

Assessment of compliance with the Code of Practice for Official Statistics

Population Estimates and Projections

(produced by the Office for National Statistics)

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About the UK Statistics Authority

The UK Statistics Authority is an independent body operating at arm's length from government as a non-ministerial department, directly accountable to Parliament. It was established on 1 April 2008 by the *Statistics and Registration Service Act 2007*.

The Authority's overall objective is to promote and safeguard the production and publication of official statistics that serve the public good. It is also required to promote and safeguard the quality and comprehensiveness of official statistics, and good practice in relation to official statistics.

The Statistics Authority has two main functions:

1. oversight of the Office for National Statistics (ONS) – the executive office of the Authority;
2. independent scrutiny (monitoring and assessment) of all official statistics produced in the UK.

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NATIONAL STATISTICS STATUS

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.



All official statistics should comply with all aspects of the *Code of Practice for Official Statistics*. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is a producer's responsibility to maintain compliance with the standards expected of National Statistics, and to improve its statistics on a continuous basis. If a producer becomes concerned about whether its statistics are still meeting the appropriate standards, it should discuss its concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

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Foreword

Few would disagree that population statistics are as central to a national statistical system's infrastructure as roads are to a country's transport system or the national grid is to its power supply, and so need to meet the highest standards of trustworthiness, quality and value. They provide a detailed picture of the size and composition of the country's population, the drivers for change, and – reflecting well-documented assumptions – the way in which it might change in the years ahead. And in general they do so consistently and coherently from the level of the UK down to very small building blocks. Like all infrastructure, population statistics benefit from regular review and improvement.

This suite of assessment reports – covering population estimates and projections produced about all four administrations of the UK – finds much to celebrate. The good examples of joint working between the four bodies producing population statistics across the UK provide the opportunity and the platform to ensure the continuing coherence and comparability of these statistics. This joint working can ensure that any divergence – in definitions, methods or production arrangements – is justifiable and minimised. The producers' engagement with users exploits a range of methods including groups of expert users, mailing lists and, online fora, reflecting the different user needs.

During the Assessments we found evidence that the resources devoted to population statistics across most of the UK are under significant pressure, exemplified by reductions in the frequency and level of detail of some statistics. And ONS's capacity to provide timely methodological and research leadership across the UK may be at risk, with potentially far-reaching adverse consequences.

Resource constraints limit producers' ability to actively harness the wider expertise that exists within the UK and internationally and reduces their ability to address the recommendation from the recent European peer review¹ of the UK's statistics to 'harmonise UK statistics in order to ensure coherence and comparability in the production of official statistics within the UK, over time and among producers of statistics' in relation to population estimates and projections. And the engaged and knowledgeable users who interact with producers have diverse interests that need to be taken into account in developing methods and outputs – placing further demand on resources – and there are more users with whom dialogue is less well established.

We conducted this series of Assessments reflecting existing methods used to produce population statistics. But we recognise that changes are already happening and will intensify over the next decade. The continuing growth in the use of administrative data and the work being done to reduce dependency upon costly traditional decennial censuses, has the potential to radically alter the landscape for population statistics. It will provide new sources with potential to inform the production and assurance of population estimates and projections. And proposed improvements to the legal base for data sharing would enable more value to be derived from data already held by government – this is in itself a powerful stimulus for improved data sharing legislation.

Taking forward actions to meet the specific Requirements in this report will enhance the trustworthiness, quality and value of these statistics, and will earn them the continued right to be labelled as National Statistics. But – because of their position in

¹ <http://ec.europa.eu/eurostat/documents/64157/4372828/2015-UK-report/d44f7d3f-64c1-4450-8a37-bfad8542607>

the UK statistics infrastructure – producers need to be far-sighted to counter the challenges of reducing resources and make the most of the opportunities of administrative data and census replacement to add further value to these statistics. Until then, it is vital that resources are maintained and that the statistics can continue to flourish while the longer term changes take full effect.

Ed Humpherson

Director General for Regulation, UK Statistics Authority

1 Summary of findings

Introduction

1.1 This is one of a series of reports² prepared under the provisions of the *Statistics and Registration Service Act 2007*³. The Act gives the Statistics Authority power to re-assess whether the *Code of Practice for Official Statistics*⁴ continues to be complied with in relation to official statistics already designated as National Statistics. The report covers the following population estimates and projections (population) statistics produced by the Office for National Statistics (ONS) for the UK and its constituent countries and reported in:

- *Annual Mid-year Population Estimates*⁵ (*Mid-year Population Estimates*)
- Super Output Area population estimates and their aggregation into Clinical Commissioning Group population estimates which are included in *Annual Small Area Population Estimates (SAPE)*⁶ (SOA estimates)
- *Estimates of the Very Old (including Centenarians) for England and Wales, United Kingdom*⁷ (*Population Estimates of the Very Old*)
- *Population estimates by marital status and living arrangements*⁸ (*Marital Status Estimates*)
- *National Population Projections*⁹
- *Sub-national Population Projections*¹⁰

1.2 This report forms part of a broader assessment of sets of population statistics across the UK that are produced by the Office for National Statistics (ONS); the Welsh Government; National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA). Assessment reports 310, 311 and 312 examine the population statistics for Wales, Scotland and Northern Ireland respectively.

1.3 The previous assessment of these sets of statistics was included in Assessment report 103¹¹. They are among the UK's most prominent National Statistics and are being re-assessed because they are an important input to national and local planning activity and to a large number of economic and social statistics.

² <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>

³ http://www.opsi.gov.uk/Acts/acts2007/pdf/ukpga_20070018_en.pdf

⁴ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

⁵ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/mid-2014/stb---mid-2014-uk-population-estimates.html>

⁶ <http://www.ons.gov.uk/ons/rel/sape/small-area-population-estimates/index.html>

⁷ <http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2013--england-and-wales--united-kingdom-/index.html>

⁸ <http://www.ons.gov.uk/ons/rel/family-demography/population-estimates-by-marital-status-and-living-arrangements/england-and-wales--2002-to-2014/stb-marital-status-and-liv-ar.html>

⁹ <http://www.ons.gov.uk/ons/rel/npp/national-population-projections/index.html>

¹⁰ <http://www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/index.html>

¹¹ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

- 1.4 This report was prepared by the Authority's Assessment team, and approved by the Regulation Committee on behalf of the Board of the Statistics Authority, based on the advice of the Director General for Regulation.

Decision concerning designation as National Statistics

- 1.5 The Authority judges that the statistics covered by this report are readily accessible, produced according to sound methods and managed impartially and objectively in the public interest, subject to any points for action in this report. The Authority confirms that the population statistics for ONS, which are the subject of this report are designated as National Statistics, subject to ONS implementing the Requirements listed in paragraph 1.11 and reporting them to the Authority by January 2016. The exception is for Requirements 6 and 15 in the case of *Mid-year Population Estimates*, *Sub-national Population Projections* and *Marital Status Estimates*, where the deadline is the next publication of those reports (due in 2016). ONS should however provide sufficient evidence to the Authority ahead of the next publication of each report listed, to demonstrate that the forthcoming publication will fully comply with the Code of Practice. Additionally, for Requirement 9 the deadline is April 2016 to allow time for the review to be completed (which is due by December 2015) and users to be consulted following the outcome of the review.

Summary of strengths and weaknesses

- 1.6 ONS has well-established mechanisms for engaging with a community of known users. These include the Local Insight Reference Panels (LIRPs)¹² and the Central Local Information Partnership (CLIP)¹³. Some users told us that ONS's engagement with them had improved. However, a few users highlighted a need to build on this user engagement and improve communication with the wider user community. The Authority welcomes ONS's plan to include a health user representative on the CLIP user group.
- 1.7 ONS publishes Quality and Methodology Information documents (QMIs) to accompany each of the statistical reports included within this assessment. Alongside the QMIs, additional methodological information is also made available either as downloadable documents or on a webpage. These quality and methodology documents generally contain detailed information about issues such as the strengths and limitations of the statistics, revision history and comparability considerations. However, these methodology documents are not always signposted or communicated to users in the most effective way, or kept up to date.
- 1.8 The production, development and assurance of population statistics and projections by ONS are often carried out jointly with the Welsh Government, NRS and NISRA; this helps to promote coherence and comparability. This is a particular strength of the population statistics. Representatives from the four countries meet as part of the National Population Projection committee to

¹² <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/local-insight-reference-panels/index.html>

¹³ <https://knowledgehub.local.gov.uk/web/clip>

oversee the national projections output. Additionally, the UK Population Theme Advisory Board (UKPTAB)¹⁴, chaired by ONS and including representatives from academia, the Welsh Government, NRS and NISRA, provides advice on the UK-wide work programme on population statistics. However, there are some differences in methods, data sources, and geographical comparability; the four countries generally explain these to users in methodology documents that accompany the statistical outputs. ONS needs to ensure that the differences are justifiable and that relevant documents communicating the differences to users are kept up to date.

- 1.9 ONS's ability to flexibly move resource across the teams to where it is most needed is a benefit for the organisation. However, during the course of the Assessment the team has been told how, due to resources being tight, ONS's tendency is to borrow resource from the Population Statistics Research Unit to bolster the output teams as required. As a result methodological development and evaluation projects have been delayed, and this pattern is likely to continue under the same model. As the lead organisation for producing UK population estimates and projections, ONS supports the other producer organisations - for example by leading work on developing and evaluating methods and by producing some national estimates for Wales. We consider that there is a risk under the existing model that ONS may not be able to meet some of these needs, at least in the short term.

Detailed recommendations

- 1.10 The Assessment team identified some areas where it felt that ONS should improve the production and presentation of population statistics for the UK and its constituent countries. Those which are essential for ONS to address in order to strengthen its compliance with the *Code* and to enable designation as National Statistics are listed – as Requirements – in paragraph 1.11, alongside a short summary of the key findings that led to each Requirement being made. Other recommended changes, which the Assessment team considers would improve the statistics and the service provided to users but which are not formally required for their designation as National Statistics, are listed – as Suggestions – in paragraph 1.12.

Requirements for designation as National Statistics

- 1.11 This paragraph includes those improvements that ONS is required to make in respect of its statistics on population estimates and projections, which this assessment is the subject of, in order to fully comply with the *Code of Practice for Official Statistics*, and to enable designation as National Statistics.

¹⁴ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/national-statistics-centre-for-demography-advisory-board/index.html>

Finding	Requirement	
<p>ONS engages effectively with established users, but does not engage as effectively or consistently with the wider user community. ONS should:</p>	1	<p>Ensure that regular user engagement activities include a wide-array of relevant users and take place across the statistical outputs (para 3.2).</p>
<p>ONS is proposing changes to the methodology used to produce mid-year population estimates and estimates of the very old and a review of the experimental statistics included in <i>SAPÉ</i>, but does not yet have plans for user consultations in place. ONS should:</p>	2	<p>a) Ensure that users are consulted early on, before making changes to <i>Estimates of the Very Old and Mid-year Population Estimates</i> that affect the statistics</p> <p>b) Engage users in the review and evaluation of the experimental statistics included in <i>SAPÉ</i></p> <p>(para 3.4).</p>
<p>ONS does not routinely publish how users' views are being incorporated into its statistical planning; the priorities for individual sets of statistics or how these are set; and progress on priorities or how they are changing. ONS should:</p>	3	<p>Improve published documentation around statistical planning ensuring it:</p> <p>a) Is up to date</p> <p>b) Takes account of user needs</p> <p>c) Is transparent about priority setting and the reasons choices are made</p> <p>d) Reflects the obligation to serve the public good</p> <p>(para 3.5).</p>
<p>ONS is at risk of not being able to undertake important methodological development work due to the need to re-allocate resources to maintain statistical production. ONS should:</p>	4	<p>Review the resources allocated to the production of these statistics to ensure that they are sufficient to meet the standards of the <i>Code of Practice</i> and the obligation within it to serve the public good and publish the outcome of the review</p> <p>(para 3.7).</p>
<p>ONS has not sufficiently identified or explained the assurance arrangements</p>	5	<p>a) Publish an appropriate level of detail to inform users about the data assurance and audit arrangements for all the administrative data sources used in the production of the population estimates and</p>

