moves within the UK. Estimates of migration have therefore to be based on survey data and the best proxy data that exist.

Migration estimates are derived from three key sources of data:

- National Health Service Central Register (NHSCR);
- Community Health Index (CHI); and
- International Passenger Survey (IPS).

Anonymised data from the CHI is used to calculate moves between 2011 Data Zones. The IPS provides information on overseas moves into and out of Scotland, and on asylum seekers. These three main sources are described in more detail in the remainder of this section.

Internal migration within the UK

The NHSCR system records the movements of patients between NHS Board areas in the UK. Each time a patient transfers to a new NHS doctor in a different NHS Board area, the NHSCR is notified and then the patient is considered to have made a migrant move. Counts of these re-registrations are used as a proxy indicator for moves within the UK.

The CHI holds records of people registered with an NHS doctor in Scotland. Unlike the NHSCR, the records provided to NRS contain the postcodes of the patient's address, which enables migration to be estimated for Council areas, and for smaller areas. The approach used for estimating Council area migration involves matching CHI patient records extracted from a database which reflects the 'live' CHI system on two occasions one year apart.

Currently, NRS migration data derived from the NHSCR is considered to be the most reliable data available at NHS Board area level, so estimates from the CHI are controlled to ensure that they are consistent with the NHSCR data for moves across NHS Board area boundaries by origin, destination, age and sex.

Due to an improvement in data sources, the accuracy of cross border migration data between Scotland and Northern Ireland was improved in 2009. More information on the nature of the improvements is given in paper (09)20 of the Population and Migration Statistics Committee (PAMS) meeting held on 9 December 2009.

International migration

An international migrant is defined by the United Nations as someone who changes country of residence for 12 months or more. There is no single, all inclusive system in place to measure all movements of people into and out of the UK or to determine if they meet the definition of a long-term migrant. Therefore, it is necessary to use a combination of data from different sources that have different characteristics and attributes in order to produce estimates of international migration. While offering the best data currently available, none of the data sources used is specifically designed to capture information solely on international migration.

National Records of Scotland currently use the Long-Term International Migration (LTIM) estimates (previously referred to as Total International Migration (TIM)) produced by the Office for National Statistics (ONS) for the national estimates of international migration to and from Scotland. These are the best estimates of the moves to and from the UK that meet the definition of long term migration.

Three sources of data are used by ONS to compile the LTIM estimates:

- International Passenger Survey (IPS);
- Home Office; and
- Labour Force Survey (LFS).

The IPS is a continuous sample survey conducted by the Office for National Statistics (ONS) at the principle air, sea and Channel Tunnel routes between the UK and countries outside the British Isles. It is the prime source of migration data to and from the UK, providing estimates of both inflows and outflows, but does not cover all migration types. The Home Office provides data on asylum seekers and their dependants, and the LFS, collects information on where international migrants live based on their recorded work address.

Fundamental changes were introduced to the IPS sample design at the beginning of 2009 to make the survey more focused on identifying migrants. These changes included a re-organisation of the times and frequency of sampling of travellers, sampling at additional locations including Aberdeen and improvements to the IPS weighting methodology.

Given that the IPS collects information on the intentions of potential migrants, which may or may not be realised, an adjustment is made to the IPS data for visitor switchers (people who say they are staying for less than 12 months but in fact stay more) and migrant switchers (people who say they are staying for longer than 12 months but in fact stay for less).

The IPS provides an estimate of international migrants into the UK. The allocation of these migrants to Scotland is based on the LFS. The LFS provides more reliable data on the geographical distribution of immigrants than the destination provided in the IPS as it is based on where migrants actually live rather than on their initial intentions. The outflow of international migrants from Scotland is based directly on the IPS data.

More information on the Long-Term International Migration (LTIM) method can be found in the International Migration Methodology section of the ONS website.

Distribution of International Migrants to Scotland

International migration flows between Scotland and overseas are allocated to each NHS Board area and given an assumed age and sex distribution using proportions recorded on the NHS Central Register (NHSCR). These proportions are applied to the total Long-Term International Migration (LTIM) flows for Scotland.

For inflows the recorded moves from overseas to Scottish NHS Board areas on the NHSCR are used to estimate the proportion of migrants entering each area.

NHSCR records hold limited data on international outflows from NHS Board areas to overseas, as patients do not reliably de-register with their doctor when moving overseas. As a result of this various methods have been used to approximate the geographic distribution of out-migrants since 2001. International outflows are now allocated to NHS Board areas based on:

- International inflows from two years prior to the reference date;
- Outflows to the rest of the UK; and
- The population share of each NHS Board area.

