

## Population and Household Statistics Quality Report

Quality Reports for statistics are overview notes that pull together key qualitative information on the various dimensions of quality of the statistics.

### What are these statistics?

These statistics refer to a suite of statistical bulletins and reports containing a comprehensive set of information about the population and households of Wales. Population statistics include population and migration estimates and local authority and national population projections. Household statistics include household estimates and projections for Wales.

Both historical and current data as well as future projections of persons and households are included. The latest versions are held on our theme pages for population and census statistics and household statistics. More details about the specific topics are detailed below.

**Population mid-year estimates** are calculated by combining birth and death registration data together with estimates of international migration and internal migration (within UK) flows to calculate estimates for the usually resident population of each area as at 30 June each year.

**Population projections** are trend-based projections that provide estimates of the size of the future population, and are based on assumptions about births, deaths and migration. The assumptions are generally based on past trends. Projections done in this way do not make allowances for the effects of local or central government policies on future population levels, distribution and change.

International **migration estimates** (between Wales and overseas) are available, along with cross-border migration (migration between Wales and England/UK) and internal migration (people moving within Wales).

**Household estimates** are estimations of historic household numbers. They are produced by making assumptions about household composition and size and applying these to population estimates. These assumptions are based on past trends identified from census data.

**Household projections** provide estimates of future numbers of households. Using a similar methodology to household estimates, they are produced by making assumptions about household composition and size and applying these to population projections. The assumptions are based on past trends. Projections done in this way do not make allowances for the effects of local or central government policies on future household levels, distribution and change.

## Users and uses

There is a high demand for population and household statistics for a variety of uses. Some of these include:

- Planning services and estimating future need at national and local level, for example; schools, housing, health and social services provision. This includes requirements under the Well-being of Future Generations (Wales) Act on public bodies to consider the well-being of the population and future generations in everything they do, and the Planning (Wales) Act.
- As part of the Local Government Finance revenue settlement.
- Policy development.
- Advice to Ministers
- Informing debate in the National Assembly for Wales and beyond.
- For the calculation of further statistics.
- As denominators in rates (for example, birth rates).
- For the purposes of weighting surveys.
- Geographic profiling, comparisons and benchmarking.
- Analysis of population cohorts and migration trends including horizon scanning and the production of “Future Trends” reports such as that required by the Well-being of Future Generations (Wales) Act.

The key users of population and household statistics are:

- Ministers
- Welsh Government colleagues working on planning and a wide range of policy areas.
- Welsh Government colleagues working on Local Government Finance and other financial allocations
- Other staff within the Welsh Government’s Knowledge and Analytical Services.
- Assembly Members and the Members Research Service in the National Assembly for Wales.
- Local government unitary authorities (elected members and officials) and Public Service Boards
- Researchers in Local Government, NHS, National Parks and a wide range of other organisations.
- The Office for National Statistics.
- Her Majesty’s Treasury
- Other government departments including other devolved administrations
- Charities and voluntary sector organisations
- Students, academics, and universities.
- Individual citizens
- private companies.

## How the outputs are created

The statistics covered by this Quality Report are produced using data collected by third parties. For these outputs no raw data collection is undertaken by the Welsh Government, so to some extent the quality of them is dependent on the data collection procedures of others; for example, the Office for National Statistics (ONS). This is the case for Population and Household Projections as well as Mid-Year Estimates of Population and National

Population Projections which are produced initially by the ONS, but for which data are published for Wales by the Welsh Government.

The methods used to produce those population and household statistics which are produced by the Welsh Government are outlined below. These statistics are also published by the Welsh Government. Further details of the methodology are included in [technical reports](#) that accompany the outputs.

## **Local Authority Population Projections**

As with Mid-Year Estimates of Population produced by ONS, Local Authority Population Projections are produced using a well-established demographic approach known as the cohort component method. In simple terms, this involves:

- Taking the most recent year's population estimate;
- Taking out special population groups;
- Ageing every person on one year;
- Adding births and subtracting deaths;
- Allowing for inward and outward migration;
- Adding back in the special population groups.

The base data used to make the calculations are produced by the Office for National Statistics.