<p>undertaken for source data or the role of external bodies in inspecting or auditing the data collecting organisations; accordingly it has not communicated this information in an accessible way to users. ONS has also not clearly communicated, or kept up-to-date its <i>Statement of Administrative Sources</i>. ONS should:</p>		<p>projections publications, taking into consideration the Authority's <i>Administrative Data Quality Assurance Toolkit</i></p> <p>b) Update its <i>Statement of Administrative Sources</i> to clearly and accurately list all of the administrative data sources used to produce its population estimates and projections statistics (para 3.14).</p>
<p>ONS does not always provide clear links to the quality and methodology documents that accompany the main statistical reports – which include strengths and limitations – from the statistical reports themselves. ONS should:</p>	<p>6</p>	<p>Clarify for users what quality and methodology documentation is published where, including strengths and limitations information, and clearly signpost these documents from the main statistical report (para 3.18).</p>
<p>ONS has changed the method used to produce the statistics included in <i>Marital Status Estimates</i>, but has not published all of the detailed analysis that it carried out which informed this decision. ONS should:</p>	<p>7</p>	<p>Publish the results of the internal review, including analysis against the 2011 Census and comparisons of different data sources, to help explain the strengths and limitations of the statistics and the impact on their use (para 3.20).</p>
<p>ONS publishes some information about the accuracy of the statistics included in <i>Marital Status Estimates</i> but more could be included to enable users to better understand the</p>	<p>8</p>	<p>Publish its plans for carrying out research, and consulting users, about producing suitable measures of quality – such as confidence intervals – for <i>Marital Status Estimates</i> (para 3.21).</p>

uncertainty surrounding the statistics. ONS should:		
ONS has not yet carried out its planned review of the data sources and methods used to produce SOA estimates and estimates of the very old. ONS should:	9	<ul style="list-style-type: none"> a) Complete, and publish reviews of the methodology used to produce SOA estimates, including a comparison against the 2011 Census data, and estimates of the very old b) Publish its plans for implementing the review recommendations, including improving the statistics and updating the methods documentation as necessary (para 3.23).
The documents comparing methods and data sources across the four countries have not all been updated to reflect changes to methods and data sources. ONS should:	10	<ul style="list-style-type: none"> a) Ensure that the remaining comparison document on the population estimates and projections produced in all countries in the UK is updated and published as planned b) Carry out, and publish, a review of the methodological and comparability differences and based on the uses of the statistics and expert input evaluate if the differences remain justifiable <p>As part of meeting this Requirement ONS should work together with the Welsh Government, NRS and NISRA (para 3.25).</p>
ONS do not publish separate breakdowns for England and Wales in <i>Estimates of the Very Old</i> and <i>Marital Status Estimates</i> . ONS should:	11	Consider the publication of England and Wales statistics separately in <i>Marital Status Estimates</i> and <i>Estimates of the Very Old</i> taking into account user needs, and publish the justification and outcome of this consideration (para 3.29).
ONS's process for deciding how to categorise an error, as a minor or major, and how this links to user need, the promptness with which an error is corrected and how an error is communicated to all users is not clear. ONS should:	12	<ul style="list-style-type: none"> a) Review its correction policy, especially the classification of errors as minor or major b) As a result of this review update the policy as appropriate c) Ensure that all statistical teams are able to apply the policy consistently d) Document internally, and publish, as part of the ONS Correction policy how it will transparently communicate errors promptly to the widest possible range of users <p>(para 3.33).</p>

ONS does not effectively link between publications and to historical datasets when publications are renamed. ONS should:	13	Review and improve, where relevant, signposting between relevant publications and to historical datasets (para 3.35).
The population estimates and projections are not consistently available in an open, non-proprietary format. ONS should:	14	Review, and update where necessary, the formats in which it publishes the data associated with its population estimates and projections statistics in order to balance the needs of users and the government's open data policy (para 3.38).
Some of the statistical reports could be improved to aid user interpretation of the statistics. ONS should:	15	<p>Improve the commentary in all the population estimates and projections statistical reports to aid user interpretation of the statistics by ensuring that it includes:</p> <ul style="list-style-type: none"> a) Contextual information and narrative about what the statistics show b) Explanations of technical terms c) Information about the strengths and limitations of the statistics <p>As part of meeting this Requirement ONS should consider the points detailed in annex 1 and annex 2 (para 3.40).</p>
ONS does not have agreements in place for the exchange of all confidential external data. ONS should:	16	Put in place written confidentiality agreements for the exchange of data with all external suppliers (para 3.41).

Suggestions for extracting maximum value from the statistics

1.12 This paragraph includes some suggestions for improvement to ONS's statistics on population estimates and projections, in the interest of the public good. These are not formally required for designation, but the Assessment team considers that their implementation will improve public confidence in the production, management and dissemination of official statistics.

We suggest that ONS:

1	Establish a closer working relationship between the stakeholder management unit and Population Statistics Division to maximise resource and share best practice (para 3.1).
2	Consider the dependencies, for statistics and method development, across the four countries when delivering Requirement 4 (para 3.7).

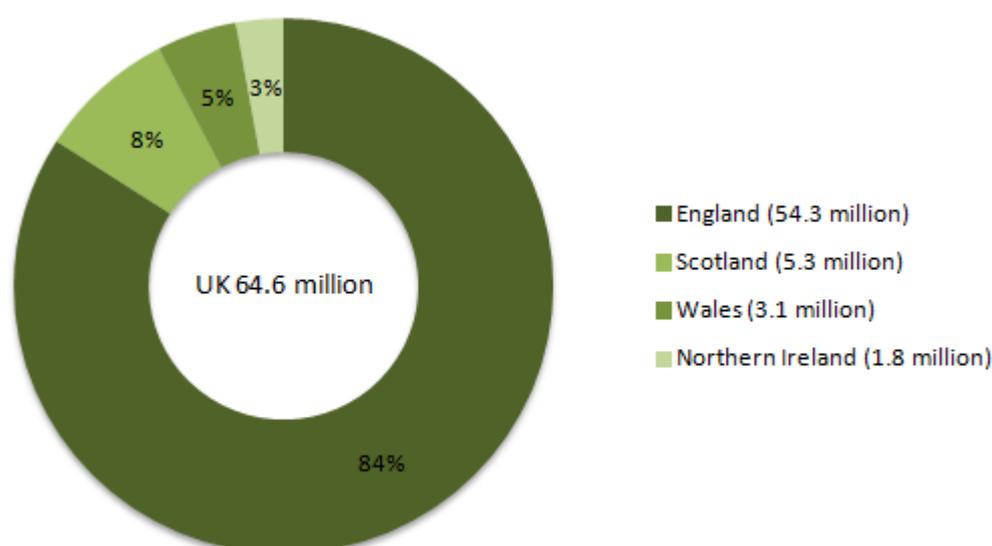
3	Work closely together with colleagues in ONS and also with statistical producers in the Welsh Government, NRS and NISRA to clarify data assurance arrangements for administrative data (para 3.15).
4	Develop a process map to illustrate the supply of data used to produce the various population statistics that are included in this Assessment (para 3.15).
5	Consider how international (or equivalent) bodies could feed into future methodological reviews, such as the review of the SAPE methodology (including the SOA estimates) ONS has planned for the second half of 2015 (para 3.26).
6	Add a link to <i>UK Population Revisions Policy</i> from all its population estimates and projections statistical reports (para 3.34).
7	Publish regular updates for users on progress with the planned Application Programming Interface (API) and Data Explorer tool (para 3.38).

2 Subject of the assessment

Population Statistics across the UK

2.1 Population statistics are an essential part of the UK's statistics infrastructure. They describe the size and structure of the population of the UK, illuminate how and why the population is changing, and project how it might change in the future. The statistics play a vital part in planning and inform decision making from national to local level and are a building block in the development of a large number of economic and social statistics. Figure 1 shows the estimated size of UK population – 64.6 million, which was an increase of 0.77 per cent on the 2013 estimate – and its constituent parts at 30 June 2014.

Figure 1: Mid-year population estimates for the UK mid-2014



Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency, as presented in *Mid-year population estimates 2014*¹⁵

Note: Numbers do not add exactly due to rounding

2.2 In the UK, population size is estimated annually at 30 June. Annual estimates take into account births, deaths and changes to population through internal and international migration since the previous year. They are made using the detailed estimates of population that are produced from the census¹⁶ as a baseline; this baseline is updated every ten years.

¹⁵ http://www.ons.gov.uk/ons/dcp171778_406922.pdf

¹⁶ Three population censuses were conducted on 27 March 2011. They were run by the Northern Ireland Statistics & Research Agency (NISRA), National Records of Scotland (NRS), and the Office for National Statistics (ONS) for both England and Wales. ONS is responsible for disseminating census statistics for the UK. Census in this document refers to the UK census data disseminated by ONS and the England and Wales census data produced by ONS dependent on the geographical coverage of the statistics being discussed.

- 2.3 Population projections are currently produced every second year in the UK. They are based on mid-year estimates and a set of assumptions about future changes to births, deaths and migration. The population projections are trend-based. They are not policy-based forecasts of what the government expects to happen. Instead they show the consequences of present demographic trends. They are less reliable in periods of rapid change. Variant projections illustrate how the size of the population would change if the assumptions that were made about fertility, mortality and migration changed.
- 2.4 Four organisations – ONS, the Welsh Government, NRS and NISRA – produce population estimates and projections that cover all or part of the UK. ONS produces population estimates for England and Wales and for the UK as a whole, and NRS and NISRA produce their own population estimates for Scotland and Northern Ireland respectively. ONS also produces national population projections for the UK and each of the constituent countries - England, Wales, Scotland and Northern Ireland - and sub-national projections for England. The Welsh Government, NRS and NISRA produce their own sub-national projections for Wales, Scotland and Northern Ireland respectively.
- 2.5 The four producers publish statistics in separate publications that cover the UK as a whole; the constituent countries and administrations; sub-national geographies such as local authorities; and selected population sub-groups. The main differences in the publications are:
- in the specific lower geographies for which estimates and projections are published
 - in the publication by estimates of marital status: ONS is the only producer who publishes national population estimates – for England and Wales combined – by marital status; currently NRS is consulting users about the demand for marital status estimates for Scotland
 - in the detail of the estimates of the very old: ONS publishes national estimates of the number of people aged 90 or over for England and Wales combined, as do NRS for Scotland; NISRA publishes estimates for Northern Ireland for people aged 85 or over
- 2.6 Further detail of the primary and processed data sources that ONS uses to produce the population estimates and projections and the data flows are described in paragraphs 2.17 to 2.22 and shown in Figure 2.

Population Statistics in scope of this assessment

- 2.7 ONS produces a range of statistical reports covering population estimates and projections for the UK and its constituent countries. In some cases ONS produces population statistics covering only part of the UK. The ONS statistical reports, covering population statistics, which are within the scope of this assessment are:
- *Annual Mid-year Population Estimates (Mid-year Population Estimates)*¹⁷ is published annually in June and presents estimates for the UK and its

¹⁷ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/mid-2014/stb---mid-2014-uk-population-estimates.html>

constituent countries, the regions and counties of England, and local authorities. ONS produces the statistics for England and Wales and uses statistics produced by NRS and NISRA to provide the UK picture. The statistical report and associated reference tables present statistics on the population of the UK by age and sex as well as statistics on the components of change. Historical information and population densities are also provided. There are links to supporting information (for example, a Quality Report, a Population Estimates Analysis Tool and Population Estimates Quality Tools) and an infographic to support the publication

- Super Output Area (SOA) population estimates are included in *Annual Small Area Population Estimates (SAPE)*¹⁸, which is published annually in the autumn. The estimates are included in the statistical report and in Excel tables on ONS's website, with links to supporting information (for example, a Quality Report and a short story which explains the types of area for which small area population estimates are produced). ONS produces mid-year population estimates by age and sex for Middle and Lower Super Output Areas (MSOAs and LSOAs) in England and Wales. The LSOA statistics are aggregated to produce Clinical Commissioning Group (CCG) population estimates for England. Also included within *SAPE* are population estimates for electoral wards, Westminster parliamentary constituencies and National Parks. These statistics remain experimental statistics and are not within the scope of this assessment; they are calculated by aggregating Output Area (OA) data, which are themselves produced by disaggregating LSOA data using an apportionment approach. All small area population estimates are constrained to the local authority mid-year population estimates
- *Estimates of the Very Old (including Centenarians) for England and Wales, United Kingdom (Estimates of the Very Old)*¹⁹ is published annually in September. *Mid-year Population Estimates* provides population estimates by single year of age up to 89, then by grouped age bands for the very old. *Estimates of the Very Old* uses data from death registrations and mid-year population estimates to provide age-specific estimates of the population, by sex, for those aged 90 and over. These statistics are presented in the statistical report and accompanying Excel tables available on ONS's website. Estimates of the very old are constrained to the mid-year population estimates. ONS produces the statistics for England and Wales and uses statistics produced by NRS and NISRA to provide the UK picture
- *Population estimates by marital status and living arrangements (Marital Status Estimates)*²⁰ is published annually in July. The statistical report and accompanying data tables present annual estimates of the population by legal marital status and living arrangements (such as 'living in a couple: married or civil partnered' or 'living in a couple: cohabiting – never married or civil partnered') for England and Wales. The estimates cover the years 2002 to 2014, broken down by age group and sex. These statistics are

¹⁸ <http://www.ons.gov.uk/ons/rel/sape/small-area-population-estimates/index.html>

¹⁹ <http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2013--england-and-wales--united-kingdom-/index.html>

²⁰ <http://www.ons.gov.uk/ons/rel/family-demography/population-estimates-by-marital-status-and-living-arrangements/england-and-wales--2002-to-2014/stb-marital-status-and-liv-ar.html>

produced using estimated proportions of marital status and living arrangements from the Labour Force Survey (LFS) and applies these to the mid-year population estimates