These proportions are averaged but with international inflows weighted twice. The international inflows stand as a proxy for non-British out-migrants (e.g. 'returning home') while the moves to the rest of the UK and population share stand as a proxy for British out-migrants.

Age and sex distributions of international migrants are obtained from the NHSCR in a similar way, and calculated separately for each NHS Board area.

For in-migrants the age-sex distribution of moves from overseas to that NHS Board area on the NHSCR is used. For international out-migrants the age-sex distribution is based on:

- Out-migrants to the rest of the UK leaving from that NHS Board area; and
- In-migrants from overseas two years prior to the reference date, aged on by two years.

At NHS Board area level the weighting of the two distributions depends on the level of in-migration from overseas that takes place in that area. Areas with a high level of in-migration from overseas are assumed to also have out-migrants who reflect the characteristics of this group (e.g. 'returning home').

It is acknowledged that NHSCR flows undercount the number of migratory moves for young men in particular, due to General Practitioner (GP) registration behaviour in different groups. Compared with LTIM estimates by sex there are fewer men in both the in and out-migrant groups recorded on the NHSCR. A sex ratio adjustment has been introduced from 2011 which increases the number of male migrants at young adult ages where there is a large majority of women seen in the NHSCR data.

More information on how the methodology has been changed is available in the papers from the May 2013 meeting of the Population and Migration Statistics Committee (PAMS) on the NRS website.

The distribution of migrants to Council areas and 2011 Data Zone is based on records from the Community Health Index (CHI), which are then made consistent with the NHSCR geographic and age/sex distributions at NHS Board area level.

International in-migrants were allocated using records appearing on the CHI extract where the patient had arrived from overseas. Like NHSCR, the CHI extract holds limited data on people leaving Scotland for overseas and so international out-migrants were allocated using a combination of in-migrants to Scotland from overseas and migrants leaving Scotland for the rest of the UK.

More information on how the CHI extract is used in the mid-year estimates (and subsequently the small area mid-year estimate) process and more detail of the methodology is available in the meetings papers [PAMS \(03\) 10 – Improving the GROS migration data for Council Areas – proposals for 2002](#) and [Supplement to PAMS \(03\)10 – Validation of Proposed Methodology](#) both of which can be found within the PAMS meeting 3 April 2003 which is available on the NRS website.

Work to improve the method used to allocate international out-migrants to NHS Board, Council areas and data zones is continuing and further improvements will be considered for future publications.

Asylum seekers

Both inward and outward asylum seekers are included in the LTIM estimate (outward asylum seekers are people who arrive looking for asylum but for one reason or another don't stay). Most of these asylum seekers are assumed to be supported by the National Asylum Support Service (NASS). This means that they are entering the UK through a Home Office application and are provided with support such as subsistence costs or help with accommodation by NASS while their application is underway.

Currently Glasgow City Council is the only Local Authority within Scotland that accommodates the NASS supported asylum seekers and so it is assumed that the majority of asylum seekers entering Scotland migrate to Glasgow City. The NASS supported asylum seekers are not included in the control totals when distributing migrants around Scotland.

A small number of non-NASS supported asylum seekers may be present elsewhere in Scotland. No specific adjustments are made for this group.

The age/sex distribution of in-migrating asylum seekers is derived from data provided by the Home Office matched with administrative data, while the age/sex distribution of out-migrating asylum seekers is calculated by using the UK level distribution provided by Office for National Statistics.

Research into Improving Migration and Population Statistics

It is increasingly important to have high quality statistics on migration and the population, for policy development and for planning and providing public services. Achieving this aim is challenging in the context of increasingly complex lifestyles and changes in migration to and from the UK.

Since early 2000s, and especially since Eastern European countries joined the European Union (EU) in May 2004, migration has played a larger part in Scotland's demographic change than in previous decades.

It was in this context that the National Statistician set up the Inter-Departmental Task Force on Migration Statistics to make recommendations on timely improvements that could be made to estimates of migration and migrant

populations in the UK, both nationally and at a local level. National Records of Scotland was part of an inter-departmental effort led by the Office for National Statistics (ONS), to improve the estimates of migration and migrant populations in the UK, both nationally and at a local level.

The report of the Inter-Departmental Task Force on Migration Statistics was published on 15 December 2006 by the Office for National Statistics (ONS). National Records of Scotland (NRS) has been involved in a number of workstreams within this programme with the aim of incorporating the research into their outputs. More details can be found in the Migration Statistics Improvements section of the NRS website.