This process is carried out for all unitary and national park authorities in Wales for the length of the projection, normally twenty-five years. In order to produce population projections, assumptions need to be formed to project future levels of fertility, mortality and migration for each local authority. These assumptions are based on local trends in recent years.

National population projections for Wales are produced separately. Whilst the sum of the local authority population projections is not constrained to the projections for Wales, this enables local trends to be used for local purposes. The [technical report](#) gives more detail on this difference and the quantitative impact. Guidance on when to use the two sets of projections is provided in the '[Local Authority Population Projections for Wales - Guidance Leaflet](#)'.

## **Household Projections**

Household projections take the results of the Local Authority Population and use a propensity model known as the membership method to estimate the numbers of households likely to result from the projected population. Using this method, household projections for Wales are calculated by:

- using population projections and census data to calculate the projected number of people living in private households;
- using historical census data to calculate projected household membership rates by age gender and household type;
- multiplying the projected number of people living in private households by the projected household membership rates;

- dividing the results out by household size and aggregating by age, gender and household type to give the projected total number of households.

This process is carried out for all unitary and national park authorities in Wales, and separately for Wales as a whole, for the length of the projection, again normally twenty-five years.

### **Household Estimates**

The household membership method is also applied retrospectively to recent population estimates to provide household estimates. They are calculated by:

- using population estimates and census data to calculate the estimated number of people living in private households;
- using historical census data to project household membership rates to by age gender and household type;
- multiplying the estimated number of people living in private households by the projected household membership rates;
- dividing the results out by household size and aggregating by age, gender and household type to give the estimated total number of households.

This process is carried out for all unitary authorities in Wales and for all years for which population estimates are available.

Population and household projections are produced using bespoke software specifically designed for the purpose, namely POPGROUP and HOUSEGROUP WALES. Detailed information which includes file locations of raw data is maintained by the software to provide a complete audit trail for each projection run.

### **Validation**

The population and household statistics produced by the Welsh Government are checked thoroughly using a variety of methods:

- replicating the results through independent calculation using spreadsheets
- parallel production using separate systems (for example, SAS)
- raw data are checked against published sources. Discrepancies are followed up and resolved with data providers.

Where the data is produced for England and Wales by the Office for National Statistics the Welsh Government is consulted during the quality assurance process and on assumptions made for the projections for Wales.

### **Publication**

Once the results have been produced, whether by the Welsh Government or the Office for National Statistics, the release is compiled and the key points and commentary are drafted. The release is independently checked and a final sense check is carried out by the relevant statistician prior to publication on the website. A 'quality information' section is

included in each of our statistical outputs. This includes relevant information on areas such as methods, definitions, coverage, reliability, accuracy and geography.

## Standards

The statistics that are prepared adhere to recognised professional standards. They are produced in accordance with the [Code of Practice for Official Statistics](#) independently under the responsibility of the Welsh Government Chief Statistician.

## Disclosure and confidentiality

Disclosure and confidentiality are not an issue as all the data published are estimates or projections and do not represent information about individuals, but are aggregates for geographical areas.

## Quality

Welsh population and household statistics adhere to the Welsh Government's Statistical Quality Management Strategy, and this is in line with the European Statistical System's six dimensions of quality, as listed in Principle 4 of the Code of Practice.

The list below details the six dimensions and how we adhere to them.

## Relevance

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

Population and household statistics produced by the Welsh Government are used widely to by a wide range of users for planning, making decisions about developments and resource allocation, and geographic profiling. Other interest and uses of this data are outlined in the 'Users and Uses' section of this document.

We continue to maintain a live list of users who receive our regular population newsletters and we encourage feedback on all our outputs.

We consult with key regular users about user needs and prior to making changes through a range of mechanisms including the Welsh Statistical Liaison Committee and its subgroup the Wales Sub-national Projections working group (WASP). The Welsh Statistical Liaison Committee meets three or four times a year, it receives regular updates on the demography statistics outputs and is invited to comment on any proposals for content, format and timing of these outputs. The Welsh Statistical Liaison Committee also has an online community of practice which enables discussion.

All population and household outputs are made available at a unitary authority level for Wales and by single year of age, where possible, to enable users to aggregate them by age and geography (e.g. police authority, health authority level) as appropriate. Population and household projections are also available for National Parks as they have statutory planning functions. Small area population estimates (at ward and lower super output area) are also made available through the StatsWales online dissemination system so that users can aggregate data to other geographies.