- *National Population Projections*²¹ is published every two years in the autumn. ONS produces and publishes these projections of the size and structure of the population of the UK and its constituent countries. The projections are published in a statistical report together with supporting information and data tables on the ONS website. The projections use the latest mid-year population estimates and a set of demographic assumptions about future fertility, mortality and migration based on past trends. The assumptions on which the projections are based are agreed in liaison with the devolved administrations, following consultation with key users of projections in each country and advice from an expert academic advisory panel. The population projections are not forecasts: they take no account of future government policies and do not attempt to predict future demographic trends. ONS produces a range of population projections, referred to as variant projections, alongside the principal population projections, to demonstrate the effect of altering the underlying assumptions, and so to show a range of possible outcomes. These also give users an indication of the uncertainty inherent in predicting future population change
- *Sub-national Population Projections*²² is published every two years following the production of *the National Population Projections*. They provide projections of the population of sub-national areas (local authority districts and other administrative and health administration areas) within England, based on local trends in mortality, fertility and migration projected over the next 25 years. The projections are published as a statistical report together with supporting information and data tables on ONS's website. The sub-national population projections are constrained to the national population projections. Similar sets of projections are produced for other parts of the UK by the Welsh Government, NRS and NISRA

2.8 In addition to the reports covered by this assessment, ONS also publishes *Population Projections by Marital Status*²³, which provides projections of the population of England and Wales by age and sex for the next 25 years by legal marital status (excluding Civil Partnerships) and (opposite-sex) cohabitation. These statistics were confirmed as National Statistics as part of Assessment report 103 but they have not been published since June 2010. ONS told the Assessment team that following the changes to the methodology used to produce marital status estimates, the methodology of these statistics would need to be reviewed before the statistics could be published again. Additionally, due to demand not being as strong as for other outputs, ONS currently has no plans to re-develop these statistics ready for publication. Due to the current pause in the publication of these statistics, while user demand and methodology changes are considered, these statistics have not been included within the scope of this assessment.

²¹ <http://www.ons.gov.uk/ons/rel/npp/national-population-projections/index.html>

²² <http://www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/index.html>

²³ <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Projections+by+Marital+Status>

Users and uses of Population Statistics

- 2.9 Population statistics are used by a range of individuals and organisations to understand the size and structure of the population of the UK at the national and local level, to inform decision-making, and to feed into the development of economic and social statistics.
- 2.10 Central and local government, and the health sector, use population estimates and projections for planning and monitoring service delivery, resource allocation, and the management of the economy. For example, local authorities use local area mid-year population statistics to help determine local housing policy and inform economic development plans. The Department for Communities and Local Government (DCLG) uses the population estimates and projections to determine resource allocation for local authorities and to produce household projections. The Department for Work and Pensions uses marital status estimates to cost various aspects of future social security programmes.
- 2.11 Local and central government, research organisations, commercial companies and academics use population estimates to calculate survey weights, which enable survey results to be produced that are representative of the study population. For example, ONS uses national mid-year population estimates to weight the LFS²⁴.
- 2.12 Local and central government, research organisations, commercial companies and academics also use population estimates in denominators and in the calculation of social and economic indicators. For example, local authority health analysts use local area mid-year population estimates in the calculation of life expectancy in their geographic areas or for particular groups in the population. DCLG uses mid-year population estimates in the calculation of the English Indices of Deprivation (IODs)²⁵. IODs are an important tool for identifying the most disadvantaged areas and for supporting decisions about addressing local needs. Life insurance companies and the actuarial professions use estimates of the very old for the calculation of mortality rates at the oldest ages.

History and Governance

- 2.13 ONS and its predecessor organisations have produced the mid-year population estimates in some form for more than 40 years. The SOA population estimates were first published in 2006 with estimates for CCGs (an aggregation of SOAs) first produced in 2013. ONS has published population estimates for single years of age beyond 90 for England and Wales since 2007, with the estimates at the UK level since 2010.
- 2.14 Population estimates by marital status were originally published for the 1950s and 1960s (although not by detailed age group) and are available by age from 1971 onwards. Following the publication of *Population Estimates by Marital*

²⁴ <http://www.ons.gov.uk/ons/about-ons/get-involved/taking-part-in-a-survey/information-for-households/a-to-z-of-household-and-individual-surveys/labour-force-survey/index.html>

²⁵ <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2010>

*Status*²⁶ in November 2011 there was a break in its publication while ONS conducted a review to decide whether the current output was still fit for purpose. In June and July 2014 ONS consulted users on its proposals to update the methods and content of these statistics. Following the consultation ONS published its first statistics based on the new methodology (and new tables) on 8 July 2015.

- 2.15 ONS has produced national population projections since 2006. Before this they were produced by the Government Actuary's Department. ONS (or General Register Office as it was known at the time) first produced regional projections in the 1960s. The 1989-based projections were the first produced at the local authority level by ONS (or the Office of Population Censuses and Surveys as it was known at the time).
- 2.16 The population estimates and projections included within the scope of this Assessment are produced by members of staff in ONS's Population Statistics Division (PSD). The planning of the statistical outputs is overseen by the PSD Outputs Delivery Board. All methodology changes within PSD are overseen by the Research Review Group and are quality assured by ONS's Methodology Directorate. The national projections output is also overseen by the National Population Projection committee made up of representatives from ONS, the Welsh Government, NRS, NISRA and the Home Office. Additionally, ONS is an active member of the Population and Migration Statistics Inter-Departmental Strategy Group²⁷ (IDSG), the UK Population Theme Group²⁸ (UKPTG), and the UK Population Theme Advisory Board²⁹ (UKPTAB). These groups are all chaired by ONS and attended by representatives from ONS, the Welsh Government, NRS and NISRA, along with other relevant users such as academics, to produce a strategic and co-ordinated approach to statistical planning across the UK, including improving the quality of statistics and analysis.

Data Sources and flows

- 2.17 The population estimates for England and Wales draw on data – for births, deaths and migration – that are processed by ONS, as well as directly from primary data sources. The primary source data – including those processed by ONS – are drawn from administrative systems, the census and the International Passenger Survey. These primary and processed data flow between different teams in ONS and between ONS and the organisations that produce population statistics in the devolved administrations.

- 2.18 Separate teams within ONS variously:

²⁶ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-by-marital-status/mid-2010/stb---population-estimates-by-marital-status--2010.html>

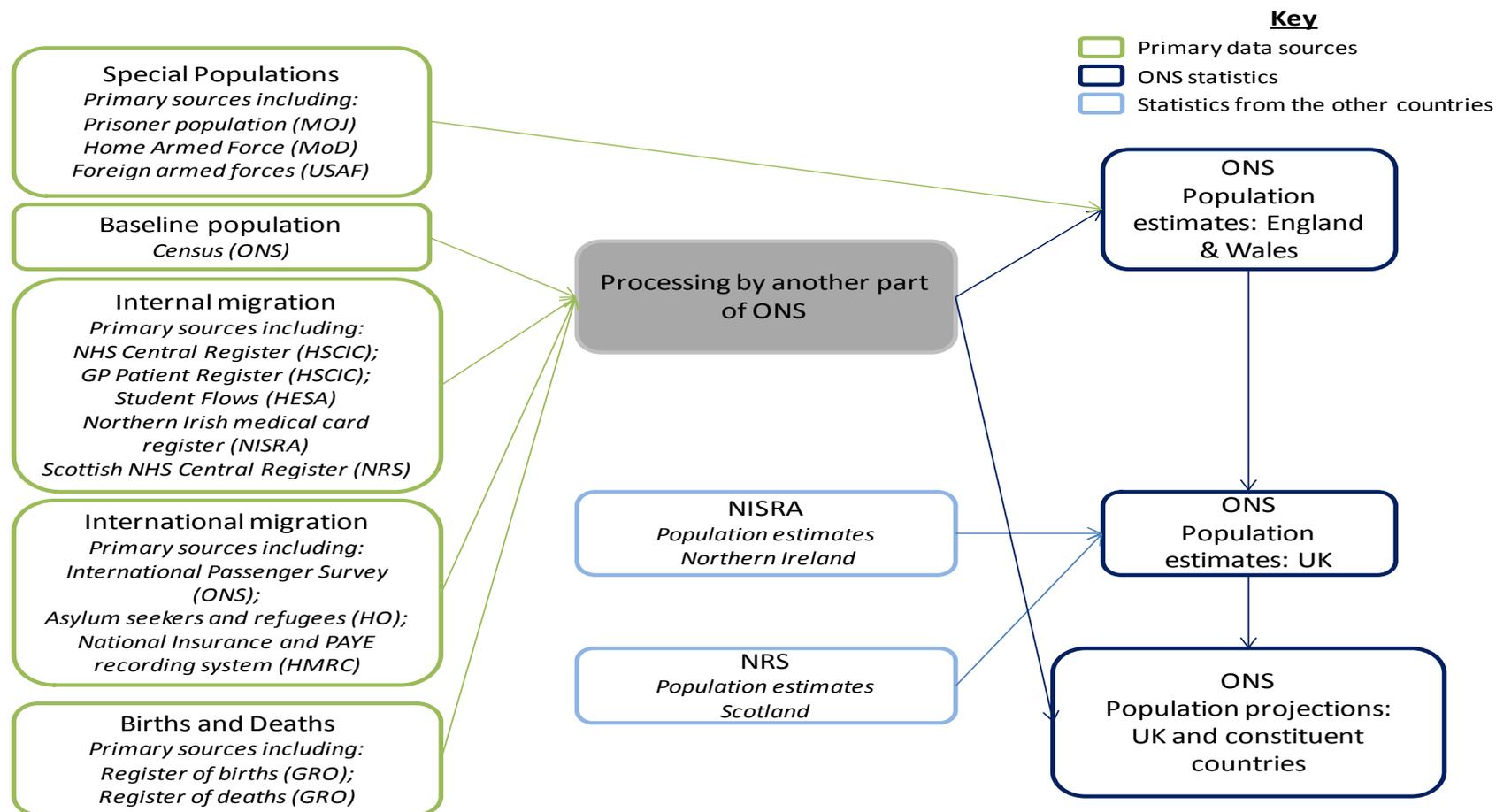
²⁷ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-and-migration-statistics-inter-departmental-strategy-group/index.html>

²⁸ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-statistics-meetings-and-user-groups/population-theme-group/index.html>

²⁹ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/national-statistics-centre-for-demography-advisory-board/index.html>

- conduct the census in England and Wales and process census data
 - manage the International Passenger Survey (IPS) and process IPS data
 - produce estimates of international net migration and of internal migration
- 2.19 The statistics team responsible for producing the mid-year population estimates obtains additional source data from UK government departments and their agencies. It combines these with the processed data from other parts of ONS to produce the mid-year population estimates and SOA estimates (included in *SAPÉ*) for England and Wales. The statistics team responsible for producing estimates of the very old and marital status estimates uses the population estimates data, and other data, to produce these statistics for England and Wales.
- 2.20 NRS and NISRA supply the mid-year estimates and estimates of older people – which they produce for Scotland and Northern Ireland respectively – to ONS. ONS then combines these with its own estimates to produce mid-year population estimates for the UK. The statistics team responsible for producing estimates of the very old combines the estimates of older people in the different administrations to produce estimates of the number of older people across the UK.
- 2.21 ONS produces population projections for the UK and its constituent countries using the mid-year population estimates that are supplied by ONS, NSRS and NISRA.
- 2.22 Figure 2 shows a simplified diagram of the data sources, processing and data flows for the production of population estimates and projections for England and Wales, and for the UK.

Figure 2: Main data suppliers, sources and flows



Source: produced by Assessment team

Note: This diagram is a simplified summary of the flow of data from primary source through to national level population estimates and projections. These national level estimates and projections are then used (alongside other data) to produce sub-national population projections, small area estimates, estimates of the very old and marital status estimates by ONS, the Welsh Government, NRS and NISRA. For example, *Population Estimates by Marital Status and Living Arrangements, England and Wales (Marital Status Estimates)* are produced using the population estimates for England and Wales and Labour Force Survey data.

Open Data

2.23 ONS publishes the population estimates and projections that are the subject of this Assessment in PDF and HTML, with supplementary tables and datasets published in Excel format. Additionally, the tables in *Mid-year Population Estimates*, *Marital Status Estimates* and some tables included in *Sub-national Population Projections* are available in a CSV format. With the exception of *Mid-year Population Estimates and Marital Status Estimates*, ONS's publication equates to a level of two stars under the Five Star Scheme that forms part of the Open Standards Principles proposed in the *Open Data White Paper: Unleashing the Potential*³⁰ and adopted as UK government policy in November 2012³¹. Five stars represent the highest star rating within the Scheme. For *Mid-year Population Estimates and Marital Status Estimates* ONS's publication equates to a level of three stars under the Five Star Scheme.