The ONS website has more information on the Migration Statistics Improvement Programme including the programme's final report.

Armed forces

The armed forces population used in the mid-year estimates is based on armed forces personnel recorded in the census, which captures a larger armed forces population than administrative sources.

Census estimates for local areas were adjusted to take into account difference in where armed forces personnel were instructed to complete their census forms and our standard definition of 'usual residence'.

To update the population each year, Station Commanders' Returns are sent to military bases throughout Scotland asking how many armed forces personnel live in barracks, married quarters and private accommodation as at 30 June. These are used to estimate numbers residing in each Council and NHS Board area, which the data zone estimates are controlled up to.

Changes in the armed forces population from the previous year's returns are applied to the previous year's population. The changes are applied rather than using the new Stations Commanders' estimates directly due to the differences between the armed forces captured by the census and administrative estimates.

In mid-2013 the age-sex distribution has been based on data from the 2011 Census.

Information on the armed forces population has in the past been constructed using information from the Defence Analytical Services Agency's (DASA) TSP10 and TSP8 publications which were published on their website. These figures were used together with information on the change in the armed forces from the National Records of Scotland Station Commander's return.

DASA no longer publish TSP8 and NRS are currently in talks to obtain this information directly from DASA. This is expected to be the source of information on the age and sex structure of the armed forces population in future years.

Prisoners

Information on those sentenced to 6 months or more at 30 June at age, sex and establishment is obtained from the Scottish Prisons Service. This group of prisoners are considered to be 'usually resident' in the area where the prison is located.

Prisoners with shorter sentences are assumed to be 'usually resident' at their home address.

At the beginning of the mid-year processing the prison population of the previous year is removed from the previous year's population. After ageing on the general population and adjusting for births, deaths and migration the prison population for the current year is added to the population.

Following this, an adjustment has been introduced from 2011 to account for any changes in the prison population. For example, if the prison population increased by 200 people in the year, the national population would be adjusted downwards by the same amount. This prevents double counting of prisoners and prevents an increase in the national population, which would otherwise result from any increase in the prison population.

3. Future Developments

The methodology used in the mid-year small area population estimates is ever-evolving and as more administrative data sources become available to NRS and as the accuracy of data increases, inevitably, changes to the methodology will result. This section outlines several new sources of data that NRS are pursuing access to and also highlights areas in the current methodology that NRS are working towards improving.

Changes to the Methodology

Migration improvements

We are continuing to review the process for estimating within UK migration. This work includes investigating the use of a direct extract of anonymised records from the NHS Central Register (NHSCR) which may allow more accurate information at Council and small area level. Data from new sources (detailed below) are hoped to help us assess how well student migration is being captured by the NHSCR.

Work to improve the method used to allocate international migrants to NHS Board, Council areas and data zones is also continuing and further improvements will be considered for future publications.

Single Year of Age Up To Age 99

The 2011 Census results were presented at single year of age up to age 99 and then collectively from age 100. Currently National Records of Scotland is considering whether Scottish mid-year estimates methodology can be extended to the same age range. We are not year confident in the quality of available data for this group and developmental work in this area is on-going.

New Sources of Data

In addition to the administrative data provided by various sources both internal and external, National records of Scotland is exploring avenues for sourcing new types of data.

Preparations for the 2021 Census involve data linkage and National Records of Scotland has been utilising this methodology to explore the possible gains from use of a variety of different administrative data sources.

NRS hopes to be able to access data on:

- People who pay council tax and have occupied exemptions, sourced from the 32 Scottish Local Authorities;
- People in Higher Education, sourced from the Higher Education Statistics Authority (HESA); and
- Low level population data on Armed Forces personnel, sourced from the Defence Analytical Services Agency (DASA).

4. Contact Us

This methodology guide is designed to provide the users of statistics with an introduction to the methods employed by the National Records of Scotland (NRS) in the production of mid-year population estimates. NRS have also tried to provide background information on the data sources utilised.

This process is not exhaustive and so NRS have provided this section as a source of further information on UK population statistics.

The Scottish Population

For more information on the population of Scotland please visit the following websites:

[Population Statistics](#) (NRS website):

[Census in Scotland](#) (Scotland's Census website).

Please contact our Statistics Customer Services if you need any further information.