## Accuracy

*The closeness between an estimated result and the (unknown) true value.*

Some of our outputs, for example, mid year estimates of population and national population projections are based directly on data calculated by the Office for National Statistics (ONS).

Quality reports for the Mid Year estimates of Population and the National Population Projections can be found on the [ONS website](#).

These Summary Quality reports aim to provide users with information on the usability and fitness for purpose of the statistics. There are also summary quality reports available through the above link for internal and international migration.

In the case of population and household projections it is impossible to quantify, at the time of their publication, how accurate the most recent projections will prove to be in the future. Each element of the projections, fertility, migration and mortality, and household composition rates is considered very closely to try to ensure that the best possible assumption is made. However, inherent uncertainty of future demographic behaviour means that from some point in the projection, assumptions of key variables are often held constant. How far into the future this occurs is likely to depend on the stability of that particular measure.

It would be impossible for any projections to be entirely correct – changes in the economy, in individual, family and household behaviour and events outside the UK will occur and will influence the three main components of population change. Possible effects of this uncertainty are shown by producing both a principal projection and a number of variant projections. These variants give alternative plausible scenarios according to high or low assumptions about the trajectories of fertility, migration and mortality; they can also be combined to see the effect on the projections of, for example, a ‘young’ population assumption (high fertility, high migration and low life expectancy assumptions).

Furthermore since decisions are intended to be made as a result of these projections it would not be unsurprising for levels of population to differ from the projections. The Annexe to this quality report provides a comparison of the most recent local authority population projections with the mid-year estimates to date, which is the best available estimate of the accuracy of the projections.

In summary the 2011-based local authority projections have, overall, slightly overestimated population growth from 2011 to 2013 and 2014. This was also true for 15 of the 22 local authorities in Wales. The percentage differences varied from +1.1 per cent for Wrexham to -0.7 per cent for Rhondda Cynon Taf.

Comparisons with sets of projections produced prior to the 2011 Census results would need to be considered in the light of the revision to previous population estimates following the publication of 2011 Census data. For example, the revised mid-year estimate for 2008 was 3,025,867. This is around 26,000 higher than the mid-year estimate used as a base year for the 2008-based local authority projections and any subsequent trends would be significantly different as a result.

Population estimates are produced using a well established demographic approach called the cohort component method (refer to ‘How the outputs are created’). This involves combining information from a number of data sources including the previous Census, survey data and administrative registers. The data sources used are the best that are

available on a nationally consistent basis down to Local Authority level, but the estimates are subject to the coverage and error associated with these sources. More information is provided in the subsequent section “Use of administrative data”.

Estimates of international migration are obtained from the International Passenger Survey (IPS) and are therefore subject to sampling and other types of error. Although national figures have relatively small levels of uncertainty, at local levels the sample counts in the IPS are small and it is necessary to combine data across years and distribute figures using other data sources. At this level, individual migration estimates are subject to greater levels of uncertainty. However the impact of uncertainty associated with net migration flows is small as a percentage of the Local Authority mid-year estimate. At the current time specific measures of uncertainty are not available for estimates at Local Authority level; ONS is undertaking research to investigate the feasibility of providing these measures.

## **Timeliness and Punctuality**

*Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the time lag between the actual and planned dates of publication.*

All outputs adhere to the [Code of Practice for Official Statistics](#) by pre-announcing the date of publication through the Due Out Soon pages on the Statistics for Wales website. Furthermore, should the need arise to postpone an output this would follow the Welsh Governments [Revisions, Errors and Postponements](#) arrangements.

We publish releases as soon as practical after the relevant time period.

We aim as far as possible to shorten the time lag between publication dates for population and household projections and the base year to which they refer, but this depends on the ongoing evidence plan for the department. By consulting with users we aim to ensure we meet needs in terms of timeliness as far as possible. We keep users informed of our plans through regular demography updates and the annual Evidence plan. In general we would aim for a round of sub-national population projections at least every 3 years.

We would aim to align the base year for projections with those used for the National Population projections unless there was a clear user need to do otherwise. An example of this was around the 2011 Census where users in Wales considered it less important to produce a 2010-based set of sub-national projections than a 2011-based set soon after the Census results became available. This was inconsistent with the national projections.