Costs

2.24 ONS's estimates of the cost of producing the population estimates and projections statistics that are the subject of this Assessment, based on full economic costing and excluding the cost of data collection, are shown in Table 1.

Table 1: Cost of producing population statistics

Statistic name	Estimated cost of producing the statistic (per annum)
Mid-year Population Estimates	£300, 000
SOA estimates (and their aggregation into CCGs)	£170,000
Estimates of the Very Old	£20,000
Marital Status Estimates	£29,000 ^a
National Population Projections	£350,000
Sub-national Population Projections	£200,000

Source: produced by Assessment team

Note:

a. First year cost. The cost would be expected to decrease after the first year once the methodology has been established.

³⁰ http://data.gov.uk/sites/default/files/Open_data_White_Paper.pdf

³¹ <https://www.gov.uk/government/publications/open-standards-principles/open-standards-principles>

3 Assessment findings

User Engagement

Requirements from previous Assessment report 103 (20 April 2011):

- Requirement 1: Take steps to develop a greater understanding of the use made of the statistics, publish the relevant information and assumptions, and use them to better support the use of the statistics
- Requirement 2: Communicate clearly in advance any planned changes to methods and classifications, and explain the nature and extent of revisions when revised statistics are released

- 3.1 At an organisational level the *ONS strategy*³² and *Business Plan 2014-17*³³ demonstrate commitment to engage with users of statistics to maximise the effectiveness and focus of the statistics that ONS produces. To work towards these commitments, ONS told the Assessment team that it has created a new Stakeholder Management Unit to help users to: understand how statistics can help them; recognise the quality of ONS products and services and influence ONS's priorities and plans. The Assessment team is not clear how this Unit supports individual statistical production teams in their user engagement; we are not aware of any examples of joint working with PSD. We suggest that ONS establish a closer working relationship between the Stakeholder Management Unit and PSD to share best practice and maximise the effectiveness of its engagement with users.
- 3.2 ONS has good relationships with central government and local government expert users and with users of population statistics in other ONS team. For example, the statistics teams that produce the mid-year population estimates, SOA statistics, national population projections and sub-national population projections regularly engage with local and central government users through the Local Insight Reference Panels (LIRP)³⁴ and the Central Local Information Partnership (CLIP)³⁵. Also, there is an effective working relationship between the statistic team that produces estimates of the very old and the ONS statistical output team that produces mortality figures and national life tables. However, most of ONS's engagement is focused on established users, with little evidence of activity to engage with the wider user community. For example, health users are not represented on the LIRPs or CLIPs. The Authority welcomes ONS's plan to include a health user representative on the CLIP user group. As part of the designation as National Statistics, ONS should ensure that regular user engagement activities include a wide-array of relevant users and take place across the statistical outputs³⁶ (Requirement 1).
- 3.3 ONS has effectively communicated with and consulted users on changes to sub-national population projections methods. The 2012 Sub-national

³² http://www.ons.gov.uk/ons/dcp14298_323384.xml

³³ <http://www.ons.gov.uk/ons/about-ons/index.html?format=contrast>

³⁴ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/local-insight-reference-panels/index.html>

³⁵ <https://knowledgehub.local.gov.uk/web/clip>

³⁶ In relation to Principle 1, Practice 5 and Protocol 1, Practices 1 and 7 of the *Code of Practice*.

Population Projections user consultation³⁷ involved an online consultation for all users about the proposed data sources and methodology and gave advance access for local authorities to local data showing provisional projections and the impact of the proposed methods including the migration assumptions. Additionally, ONS recently consulted users on the proposed methodological changes relating to marital status estimates³⁸.

3.4 However, the Assessment team is also aware of proposed changes to the methodology underpinning estimates of the very old and mid-year population estimates and of a review of experimental statistics included in *SAPE*. ONS does not yet have plans for user consultations about these proposed changes. As part of the designation as National Statistics, ONS should:

- a) ensure that users are consulted early on, before making changes to methods that affect *Estimates of the Very Old* and *Mid-year Population Estimates*
- b) engage users in the review and evaluation of the experimental statistics included in *SAPE*³⁹

(Requirement 2).

Statistical Planning and Resourcing

3.5 ONS has published a five year plan⁴⁰ for PSD as a whole, including some development priorities. However, ONS does not systematically publish more detailed development priorities for the individual statistics. ONS publishes minutes of the various user engagement groups. In the minutes, there is evidence of discussion about forward plans for population statistics. ONS also publishes the responses that it receives to specific questions that are included in consultations and what actions it intends to take as a result in relation to a specific statistical output. However, published evidence of statistical planning – in the sense of decision-making and priority setting for individual sets of statistics – appears to be piecemeal and is not always transparent or clear how it has been informed by user views. As part of the designation as National Statistics, ONS should improve published documentation around statistical planning ensuring that it:

- a) is up to date
- b) takes full account of users' needs
- c) is transparent about priority setting and the reasons that particular choices are made

³⁷ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/consultations/consultation-on-the-2012-based-subnational-population-projections-for-england/2012-based-SNPP-for-england--summary.pdf>

³⁸ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

³⁹ In relation to Protocol 1, Practices 5 and 7 of the *Code of Practice*.

⁴⁰ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-statistics-research-unit--psru-/index.html>

- d) reflects the obligation to serve the public good⁴¹ (Requirement 3).
- 3.6 ONS's PSD has an established process to monitor and adjust resources that is led by the Head of Population Statistics Management and Support. ONS moves staff resources between teams, reflecting peaks and troughs in workloads. It also uses members of a central team, the Population Statistics Research Unit, as an additional resource to supplement the statistical output teams as required. This flexibility allows ONS to maintain its output production as required. ONS told us that it plans to supplement the population projections team with members of the Research Unit over the next few months. As a consequence, various methods projects will be delayed and we have been told that some may be postponed indefinitely.
- 3.7 We recognise ONS's need to consider statistical production in the light of resource constraints. However the population statistics are among the most important statistics produced in the UK. This means that there is a continuing need – and demand from users – to reflect the latest developments in methods and statistical practices. Also, as the lead organisation for producing UK population estimates and projections, ONS supports the other producer organisations - for example by leading work on developing and evaluating methods and by producing some national estimates for Wales. We consider that there is a risk that ONS may not be able to meet some of these needs, at least in the short term. For example, updating a national population projections accuracy report published in 2007⁴² (there was also a sub-national population projections accuracy report published in 2008⁴³) cannot currently be prioritised due to resources. As part of the designation as National Statistics, ONS should review the resources allocated to the production of these statistics to ensure that they are sufficient to meet the standards of the *Code of Practice* and the obligation within it to serve the public good and publish the outcome of the review⁴⁴ (Requirement 4). We suggest that ONS consider the dependencies, for statistics and method development, across the four countries when delivering Requirement 4.

Quality and Methods

Quality Assurance of Administrative Data

- 3.8 In January 2015 the Authority published a regulatory standard⁴⁵ that confirms the quality assurance arrangements that are required for statistics compiled using administrative data to comply with the *Code of Practice*. The

⁴¹ In relation to Principle 1, Practices 2 and 3 of the *Code of Practice*

⁴² <http://www.ons.gov.uk/ons/rel/population-trends-rd/population-trends/no--128--summer-2007/fifty-years-of-united-kingdom-national-population-projections--how-accurate-have-they-been-.pdf>

⁴³ www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/2006-based-projections/subnational-population-projections--accuracy-report.pdf

⁴⁴ In relation to Principle 7, Practice 1 of the *Code of Practice*

⁴⁵ <http://www.statisticsauthority.gov.uk/assessment/monitoring/administrative-data-and-official-statistics/index.html>

*Administrative Data Quality Assurance Toolkit*⁴⁶ is the mechanism that the Authority is using to determine compliance in relation to four areas of practice:

- operational context and administrative data collection
- communication with data supply partners
- QA principles, standards and checks by data suppliers
- producers' QA investigations & documentation

- 3.9 The judgment by statistical producers about the suitability of the administrative data for use in producing official statistics should be pragmatic and proportionate. It should be made in the light of an evaluation of the likelihood of quality issues arising in the data that may affect the quality of the statistics. It should also reflect the nature of the public interest served by the statistics. Statistical producers should determine the types of assurance and documentation required to inform users about the quality assurance arrangements for administrative data.
- 3.10 The population estimates and projections statistics that are the subject of this Assessment are also produced within a complex data supply chain (section 2 and figure 2). Each statistical output team carries out its own assurance of the data that they receive as input to the statistics they produce. Where a team receives data that have been previously processed, it makes an implicit assumption that in turn, the data supplier has assured the data that it has received. The data supply chain is fragmented in the way that it communicates about data quality and the resulting strengths and limitations of use.
- 3.11 One of the risks in this fragmented approach is that individual statistical output teams do not necessarily understand the operational context and data collection issues associated with the primary source data, or the quality assurance arrangements of primary data suppliers. The Assessment team recognises that it would duplicate effort and be time consuming for each statistical output team in ONS to carry out its own investigation about the data quality of up-stream data sources. Instead it considers that this could usefully be carried out at a divisional or department level.
- 3.12 A further risk in this fragmented data assurance approach is that without understanding the up-stream data supply chain, a statistical output team cannot fully communicate the quality of the statistics that it produces. Crucially it cannot advise users about how suitable the statistics that it produces are for a particular use. When we discussed the issue of communicating administrative data quality with statistical output teams, we were pointed towards ONS's publication: *A conceptual framework for UK population and migration statistics*⁴⁷. This publication is excellent in itself and includes some useful information about the quality and limitations of data sources. However, this publication is not clearly signposted from the statistical reports that are the subject of the Assessment or from Population and Migration Statistics Overview webpage⁴⁸. Even if it were clearly signposted, it would be difficult for all users

⁴⁶ <http://www.statisticsauthority.gov.uk/assessment/monitoring/administrative-data-and-official-statistics/quality-assurance-toolkit.pdf>

⁴⁷ <http://www.ons.gov.uk/ons/guide-method/method-quality/imps/latest-news/conceptual-framework/index.html>

⁴⁸ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/an-overview-of-ons-s-population-statistics/index.html>

to pick out the information that was suitable for their needs - the report was written for a different purpose and its scope is wider than just data quality and assurance. ONS published the report in 2012 and, while it describes data quality issues at that point, it has not been updated to capture subsequent changes; nor have recent changes been described elsewhere. A more dynamic, simpler way of describing data quality and assurance would be helpful to users. The sorts of information that might be beneficial to users include:

- an explanation of data collection and flows
- a description of the assurance arrangements undertaken by the providers responsible for data collection and supply and along the data supply chain
- a description of the role of bodies external to ONS in inspecting or auditing the quality of the data collection

Individual teams could then interpret this data quality and assurance information for the individual sets of statistics that they produce.

- 3.13 ONS has published a *Statement of Administrative Sources*⁴⁹ (SoAS) which includes the sources of administrative data used to produce the population estimates and projections statistics covered by this assessment. However, the list is out of date, the statistical products column is often incomplete and some of the descriptions are unclear. For example, *Mid-year Population Estimates* and SOA estimates (included within SAPE) are not explicitly listed as statistical products that use patient register data. Patient register data are also listed separately three times in the spreadsheet, twice with the source as the National Health Service Information Centre (NHSIC) and once as the Department for Health. Where *Mid-year Population Estimates* are listed as a statistical product of a data source, the other statistical products that use the mid-year population estimates as an input and so are also linked to the data source, such as *Estimates of the Very Old*, are generally not noted. One of the datasets provided about home armed force is listed as 'UK Regular Forces and Gurkhas by single year of age, gender and Country/Local Authority of base', but ONS does not use this terminology in its latest publications, instead referring to the armed forces population.
- 3.14 ONS has not sufficiently identified or explained the assurance arrangements undertaken for source data or the role of external bodies in inspecting or auditing the data collecting organisations; accordingly it has not communicated this information in an accessible way to users. ONS does publish some documentation about the quality assurance checks of source data, for example births and death data. However, this documentation is not always easy to access from the statistical reports, and sufficient detail about the data assurance and audit arrangements for other data sources is not published, such as migration data from the medical registers. ONS has also not clearly communicated, or kept up-to-date its SoAS which lists the administrative data sources used to produce the population estimates and projections statistics. As part of the designation as National Statistics, ONS should:
- a) publish an appropriate level of detail to inform users about the data assurance and audit arrangements for all the administrative data sources

⁴⁹ <http://www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/statement-of-administrative-sources/index.html>

used in the production of the population estimates and projections publications, taking into consideration the Authority's *Administrative Data Quality Assurance Toolkit*

- b) update its *Statement of Administrative Sources* to clearly and accurately list all of the administrative data sources used to produce its population estimates and projections statistics⁵⁰

(Requirement 5).

- 3.15 In meeting this Requirement, we suggest that the ONS teams work closely together and with statistical producers in the Welsh Government, NRS and NISRA to clarify data assurance arrangements for administrative data. We further suggest that ONS develop a process map to illustrate the supply of data used to produce the various population statistics that are included in this Assessment.