E-mail: statisticscustomerservices@nrscotland.gov.uk

The Northern Ireland Population

Further information on Northern Ireland's population can be found within the population of Northern Ireland and Census in Northern Ireland sections of the Northern Ireland Research Agency (NISRA) website (www.nisra.gov.uk):

[Population of Northern Ireland](#) publications section; and

[Census in Northern Ireland](#)

Or contact them by telephone (028) 9034 8160

Or email census.nisra@dfpni.gov.uk

The England & Wales Population

For more information on the Office for National Statistics (ONS) and the population of England & Wales please visit the following pages on the ONS website (www.ons.gov.uk):

[Population Estimates](#); and

[Census of England & Wales](#).

Or contact them by telephone:

General enquires 0845 601 3034

Census enquiries in England & Wales 01329 444972

Or email:

General enquiries info@ons.gsi.gov.uk

Census enquiries in England & Wales census.customerservices@ons.gsi.gov.uk

The UK Population

Statistics regarding the UK population are compiled by ONS using the statistics produced by NRS and NISRA in conjunction with their own data on England & Wales.

For information on the population of the UK please use the details provided above in regards to England & Wales.

5. Notes on statistical publications

The United Kingdom Statistics Authority (UKSA) has designated these statistics as National Statistics, in line with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics (available on the [UKSA](#) website).

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Information on background and source data

Further details on data source(s), timeframe of data and timeliness, continuity of data, accuracy, etc can be found in the About this Publication document that is published alongside this publication on the NRS website.

National Records of Scotland

We, the National Records of Scotland, are a non-ministerial department of the devolved Scottish Administration. Our aim is to provide relevant and reliable information, analysis and advice that meets the needs of government, business and the people of Scotland. We do this as follows:

- Preserving the past – We look after Scotland’s national archives so that they are available for current and future generations, and we make available important information for family history.
- Recording the present – At our network of local offices, we register births, marriages, civil partnerships, deaths, divorces and adoptions in Scotland.
- Informing the future – We are responsible for the Census of Population in Scotland which we use, with other sources of information, to produce statistics on the population and households.

You can get other detailed statistics that we have produced from the [Statistics](#) section of our website. Scottish Census statistics are available on the [Scotland’s Census](#) website.

We also provide information about [future publications](#) on our website. If you would like us to tell you about future statistical publications, you can register your interest on the Scottish Government [ScotStat website](#).

You can also follow us on twitter [@NatRecordsScot](#)

Revisions and Corrections

We, the National Records of Scotland, also label the any revisions and corrections that have applied to any of our statistics. These revisions or corrections are clearly marked on the webpage of the publication as well on our revisions and corrections page located on the [NRS website](#).

Enquiries and suggestions

Please contact our Statistics Customer Services if you need any further information.

Email: statisticscustomerservices@nrscotland.gov.uk

If you have comments or suggestions that would help us improve our standards of service, please contact:

Kirsty MacLachlan
Senior Statistician
National Records of Scotland
Room 1/2/3
Ladywell House
Ladywell Road
Edinburgh
EH12 7TF

Phone: 0131 314 4242

Email: kirsty.maclachlan@nrscotland.gov.uk

6. Related organisations

Organisation	Contact
<p>The Scottish Government (SG) forms the bulk of the devolved Scottish Administration. The aim of the statistical service in the SG is to provide relevant and reliable statistical information, analysis and advice that meets the needs of government, business and the people of Scotland.</p>	<p>Office of the Chief Statistician Scottish Government 3WR, St Andrews House Edinburgh EH1 3DG</p> <p>Phone: 0131 244 0442</p> <p>Email: statistics.enquiries@scotland.gsi.gov.uk</p> <p>Website: www.scotland.gov.uk/Topics/Statistics</p>
<p>The Office for National Statistics (ONS) is responsible for producing a wide range of economic and social statistics. It also carries out the Census of Population for England and Wales</p>	<p>Customer Contact Centre Office for National Statistics Room 1.101 Government Buildings Cardiff Road Newport NP10 8XG</p> <p>Phone: 0845 601 3034 Minicom: 01633 815044</p> <p>Email: info@statistics.gsi.gov.uk</p> <p>Website: www.ons.gov.uk/</p>
<p>The Northern Ireland Statistics and Research Agency (NISRA) is Northern Ireland's official statistics organisation. The agency is also responsible for registering births, marriages, adoptions and deaths in Northern Ireland, and the Census of Population.</p>	<p>Northern Ireland Statistics and Research Agency McAuley House 2-14 Castle Street Belfast BT1 1SA</p> <p>Phone: 028 9034 8100</p> <p>Email: info.nisra@dfpni.gov.uk</p> <p>Website: www.nisra.gov.uk</p>

© Crown Copyright

You may use or re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. Further is available within the [Copyright & Disclaimer](#) section of the National records of Scotland Website.