Quality and Methodology Documentation

Requirements from previous Assessment report 103 (20 April 2011):

- Requirement 4: Publish more information about the methods used to produce UK Electoral Statistics and Population estimates of the very elderly, and improve the accessibility of information about the methods used to produce the life expectancy statistics.
- Requirement 5: Provide more information about the quality and reliability of the national life expectancy statistics, and Mid-year Marital Status Estimates in relation to the range of potential uses.
- Requirement 6: Publish a plan outlining how the 2011 Census data will be used as the basis of reviewing and improving the methods used to produce the population estimates and related outputs.
- Requirement 8: Publish a plan to review the data sources and methods used to produce the SOA population estimates and the Population estimates of the very elderly experimental statistics, to ensure that they are produced to a level of quality that meets users' needs.

- 3.16 ONS publishes Quality and Methodology Information documents (QMIs) to accompany each of the statistical reports included within this assessment. Alongside this, additional methodological information is made available either as downloadable documents or on a webpage. For example, in response to Requirement 4 of the previous assessment⁵¹, ONS published a description of the methods used to produce the statistics included in *Population estimates of the very elderly in September 2011*⁵² (now known as *Estimates of the Very Old*). The method is summarised in the most recent release of *Estimates of the*

⁵⁰ In relation to Principle 4, Practice 2, Principle 8, Practice 1, and Protocol 3 Practice 5 of the *Code of Practice*

⁵¹ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

⁵² <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/calculating-estimates-of-the-very-elderly/index.html>

*Very Old*⁵³ and in the accompanying QMI document⁵⁴. These quality and methodology documents generally contain detailed information about issues such as the strengths and limitations of the statistics, the revisions history, and comparability.

- 3.17 However, it is not always clear, prior to clicking on a specific link, what a particular document or webpage will include and links to further detail are not always provided. For example, in *National Population Projections*, the background notes mention the fact that revised population estimates for Scotland – and as a consequence for the UK – were not available in time to include in the projections. The background notes say that ‘observed differences did not raise any significant concerns about this approach’. However, a further explanation was not included – or appropriate links – about the process undertaken to reach this conclusion or about the scale of the impact.
- 3.18 As part of the designation as National Statistics, ONS should clarify for users what quality and methodology documentation is published where, including strengths and limitations information, and clearly signpost these documents from the main statistical report⁵⁵ (Requirement 6).
- 3.19 Responding to Requirement 5 of the previous assessment⁵⁶, ONS published *Population Estimates by Marital Status Quality and Methodology Information Note*⁵⁷ in November 2011. This document is linked to from *Population Estimates by Marital Status, Mid-2010*⁵⁸ which was published in November 2011. Following the publication of the statistical report in November 2011, ONS conducted an internal review to decide whether the current output was still fit for purpose, including comparing it against the results of the 2011 Census. The new methodology options were developed and signed off by the PSD Research Review Group, which is attended by members of PSD and Population Methodology. In June and July 2014 ONS consulted users on their proposals to update the methods used and change the tables included in *Marital Status Estimates*⁵⁹. Following the consultation, in October 2014, ONS announced that it would use the new proposed methodology (and tables) for future publications⁶⁰. The next publication, based on the new methodology and structure, was published on 8 July 2015.

⁵³ <http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2013--england-and-wales--united-kingdom-/stb-2002-2013-estimates-of-the-very-old.html>

⁵⁴ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/social-statistics/summary-quality-report-for-population-estimates-for-the-very-elderly.pdf>

⁵⁵ In relation to Principle 4, Practice 1 and 2, Principle 8, Practice 1 and Protocol 1, Principle 4 of the *Code of Practice*

⁵⁶ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

⁵⁷ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/social-statistics/summary-quality-report-for-population-estimates-by-marital-status.pdf>

⁵⁸ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-by-marital-status/mid-2010/stb---population-estimates-by-marital-status--2010.html#tab-background-notes>

⁵⁹ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

⁶⁰ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

- 3.20 In documentation accompanying *Marital Status Estimates*, ONS explains how the new methodology is implemented, including the strengths and limitations of the approach⁶¹. This is also set out, alongside the reasons for the change, in a helpful Information Note⁶². However, the detailed analysis carried out internally, including analysis against the 2011 Census data and comparison of different surveys, is not published. As part of the designation as National Statistics, ONS should publish the results of the internal review, including analysis against the 2011 Census and comparisons of different data sources, to help explain the strengths and limitations of the statistics and the impact on their use⁶³ (Requirement 7).
- 3.21 ONS publishes some information about the accuracy of the marital status estimates in the accompanying QMI⁶⁴ and Information Note⁶⁵. This includes noting that as the estimates are partly based on the Labour Force Survey, all estimates produced are subject to sampling variability. However, more could be included to enable users to better understand the uncertainty surrounding the statistics. For example, ONS stated, in both the *Marital Status Estimates* QMI⁶⁶ and the consultation response⁶⁷, that as a result of the new method it may be possible to produce confidence intervals in order to assess the level of accuracy. ONS stated that the ability to calculate quality measures such as confidence intervals was an advantage of the using the new method in its consultation on the method changes⁶⁸. As part of the designation as National Statistics, ONS should publish its plans for carrying out research, and consulting users, about producing suitable measures of quality – such as confidence intervals – for *Marital Status Estimates*⁶⁹ (Requirement 8).
- 3.22 In early 2012, in response to Requirements 6 and 8 of the previous assessment⁷⁰, ONS published *Plans for review of Population Estimates and related outputs* following the 2011 Census⁷¹. This plan also set out how ONS would review the data sources and methods used in *SAPE* (of which SOA are a part) and estimates of the very elderly (now known as *Estimates of the Very Old*). ONS has implemented parts of this plan since the last assessment. For

⁶¹ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/qmi-population-estimates-by-marital-status-and-living-arrangements.pdf>

⁶² <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-by-marital-status--methodology/marital-status-information.pdf>

⁶³ In relation to Principle 4, Practice 1 and 2 and Principle 8, Practice 1 of the *Code of Practice*

⁶⁴ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/qmi-population-estimates-by-marital-status-and-living-arrangements.pdf>

⁶⁵ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-by-marital-status--methodology/marital-status-information.pdf>

⁶⁶ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/qmi-population-estimates-by-marital-status-and-living-arrangements.pdf>

⁶⁷ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

⁶⁸ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

⁶⁹ In relation to Principle 4, Practice 2 of the *Code of Practice*

⁷⁰ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

⁷¹ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/future-plans/plans-for-review-of-population-estimates/index.html>

example, ONS published the revised *2001 to 2010 mid-year population estimates for the United Kingdom (UK)*, aligned to the results of the 2011 Census, in December 2013⁷². ONS also published the results of research analysing the differences between the ‘rolled forward’ statistics originally published and those based on 2011 Census data at the national level⁷³ and the sub-national level⁷⁴. Revised statistics, based on 2011 Census data, have also been published for SOA estimates⁷⁵. However:

- detailed analyses, comparing a set of ‘rolled forward’ mid-2011 estimates against published census-based mid-2011 estimates, have not been published for the SOA estimates – this was originally due to be completed by the end of 2014⁷⁶
- the wider review of data sources and methods for *SAPÉ* (including SOA estimates) is still to be completed – ONS also told the Assessment team that it is commissioning a review of the Small Area Estimates methodology (including the SOA methodology) which should be completed later in 2015
- the wider review of data sources and methods used to produce estimates of the very old is still to be completed - ONS has an ongoing project reviewing these methods and their accuracy with the results due to be published in December 2015⁷⁷

3.23 As part of the designation as National Statistics, ONS should:

- a) complete, and publish reviews of the methodology used to produce SOA estimates, including a comparison against the 2011 Census data, and estimates of the very old
- b) publish its plans for implementing the review recommendations, including improving the statistics and updating the methods documentation as necessary⁷⁸

(Requirement 9).

⁷² <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/mid-2001-to-mid-2010-revised/stb---mid-2001-to-mid-2010-uk-revised-population-estimates.html>

⁷³ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-statistics-research-unit--psru-/methods-used-to-revise-the-national-population-estimates-for-mid-2002-to-mid-2010.pdf>

⁷⁴ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-statistics-research-unit--psru-/methods-used-to-revise-the-subnational-population-estimates-for-mid-2002-to-mid-2010.pdf>

⁷⁵ <http://www.ons.gov.uk/ons/rel/sape/soa-mid-year-pop-est-engl-wales-exp/index.html>

⁷⁶ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/qmi-small-area-population-estimates.pdf> (page 6)

⁷⁷ <http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2013--england-and-wales--united-kingdom-/stb-2002-2013-estimates-of-the-very-old.html#tab-Quality-and-Methodological-Review>

⁷⁸ In relation to Principle 4, Practice 2, Principle 4, Practice 5 and Principle 8, Practice 1 of the *Code of Practice*

Requirements from previous Assessment report 103 (20 April 2011):

- Requirement 7: Document how population estimates and marital status estimates compare with equivalent statistics for the other countries in the UK, and the implications for users of the statistics

Suggestions from previous Assessment report 103 (20 April 2011):

- Suggestion 5: Publish more information about the international context in relation to these statistics

3.24 The methods and data sources that ONS uses to produce population estimates for England and Wales and population projections for England are in some cases consistent with those that are used across the rest of the UK, but there are also some exceptions. The exceptions relate to the methods and data sources used to produce sub-national population projections, mid-year population estimates, marital status estimates and SOA estimates.

3.25 As noted in the previous assessment⁷⁹, differences in the methods used to produce the sub-national population projections have been well documented⁸⁰. In response to Requirement 7 of the previous assessment⁸¹, ONS published a comparison of data sources and methods used in England and Wales, Scotland and Northern Ireland to produce the mid-year population estimates⁸². ONS also published a comparison of the data sources and methods used to compile marital status estimates across UK countries⁸³. Following Requirement 7, NISRA published, in collaboration with ONS and NRS, broad descriptions of the methods used to produce statistics included in *SAPE* (including SOA estimates) in each country of the UK⁸⁴. However, since these documents were published, methods and data sources have changed. For example, child benefit data are no longer used to estimate SOA estimates in England and Wales, and the method for calculating marital status estimates in England and Wales has been revised. The 2011 Census results have also been published enabling methods, and differences in these methods, to be evaluated against a robust data source. During this assessment ONS updated *Population estimates for local authorities across UK constituent countries: a comparison of data sources*

⁷⁹ <http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

⁸⁰ <http://www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/2008--based-projections/subnational-population-projections-across-the-uk.pdf>

⁸¹ <http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

⁸² <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-for-las/a-comparison-of-data-sources-and-methods.pdf>

⁸³ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-by-marital-status---methods/population-estimates-by-marital-status---methods-and-availability-across-uk-countries.pdf>

⁸⁴ http://www.nisra.gov.uk/archive/demography/population/small_area/UK_SAPE_Dec_2011.pdf

and methods⁸⁵ to take account of changes in methods and data sources since the document was first published. ONS also published an updated version of *Sub-National Population Projections Across the UK*⁸⁶. We also understand that *Small Area Population Estimates Across the UK* will be updated after all four UK countries have published their 2014 small area population estimates. As part of the designation as National Statistics, ONS should:

- a) ensure that the remaining comparison document on the population estimates and projections produced in all countries in the UK is updated and published as planned
- b) carry out, and publish, a review of the methodological and comparability differences and, based on knowledge of the uses of the statistics and expert input, evaluate whether the differences are justifiable⁸⁷

As part of meeting this Requirement, ONS should work together with the Welsh Government, NRS and NISRA (Requirement 10).

- 3.26 Responding to Suggestion 5 of the previous assessment⁸⁸, the statistical reports generally include information about the European or wider international context. This is particularly notable in *Estimates of the Very Old* and *Marital Status Estimates*. ONS told the Assessment team that it engages with Eurostat and is involved in European Statistical System's working groups for population and migration statistics. The Assessment team recognises the importance of this engagement, and we suggest that ONS consider how international (or equivalent) bodies could feed into future methodological reviews, such as the review of the SAPE methodology (including the SOA estimates) that ONS has planned for the second half of 2015.
- 3.27 *Estimates of the Very Old* and *Marital Status Estimates* do not include separate breakdowns for Wales and England. For the UK publication of *Estimates of the Very Old*, statistics are published for Scotland and Northern Ireland (based on data received from NRS and NISRA). However, the England and Wales statistics, which are produced by ONS, are published together. ONS told the Assessment team that separating the England and Wales data would lead to additional, unquantified error due to migration across the border. However, ONS supplies England-only statistics to the Department for Health with the statistics divided up using a proportional model, with associated caveats.
- 3.28 For *Marital Status Estimates*, ONS publishes estimates only for England and Wales combined. ONS asked users for their views about the combining of England and Wales statistics in its *Consultation on population estimates by marital status and living arrangements*⁸⁹. Just over two-thirds (68 per cent) of users did not respond to this question, approximately 16 per cent had no concerns with ONS's proposed approach, and the remaining users

⁸⁵ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-for-las/population-estimates-uk-comparisons-paper.pdf>

⁸⁶ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-projections/subnational-population-projections-across-the-uk.pdf>

⁸⁷ In relation to Principle 4, Practice 6 and Principle 8, Practice 2 of the *Code of Practice*

⁸⁸ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

⁸⁹ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

(approximately 11 per cent) consisted of those who either had concerns that the England and Wales statistics are combined or the lack of GB or UK level statistics. ONS states in the Information note⁹⁰ that accompanies *Marital Status Estimates* that it does not routinely produce tables for geographies below England and Wales, but that survey estimates for lower levels of geography (down to Local Authority) are available on request. However, it is not clear from *Marital Status Estimates* and the Information note⁹¹ that accompanies it, or ONS's consultation response⁹² how ONS's final decision not to separate England and Wales statistics was reached. Additionally, the users who responded to the Assessment user consultation expressed a strong demand for data to be available at lower geographic levels.

- 3.29 As part of the designation as National Statistics, ONS should consider the publication of England and Wales statistics separately in *Marital Status Estimates* and *Estimates of the Very Old* taking into account user needs, and publish the justification and outcome of this consideration⁹³ (Requirement 11).

Revisions and Corrections

- 3.30 ONS's corrections policy is summarised on its website⁹⁴, with more-detailed information available within ONS. However, ONS's process for deciding how to categorise an error, as a major or minor, and how this links to user need and the promptness with which an error is corrected, is not made clear to users. For example, in response to an error in the *Annual Mid-year Population Estimates, 2013*, released in June 2014⁹⁵ ONS decided that this was not a major error (as set out in the ONS Corrections Policy) and therefore decided not to correct the error straight away or list the error on the 'ONS Corrections to data' webpage⁹⁶. The error – referred to as the 'Forest Heath' error as Forest Heath District Council is most affected by the error (see Table 2) – also fed through to *Small Area Population Estimates, Mid-2013*⁹⁷, which was published in October 2014 and includes the super output area population estimates. Instead, following a consultation⁹⁸ on whether to correct the error in June 2015 or June 2016, ONS decided to correct the error in June 2015 alongside the next release of the mid-year estimates. This correction will then feed through to *SAPe* in October 2015.

⁹⁰ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-by-marital-status--methodology/marital-status-information.pdf>

⁹¹ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/population-estimates-by-marital-status--methodology/marital-status-information.pdf>

⁹² <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/open-consultations/2014/consultation-on-population-estimates-by-marital-status-and-living-arrangements/index.html>

⁹³ In relation to Principle 4, Practice 6 and Principle 8, Practice 3 of the *Code of Practice*

⁹⁴ <http://www.ons.gov.uk/ons/about-ons/business-transparency/corrections-to-data/corrections-policy/index.html>

⁹⁵ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/2013/stb---mid-2013-uk-population-estimates.html>

⁹⁶ <http://www.ons.gov.uk/ons/about-ons/business-transparency/corrections-to-data/index.html>

⁹⁷ <http://www.ons.gov.uk/ons/rel/sape/small-area-population-estimates/mid-2013/index.html>

⁹⁸ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations-and-user-surveys/satisfaction-surveys/population-estimates-for-uk--england-wales-correction/index.html>

Table 2: Forest Heath error – most affected areas

Code	Name	Correct 2013 Estimate	Error (Published - Correct)	Error as % of Correct Estimate
E07000201	Forest Heath	61,200	2,000	3.3
E07000155	South Northamptonshire	87,200	200	0.2
E10000029	Suffolk	734,500	1,400	0.2
E07000139	North Kesteven	109,800	100	0.1
E07000011	Huntingdonshire	172,000	100	0.1
E10000021	Northamptonshire	706,400	200	0.0
E10000019	Lincolnshire	724,400	100	0.0
E12000004	EAST MIDLANDS	4,598,400	300	0.0
E12000008	SOUTH EAST	8,792,800	-100	0.0
E12000006	EAST	5,954,300	-100	0.0
E10000025	Oxfordshire	666,200	-100	0.0
E07000177	Cherwell	143,800	-100	-0.1
E10000020	Norfolk	871,000	-900	-0.1
E10000003	Cambridgeshire	632,800	-700	-0.1
E07000008	Cambridge	126,700	-200	-0.2
E07000143	Breckland	132,900	-400	-0.3
E07000146	King's Lynn and West Norfolk	149,300	-500	-0.3
E07000204	St Edmundsbury	111,800	-500	-0.4
E07000009	East Cambridgeshire	85,900	-500	-0.6

Source: ONS, *Annual Mid-Year Population Estimates Quality and Methodology Information paper*⁹⁹

Note: Data provided to nearest 100. Local authorities and higher geographies with absolute differences of less than 50 not shown.

3.31 The Assessment team appreciates that the impact of this error was limited to a few local authorities and did not affect the national level statistics. However, a couple of users, who were directly affected by the error and responded to the user consultation carried out as part of this Assessment, told us that due to the impact of the error in their areas they were keen for corrected statistics earlier than June 2015 and had asked ONS for these. They noted that these statistics are used locally to inform important decisions, including economic and housing analysis, and as the denominator for mortality and morbidity rates. In response to these requests ONS provided, in January 2015, statistics on the scale of the error, by single year of age and sex, for affected LSOAs in an ad-hoc data release available from its website¹⁰⁰. The *Code of Practice* (Principle 2, Practice 7) states that producers should “correct errors discovered in statistical

⁹⁹ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/quality-and-methodology-information-for-annual-mid-year-population-estimates.pdf>

¹⁰⁰ <http://www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/what-can-i-request/published-ad-hoc-data/pop/january-2015/effect-of-processing-error-on-mid-2013-population-estimates.xls>

reports, and alert stakeholders, promptly”¹⁰¹. The Assessment team considers that the need for the ad-hoc release suggests that user need was not met by the original ONS decision not to correct the data straight away.

- 3.32 ONS communicated the error promptly to those local authorities directly affected by the error and known users. A couple of users, who were directly affected by the error and responded to the user consultation carried out as part of this Assessment, told us that they found ONS helpful in engaging in discussions about the error and responding to their queries. However, the error was not as promptly communicated to others who may have also been using the statistics, for example local health officials and economic analysis organisations. Box 1 is based on discussions with the statistics team and details the timeline from the error being noticed to the communication of the error through multiple channels. Additionally, ONS’s communication of the error was potentially confusing. For example, the headings of the table produced by ONS to communicate the scale of the error (see Table 2) referred to corrected estimates. However, the estimates had not been corrected.

Box 1: ‘Forest Heath’ error timeline

- In August 2014, ONS was alerted by Suffolk County Council to the possible error. This followed an article in the Municipal Journal, published in July 2014, which identified Forest Heath as having the highest population growth rate among local authorities in England [or whatever it was].
- ONS investigated this query and established that it was the result of an error in their calculations of the distribution of the foreign armed forces (FAF) special population for certain local authorities in England.
- In September 2014, ONS directly contacted local authorities most affected by the error to alert them to it. ONS also added a note to the ‘background notes’ section of the bulletin about the error.
- At the autumn 2014 Local Insight Reference Panels, attendees (central and local government representatives) were made aware of the error.
- In October 2014, a consultation was launched, and shared on StatsUserNet, seeking to determine whether to correct the error in June 2015 or June 2016, which also alerted some users to the error.
- During the course of the assessment, ONS added a note to the supporting datasets about the error, improved the prominence of the error in the Quality and Management Information (QMI) note, and communicated the error on the landing page of the mid-year estimates and SAPE¹ bulletins.
- In February 2015, the error was communicated to the Population Estimates mailing list, which includes local government, central government, commercial, health and academic users.

¹⁰¹ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

- 3.33 As part of the designation as National Statistics, ONS should:
- review its correction policy, especially the classification of errors as major or minor
 - as a result of this review update the policy as appropriate
 - ensure that all statistical teams are able to apply the policy consistently
 - publish, as part of its Corrections policy how it will transparently communicate errors promptly to the widest possible range of users¹⁰²
- (Requirement 12).
- 3.34 ONS applies the *UK Population Statistics Revisions Policy*¹⁰³ when making revisions to its population estimates and projections. The policy was developed jointly by ONS, the Welsh Government, NRS and NISRA and approved by the Population and Migration Statistics Inter-Departmental Strategy Group and the Population Theme Group. The document is published on ONS's website. However, with the exception of *Mid-year Population Estimates* and *Marital Status Estimates*, there are no links to the revisions policy directly from any of the reports. We suggest that ONS add a link to *UK Population Statistics Revisions Policy* from all its population estimates and projections statistical reports.

Publications, Dissemination and Accessibility

Requirements from previous Assessment report 103 (20 April 2011):

- Requirement 10: Ensure that all releases are accompanied by commentary in order to enhance users' interpretation
- Requirement 11: Review its presentation of population projections to aid user understanding
- Requirement 12: Improve the accessibility of these outputs on its website and ensure that the presentation of the statistics enables and encourages further analysis and re-use
- Requirement 13: Review the title of the Super Output Area (SOA) population estimates with a view to more clearly conveying the content of the output
- Requirement 14: Provide users with high level guidance (for statistics on life expectancies, population estimates and population projections) explaining what statistics are available, and provide signposts to further information
- Requirement 15: Publish the name and contact details of the responsible statistician on all releases

¹⁰² In relation to Principle 2, Practice 7, Principle 4, Practice 2 and Principle 8, Practice 1 and Practice 2 of the *Code of Practice*

¹⁰³ <http://www.ons.gov.uk/ons/guide-method/revisions/revisions-policies-by-theme/population/population-statistics-revision-policy.pdf>

- 3.35 In response to Requirement 14 of the previous assessment¹⁰⁴, ONS published a high level overview of Population statistics¹⁰⁵, explaining and signposting the individual statistical products. This was clearly labelled on the Population Statistics methodology webpage. However, further improvements are needed to ensure that at the individual statistical report level there is sufficient signposting between publications and to historical datasets. For example, bringing together all small area estimates, including SOAs, into one statistical report (*SAPE*) simplifies accessibility, but users require easy access to all of the published statistics from each of the small area estimates series. A similar example is found for *Estimates of the Very Old* which underwent a title change in 2011 and was subsequently published on a new landing page without clear signposting to the previous outputs. As part of the designation as National Statistics, ONS should review, and where relevant, ensure that relevant publications and historical datasets are clearly signposted from statistical reports.¹⁰⁶ (Requirement 13).
- 3.36 The continued delay in ONS's website improvements have led to limited progress towards Requirement 12 in the previous assessment¹⁰⁷. The user consultation conducted as part of the Assessment (see Annex 2) generated a large number of responses about ONS's website. In particular users commented on the difficulty of using the search function and navigating the website.
- 3.37 Some users also called for data to be available through open data, with one user asking when the planned Application Programming Interface (API) would be available. In line with developments in data technology and user expectation, all data files should be published in an open format that equates to at least a Three Star level under the Five Star Scheme (*Open Data White Paper: Unleashing the Potential*¹⁰⁸, p.24). However, as outlined in paragraph 2.23, with the exception of *Mid-year Population Estimates and Marital Status Estimates*, ONS's publication equates to a level of two stars under the Five Star Scheme. The statistics team responsible for producing mid-year population estimates and SOA estimates told the assessment team that they are working towards these statistics being available through an online Data Explorer tool which would enable users to download CSV data files and improve the accessibility of the statistics. A Beta version of the tool has been released and is signposted from the data section of *Mid-year Population Estimates*. It includes mid-year population estimates for the UK and its constituent countries and local authorities, and for regions in England, for mid-2002 to mid-2013. It also includes the sex and age breakdown for each area. Statistics for lower-level geographies, for example SOA estimates, are not included.
- 3.38 As part of the designation as National Statistics, ONS should review, and update where necessary, the formats in which it publishes the data associated with its population estimates and projections statistics in order to balance the

¹⁰⁴ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

¹⁰⁵ <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/an-overview-of-ONS-s-population-statistics/index.html>

¹⁰⁶ In relation to Principle 8, Practices 2 and 4 of the *Code of Practice*

¹⁰⁷ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

¹⁰⁸ <https://www.gov.uk/government/publications/open-data-white-paper-unleashing-the-potential>

needs of users and the government's open data policy¹⁰⁹ (Requirement 14). We also suggest that ONS publish regular updates for users on progress with the planned Application Programming Interface (API) and Data Explorer tool.

- 3.39 In response to Requirement 10 in the previous assessment¹¹⁰, ONS ensured that all releases were accompanied by commentary, prior to this SOA estimates were not. The Assessment team welcomes the consistent layout of this commentary, including clear signposting to the key findings and other sub-sections. The statistical commentary in *Marital Status Estimates* and *Estimates of the Very Old* also effectively contextualises the statistics and helps user interpretation by providing international or European comparisons. However, some of the statistical commentary is not as well developed. For example, there is only limited contextual information and explanation of the rationale for some of the analysis around the SOA estimates in *SAPE*.
- 3.40 In some statistical reports, technical terms are clearly explained at the start (for example in *SAPE*), while in others explanations of technical terms used within the commentary were often missing. For example, in 2012 edition of *National Population Projections*¹¹¹ there was no explanation of technical terms, such as mortality and fertility, when they were first mentioned in the text. Additionally, the commentary in the statistical reports about the strengths and limitations of the statistics and degree of uncertainty connected to them is often very limited. Instead the reports rely on the accompanying QMI documents to provide this detail. However, as noted in paragraph 3.18, the links to these documents are not very well signposted and a non-expert user could miss this information as a result. As part of the designation as National Statistics ONS should improve the commentary in all the population estimates and projections statistical reports to aid user interpretation of the statistics by ensuring that it includes:
- contextual information and narrative about what the statistics show
 - explanations of technical terms
 - information about the strengths and limitations of the statistics¹¹²

As part of meeting this Requirement ONS should consider the points detailed in annex 1 and annex 2 (Requirement 15).

Confidentiality

Requirements from previous Assessment report 103 (20 April 2011):

- Requirement 9: Put in place written data access agreements for all exchanges of confidential data

¹⁰⁹ In relation to Principle 8, Practice 6 of the *Code of Practice*

¹¹⁰ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/assessment-report-103---population-estimates-and-projections.pdf>

¹¹¹ <http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2012-based-projections/stb-2012-based-npp-principal-and-key-variants.html#tab-Introduction>

¹¹² In relation to Principle 8, Practices 2 and 3 of the *Code of Practice*

3.41 In response to Requirement 9 in the previous assessment, ONS informed the Authority that it would set up formal data agreements for the supply of confidential data, where necessary, by December 2011. ONS currently has agreements for the supply of data in place with the Ministry of Defence for home armed forces data and the Home Office for Long Term Resident (LTR) and Sponsorship data. ONS receives confidential data from other external suppliers, such as the UK Air Force and Ministry of Justice, and it does not have data agreements in place for this data. However, ONS told the Assessment team that it is discussing with the Ministry of Justice setting up an agreement for the exchange of prisoner data. As part of the designation as National Statistics, ONS should put in place written confidentiality agreements for the exchange of data with all external suppliers¹¹³ (Requirement 16).

¹¹³ In relation to Principle 5, Practice 6 of the *Code of Practice*

Annex 1: Compliance with Standards for Statistical Reports

- A1.1 In November 2012, the Authority issued a statement on *Standards for Statistical Reports*¹¹⁴. While this is not part of the *Code of Practice for Official Statistics*, the Authority regards it as advice that will promote both understanding and compliance with the *Code*. In relation to the statistical reports associated with population statistics that are the subject of this Assessment, this annex comments on compliance with the statement on standards. The comments included in this annex are based on a review of:
- a. *Annual Mid-year Population Estimates, 2014 (Mid-year Population Estimates)*¹¹⁵ and Super Output Area (SOA) population estimates and Clinical Commissioning Group (CCG) population estimates (an aggregation of SOA statistics), both of which are included in *Annual Small Area Population Estimates, 2013 (SAPE)*¹¹⁶. These two statistical reports are produced by the Population Estimates Unit
 - b. *Estimates of the Very Old (including Centenarians) for England and Wales, United Kingdom, 2002 to 2013 (Estimates of the Very Old)*¹¹⁷ and *Population estimates by marital status and living arrangements, 2014 (Marital Status Estimates)*¹¹⁸. These two statistical reports are produced by the Demographic Analysis Unit
 - c. *National Population Projections, 2012-based*¹¹⁹ and *2012-based Sub-national Population Projections for England*¹²⁰. These two statistical reports are produced by the Population Projections Unit

This annex includes three sub-sections. Each sub-section relates to the two statistical products – that are included in the scope of this assessment – for which each of the three ONS producer teams is responsible (para A1.1). We have organised the annex in this way for the convenience of these producer teams.

- A1.2 In implementing any Requirements of this report (at paragraph 1.11) which relate to the content of statistical reports, we encourage the producer body to apply the standards as fully as possible.

¹¹⁴ <http://www.statisticsauthority.gov.uk/news/standards-for-statistical-reports.html>

¹¹⁵ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/mid-2014/stb---mid-2014-uk-population-estimates.html>

¹¹⁶ <http://www.ons.gov.uk/ons/rel/sape/small-area-population-estimates/mid-2013/mid-2013-small-area-population-estimates-statistical-bulletin.html>

¹¹⁷ <http://www.ons.gov.uk/ons/rel/mortality-ageing/estimates-of-the-very-old--including-centenarians-/2002---2013--england-and-wales--united-kingdom-/stb-2002-2013-estimates-of-the-very-old.html>

¹¹⁸ <http://www.ons.gov.uk/ons/rel/family-demography/population-estimates-by-marital-status-and-living-arrangements/england-and-wales--2002-to-2014/stb-marital-status-and-liv-ar.html>

¹¹⁹ <http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2012-based-projections/stb-2012-based-npp-principal-and-key-variants.html>

¹²⁰ <http://www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/2012-based-projections/stb-2012-based-snpp.html>

Include an impartial narrative in plain English that draws out the main messages from the statistics

- A1.3 *Mid-Year Estimates* begins with the main points. These points generally reflect interesting points for public debate. For example, the total population of the UK, how this compares to last year and the components of the change. However, there were other interesting points mentioned in the main body of the report that are not drawn out in the main points section. For example, differences in population change between constituent countries and regions.
- A1.4 There is some evidence of placing the mid-year population estimates in context. For example, explaining what factors are driving changes in the population size and comparing changes over the past ten years. However, the statistical report did not include comparisons with, or mention, international or EU statistics. Instead, these comparisons are included in 'Overview of the UK Population story', which is a HTML document released alongside the statistical report. This HTML document is signposted from *Mid-Year Estimates* but it is not clear in the narrative that international and European comparisons are included within it. Additionally, *Mid-Year Estimates* mentions that armed forces have played a role in the increase in the population size over the year until mid-2014, but no explanation about why and whether this is particularly different from previous years is included.
- A1.5 *SAPE* – which includes SOAs and their aggregation into statistics for CCGs – helpfully highlights in the key points that this is the first time that all these statistics have been brought together into one publication. However, the key points, like the narrative in the statistical report itself, are limited in the extent that they draw on the potential richness of the statistics. For example the SOA statistics are not compared over time. There is also only limited contextual information and the rationale for some of the analysis is not explained; for example, why the age range 75 and over was used to report the CCG statistics.
- A1.6 Both publications are well structured with a good use of sub-headings.

Include information about the context and likely uses of the statistics

- A1.7 *Mid-year Population estimates* and *SAPE* (which includes SOA estimates) explain clearly what is being measured and technical concepts are generally explained up-front. For example, the *SAPE* narrative clearly explains at the beginning of each sub-section technical concepts, such as Super Output Areas. There is a short story¹²¹ linked from the introduction section which helpfully explains the different geographical areas covered in *SAPE* and how they fit together. *Mid-Year Population Estimates* does not explain why 30 June is used as the date for estimating the population. Eurostat use 1 January as the date for estimating the population and estimates on this basis are sent to Eurostat by ONS annually. These statistics are published on the Eurostat website¹²² and signposted to from the QMI.

¹²¹ <http://www.ons.gov.uk/ons/rel/sape/small-area-population-estimates/mid-2013/sty-small-area-population-estimates-explanation.html>

¹²² <http://ec.europa.eu/eurostat/>

A1.8 Both publications summarise the main uses and users for these statistics in the introduction section of the publications.

Include information about the strengths and limitations of the statistics in relation to their potential use

A1.9 The Quality and Methodology Information documents¹²³ that accompany the main publications include information about uncertainty in the statistics, and some of the strengths and limitations of the underlying data sources. Also the Mid-Year Estimates Quality Tool¹²⁴, published alongside the 2014 statistics, includes useful quantitative information about the strengths and limitations of the Mid-Year Estimates. However, *Mid-year Population estimates* and *SAPE* (which includes SOA estimates) do not include sufficient text about the strengths and limitations of the statistics, and *SAPE* does not appropriately note that the statistics included in it are estimates and therefore have a degree of uncertainty associated with them.

Be professionally sound

A1.10 *Mid-Year Estimates* uses diagrams well to illustrate particular points. However, figure 2 combines other and net international migration into one category which could be confusing for readers and elsewhere in the report, for example in table 1 and the main points, they are separated out.

A1.11 In the SOA and CCGs part of *SAPE*, charts are generally not used to illustrate the main points; instead, the statistics are displayed in a series of tables. The tables, and one chart, display properly in the PDF version.

Include, or link to, appropriate metadata

A1.12 In both *Mid-Year Population Estimates* and *SAPE*:

- appropriate contact details for the statistical team are listed, along with the next publication date
- the frequency of release and timing of the next release are stated

A1.13 *SAPE* helpfully brings together all the small area estimates (including SOA estimates). However, it is not clear which of the statistics are National Statistics and which are experimental statistics either in the statistical report or on the relevant ONS webpage. This is stated in the summary section of the statistical report, but is not explicit in the relevant sub-section or on the relevant webpage. Additionally, the predecessor statistical reports to *SAPE* are not well signposted from *SAPE* or the Edition landing page¹²⁵ so historical datasets cannot be accessed easily.

A1.14 As at 6 July 2015, some of the QMI and methodology documentation that accompany *SAPE* are not up to date. For example, the *SAPE* QMI mentions that ONS will analyse the *SAPE* methodology using the 2011 Census by the end of 2014. The Authority understands that this analysis will be incorporated in

¹²³ <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/index.html> & <http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/population/index.html>

¹²⁴ <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-368259>

¹²⁵ <http://www.ons.gov.uk/ons/rel/sape/small-area-population-estimates/index.html>

the review of the Super Output Area methodology due to be completed by the end of 2015 (para 3.22).

A1.15 *SAPE* does not include a link to ONS's revisions policy. *Mid-Year Estimates* does include a link to ONS's revisions policy.

Demographic Analysis Unit

Include an impartial narrative in plain English that draws out the main messages from the statistics

A1.16 *Estimates of the Very Old* and *Marital Status Estimates* begin with good clear key points that capture the main findings of the statistical reports. The publications are well structured with sub-sections clearly titled and are written in accessible formats.

A1.17 In *Estimates of the Very Old* the statistics are well explained and the commentary includes sufficient explanation of the patterns seen in the statistics over time. It does not include justifications for or references to further information about some of the explanations. One example of this is when Spanish flu is given as a reason for rises in the number of women aged 90 and over relative to men in the 1980s, no explanation is given as to why this disproportionately affected men and what other factors might have caused male mortality to increase (such as the First World War). Additionally, a reference to published research findings which help to explain this justification is not included.

A1.18 *Estimates of the Very Old* makes good comparisons between males and females and between UK countries. It also provides a good explanation of trends in the percentage of people alive at each age between 90 and 99. However, the international section is long, which makes the comparison section unbalanced and not all of it is relevant to the UK comparisons. The UK countries are not compared sufficiently, as England and Wales are reported as one unit in the comparisons rather than separately.

A1.19 *Marital Status Estimates* also explains the statistics well and places them in context. For example, the statistics are compared with selected European countries, with the limitations of this comparison clearly noted. However, England and Wales are reported as one unit in this report rather than separately which reduces the ability to compare within the UK. Comparable statistics for Northern Ireland and Scotland are not currently available so a wider UK comparison is not possible. Additionally, the international comparison refers to all ages, while the rest of the statistical report refers to age 16 and over, but the reason for this difference is not explained.

A1.20 *Marital Status Estimates* highlights links with other published ONS research and statistics to provide further context for these statistics. These links are shown as hyperlinks only, rather than including a footnote or endnote with the link, which can make accessing them direct from the PDF version of the output difficult.

Include information about the context and likely uses of the statistics

A1.21 *Estimates of the Very Old* and *Marital Status Estimates* summarise the main uses and users for these statistics. Both statistical reports include clear descriptions and explanations of concepts and definitions.

Include information about the strengths and limitations of the statistics in relation to their potential use

A1.22 *Estimates of the Very Old* and *Marital Status Estimates* do not include information about the strengths and limitations of the statistics in relation to their potential use. For example, in *Estimates of the Very Old* there is no demonstration of the level of error in each estimate of age and no comparison with alternative methods to demonstrate the strength of the method that ONS uses.

Be professionally sound

A1.23 *Estimates of the Very Old* and *Marital Status Estimates* effectively describe, using percentages, percentage change and absolute numbers, the key points. Charts are also used well to illustrate the main points. However, in *Marital Status Estimates*, the line graphs do not all print out well in black and white. This is a particular issue for Figure 5. Additionally, on occasion in *Marital Status Estimates*, there is a risk that using the phrase ‘more likely’ to compare sets of percentages may incorrectly imply the use of statistical testing.

A1.24 UK comparisons in Figure 8 and Table 1 of *Estimates of the Very Old* are limited in use as England and Wales are combined as one unit. In *Marital Status Estimates*, England and Wales are also reported as one unit rather than separately which reduces the ability to compare trends within the UK.

Include, or link to, appropriate metadata

A1.25 In *Estimates of the Very Old* and *Marital Status Estimates* appropriate contact details for the statistical team are listed, but the next publication date and frequency of the release are not stated.

A1.26 The full title for *Estimates of the Very Old* is ‘*Estimates of the Very Old (including Centenarians) for England and Wales, United Kingdom, 2002 to 2013*’. This is confusing as the analysis is solely UK focused. This has not always been the case. ONS told the Assessment team that in the past estimates for Scotland and Northern Ireland had not been ready for publication at the same time as those for England and Wales.

A1.27 The title, content and number of annual publications of *Estimates of the Very Old* have changed since 2011 (see Table 3). Before 2013 the publication was called ‘*Population Estimates of the Very Elderly*’. These past publications are not accessible from the *Estimates of the Very Old* webpage.

Table 3: Statistical report titles and publication dates 2011-2015

Title	Publication date
Estimates of the Very Old (including centenarians) – 2002-2014, England and Wales and the UK	Sept 15 (provisional)
Estimates of the Very Old (including centenarians) – 2002-2013, England and Wales and the UK	Sept 14
Estimates of the Very Old (including centenarians) – 2002-2012, United Kingdom	Mar 14
Estimates of the Very Old (including centenarians) – 2002-2012, England and Wales	Sep 13
Estimates of the Very Old (including centenarians) – 2002-2011	Mar 13
(No Publication)	(2012)
Population Estimates of the Very Elderly- 2010	Sept 11

Source: produced by Assessment team

A1.28 *Marital Status Estimates* includes appropriate links to the previous series, which was produced using the old methodology. However, the new series is not signposted from the previous series homepage¹²⁶.

A1.29 *Marital Status Estimates* includes analysis comparing the old method to the new method to explain the impact of the change in method. However, there are a couple of areas left unexplained. For example, the reasons why the old methodology was not rebased to the 2011 Census, as the new method has been, to enable a more direct comparison of the methods is not explained. Also, the reason why the total population is used when comparing the old and the new method, whereas the rest of the report focused on just those aged 16 and over, is not explained. The explanation of the numbers in Table 5 is also slightly unclear.

A1.30 *Estimates of the Very Old* does not include a link to ONS’s revisions policy. *Marital Status Estimates* does include a link to ONS’s revisions policy.

Population Projections Unit

Include an impartial narrative in plain English that draws out the main messages from the statistics

A1.31 The key points appear at the start of the statistical reports. The narrative tells readers how methods have changed, but does not always explain why; for example why the number of children is expected to rise over the next 25 years or why fertility assumptions in the UK have changed from the 2010-based assumptions. The narrative does not always include contextual information, such as trends in the rate of change in regions over time. It does not comment on how previous projections compare with subsequent population estimates or, in *Sub-national Population Projections*, how alternative projections compare.

¹²⁶ <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-by-marital-status/index.html>

A1.32 In *National Population Projections*, the explanatory text does not clearly highlight the main points. For example, the least-changing statistic in Table 4 – about the number of children under 16 – is the only statistic described in the introduction to Table 4. Additionally, the variant populations section lists a zero net migration variant that is not described in the subsequent text or shown in the accompanying figure (figure 4).

A1.33 *National Population Projections* does not include definitions of technical terms, such as fertility or mortality, or provide links to those definitions. *Sub-national Population Projections* does not describe - or include a link to – definitions for the regions used in the statistical report or explanations of what is meant by fertility, mortality and migration.

Include information about the context and likely uses of the statistics

A1.34 Examples of use in *National Population Projections* are narrowly focused on government departments and do not include uses made of the statistics by health analysts or private sector users or academics. *Sub-national Population Projections* does not give details about DCLG's use, or of how the statistics are used to plan services and project housing need. The examples given in both of the statistical reports do not say what decisions are made as a result of use.

Include information about the strengths and limitations of the statistics in relation to their potential use

A1.35 *National Population Projections* does not clearly explain what factors projections take account of, for example demographic trends. Limitations are not explained clearly, for example for long-term projections.

A1.36 The introductory text in both publications says that the projections do not attempt to predict the impact of future government policy. Commentary elsewhere in *National Population Projections* suggests that the projections assume that the direction of travel in policy will continue and that there is a distinction made between future change where legislation is already in place and where it is not.

A1.37 The fact that revised population estimates for Scotland – and as a consequence for the UK – were not available in time to include in the projections is first mentioned in a note to figure 4 in *National Population Projections*. The background notes say that 'observed differences did not raise any significant concerns about this approach'. It does not include further explanation – or appropriate links – about the process undertaken to reach this conclusion or about the scale of the impact.

Be professionally sound

A1.38 Both publications mention that there is uncertainty connected to the statistics. However, neither of the publications provide users with much detail about the level of uncertainty in the projections; for example, how confident users can be in the projections, especially when projected change is small. Additionally links to supporting documentation on accuracy are not always clearly signposted or available. For example, background note 8 in *National Population Projections* says that variant projections illustrate uncertainty, though it is not clear how and no link to further detail is provided.

A1.39 Users could misinterpret the commentary in *National Population Projections* about the increase in different older age groups because of its selective quoting of actual numbers, as well as proportions, for centenarians. Figure 3 illustrates the differences, but the scale used means that the number of centenarians in 2012 does not show on the graph.

A1.40 Table 4 in *National Population Projections* (see Figure 3) contains sets of numbers that have different units and measurements that are not clearly labelled and are unrelated. The series of graphs that follow table 4 show the results more clearly than the table and are located alongside the relevant text.

Figure 3: Table 4 in National Population Projections, 2012-based Statistical Bulletin

Table 4: Projected population by age, United Kingdom, mid-2012 to mid-2037

	Millions					
Ages	2012	2017	2022	2027	2032	2037
0-14	11.2	11.7	12.2	12.3	12.2	12.2
15-29	12.6	12.4	12.1	12.3	12.9	13.3
30-44	12.8	12.7	13.3	13.6	13.5	13.2
45-59	12.6	13.3	13.0	12.6	12.4	13.0
60-74	9.4	10.1	10.7	11.6	12.3	12.1
75 and over	5.0	5.5	6.6	7.7	8.5	9.5
75-84	3.6	3.8	4.6	5.3	5.4	5.9
85 & over	1.4	1.7	2.0	2.4	3.1	3.6
All ages	63.7	65.8	68.0	70.0	71.7	73.3
Median age (years)	39.7	40.1	40.6	41.3	42.1	42.8
Under 16	12.0	12.4	13.0	13.1	13.0	13.0
Working age*	39.4	41.0	42.4	42.9	43.1	44.2
Pensionable age*	12.3	12.4	12.5	13.9	15.6	16.1
Old age support ratio* (working age/pensionable age)	3.21	3.29	3.39	3.08	2.76	2.74

Source: ONS, *National Population Projections, 2012-based Statistical Bulletin*¹²⁷

A1.41 Table 1 in *Sub-national Population Projections* does not include the base sizes of the age groups so that users can judge the size of the increase in real, as well as percentage, terms. The headings in table 2 of *Sub-national Population*

¹²⁷ <http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2012-based-projections/stb-2012-based-npp-principal-and-key-variants.html#tab-background-notes>

Projections do not make it clear that the numbers shown refer to percentage change over 10 years.

A1.42 In the first key point in *Sub-national Population Projections*, it is not clear whether the comparison between London, the East and South East region is being made with England as a whole or with the rest of England.

Include, or link to, appropriate metadata

A1.43 The title of *Sub-national Populations Projections* describes the coverage clearly. The title of *National Populations Projections* describes the coverage as 'national', but does not clarify that national means the UK as a whole.

A1.44 The population projections unit publishes a lot of related documents for *National Populations Projections* and *Sub-national Populations Projections*, for example detailing methods and quality. It does not publish an overview – that could be linked to the statistical reports – about the various documents that it produces – including summary documents, quality and methods information – and what these documents contain. The background notes to the statistical reports include links to methods documents, but the introduction and the main commentary do not always include links to the background notes. *National Population Projections* includes links to additional information, for example about the change to methods used to model migration. It does not include a link to more-detailed information about the assumptions used to develop all principal and variant projections.

A1.45 The two publications include information about and links to similar statistics for the rest of the UK and Europe. *Sub-national Populations Projections* highlights that the statistics covering the rest of the UK, Wales, Scotland and Northern Ireland, are not directly comparable due to differences in methodology and base years. Both publications include links to supplementary data for longer time series, but neither includes a link to previous projections data before 2010.

A1.46 Neither publication includes a link to ONS's revisions or corrections policies.

Annex 2: Summary of assessment process and users' views

- A2.1 This assessment was conducted from July 2014 to July 2015.
- A2.2 The Assessment team – Siobhan Tuohy-Smith, Pat MacLeod and Johanna Hutchinson – initially agreed the scope of and timetable for this assessment with representatives of ONS's Population Statistics Division (PSD) in August 2014. The Written Evidence for Assessment was provided during October and November 2014. The Assessment team subsequently met members from relevant teams within the PSD during March 2015 to review compliance with the *Code of Practice*, taking account of the written evidence provided and other relevant sources of evidence.

Summary of users contacted, and issues raised

- A2.3 Part of the assessment process involves our consideration of the views of users. We approach some known and potential users of the set of statistics, and we invite comments via an open note on the Authority's website. This process is not a statistical survey, but it enables us to gain some insights about the extent to which the statistics meet users' needs and the extent to which users feel that the producers of those statistics engage with them. We are aware that responses from users may not be representative of wider views, and we take account of this in the way that we prepare Assessment reports.
- A2.4 As it was known that some of the users that we planned to approach would have an interest in the range of population estimates and projections we invited comments about all of the sets of statistics covered by Assessment reports 309 to 312 as part of a single user consultation. The Assessment team received 83 responses from its user consultation. It followed-up some of the initial responses with a small number of e-mail, telephone and face to face discussions. The respondents were grouped as follows:

Local authorities	21
Government departments	17
Commercial	9
Government agencies/other public sector	8
NHS	7
Producer organisations (as users)	6
Academics	5
Data suppliers	10

Common Themes

- A2.5 A large number of users contributing to the consultation were expert users who were often well connected to the producers and to other users through various networks. Often they used the data, rather than the statistical reports. As a consequence many were not routinely drawing on the published commentary that accompanies the statistics. They had good knowledge of the methods used to produce the estimates and projections and of their strengths and

limitations. Some users did call for more documentation of uncertainty, more highlighting of the methodological issues identified, and generally for clearer documentation of quality.

- A2.6 Users expressed a demand for statistics to be available for various different or lower level geographies, although none were requested by more than one or two users. Producers have already met some of these requests either by producing the data at the required level or supporting users to produce their own statistics. A small number of users highlighted differences between the producers in the visual presentation of the statistics, while acknowledging the different resources available to the different producers.

ONS

- A2.7 ONS's website generated the largest number of comments from users. In particular, users commented on the difficulty of using the search function. They overcome the issues they encounter by using external search engines, email alerts and bookmarking pages. Some users – in particular in local authorities and health services – told us that they republish to make it easier for colleagues, and sometimes the public, to use. Most users who have experience of other producer websites said they found them easier to navigate than ONS's website. A small number who had used all of the producer's websites said they found all of the search functions lacking. A second issue that users raised about the website was that data for different years were not accessible in a single place. Some called for data to be available through open data, with one user asking when the planned Application Programming Interface (API) would be available.

- A2.8 The second major area of comment was around methods. Users mainly made these in the context of projections. Some users commented on the need to take into account policy or other changes – and so were asking for forecasts rather than projections. Users generally accepted that the projections made were the best available, though a few raised the question of whether they were fit for purpose. Those latter comments were, in some cases at least, specific to the 2011 projections. Methodological issues identified included:

- issues related to the loss of precision in estimates over time with distance from the census which has a knock-on effect to projections
- the use of five-year base estimates for projections, the latest of which were said to be atypical (because of the recession)
- some standard methods were less suitable for projections in areas with atypical populations – such as areas with high levels of international students or where there is high internal migration – or particular situations such as a constrained housing market
- unhappiness with ONS's decision not to adjust the projections for unattributable population change

Users also called for improved documentation for projections, with more details provided about some of the identified issues with methods.

- A2.9 Some users said that ONS's engagement with users had improved – notably through the user groups and formal engagement events – and they had more confidence that ONS would take their views into account. In a few cases they thought that there was scope for ONS to use those groups even more

effectively. A few users said there was scope for further improvement around communication with the wider user community. A user told us that ONS is now dealing with some of their concerns around projections methods, although another told us that ONS had initially said that it would schedule work to review methods in response to comments received, but that this has been postponed.

Key documents/links provided

Written Evidence for Assessment document