The statistical bulletin on mid year estimates of population and StatsWales tables on National Population Projections for Wales are published at the same time as ONS publish data for England and Wales. Mid year estimates of population for a particular year are generally published in June or July of the following year. The timetable can be affected when results of a decennial Census become available and need to be built into the estimates.

## Accessibility and Clarity

*Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.*

Population and household statistics for Wales are published in an accessible, orderly, pre-announced manner on the [Welsh Government website](#) at 9:30am on the day of publication. An RSS feed alerts registered users to this publication. Simultaneously the releases are also published on [GOV.UK](#). All releases are available to download for free. More detailed data are also available at the same time (or shortly afterwards) on the [StatsWales website](#) and this can be manipulated online or downloaded into spreadsheets for use offline.

In our outputs, we aim to provide a balance of commentary, summary tables, charts and maps where relevant. The aim is to 'tell the story' in the output, without the bulletin or report becoming overly long. Where relevant there are technical reports provided separately which detail the methodology.

We aim to use Plain English in our outputs and all outputs adhere to the Welsh Government accessibility policy. Furthermore, all our headlines are published in Welsh and English.

We regularly peer review our outputs internally.

We aim to inform known key users of the publication of the statistics when they are published. A demography newsletter is issued to the Welsh Statistical Liaison Committee and published and distributed to other key users. [@StatisticsWales twitter](#) also announces our publications.

Further information regarding the statistics can be obtained by contacting the relevant staff detailed on the release or via [stats.popcensus@wales.gsi.gov.uk](mailto:stats.popcensus@wales.gsi.gov.uk)

## Comparability

*The degree to which data can be compared over time and domain.*

Each set of population or household projections is unique, comprising assumptions made using the best information available at that point in time. Thus each new set of projections, using the most up-to date background data available supersedes the previous set. Although the results of subsequent population and household projections can be compared, this will not be comparing like-with-like but instead observing what effect the most recent demographic trends, when built into the projections for the future, will have on the expected population and household numbers. Improvements to methodology within the base population estimates will also have an impact on those projections prepared before or after the revision.

It is possible to compare population and household projections with subsequent population and household estimates when they become available, both at an aggregate level and by age and gender components.

Where sub-national projections within Wales are published a consistent methodology has been agreed and applied to all sub-national areas so comparisons can be made across geographic areas and demographic characteristics. The [technical report](#) for the local authority population projections indicate that the projections for sub-national areas in

Wales are not constrained to the projection for Wales, why this decision was taken and also provides advice on how to use the different projections.

The existence of well-established approaches to methods of deriving population estimates means that estimates can be compared over time and domain e.g. geographic level. Recent improvements in the way in which migration estimates are produced led to a revision to the methodology but revised estimates were provided for the time series back to 2002.

Where appropriate we include within our outputs links to data from other countries of the UK and wider afield.

Comparisons with other countries of the UK and internationally can be made but care needs to be taken due to some differences in methodology. A number of documents have been prepared for these outputs that document the methodologies used across the UK. These are available through the links on our theme pages.

Where standard definitions or methodology are not used we will highlight these and explain the reason why in the quality information section of our outputs.

## **Coherence**

*The degree to which data that are derived from different sources or methods, but which refer to the same phenomenon, are similar.*

For many of the statistics covered in this report, they are the only source of official data on that subject.

For the national population projections a principal projection is calculated alongside a number of variant projections that are based on alternative assumptions about future fertility, mortality and migration. Two software solutions, POPGROUP and HOUSEGROUP WALES, enable other users to prepare projections according to other assumptions for their own purposes but these would not represent the official population or household projections for Wales or areas of Wales.

The Census in England and Wales gathers data on the total population including age, sex, and location of residence. The annual Mid-Year Population Estimates provide updated estimates of the population between Census years. Following the census, the back-series of estimates between Census years are revised to ensure a comparable time-series.

Users often compare population estimates for individual Local Authorities to other data sources, for example administrative records or anecdotal evidence. Comparisons between datasets should be treated with caution, as there are always definitional differences in the data collected. For example, whether the data differentiate between long-term or short-term migration, or whether they account for individuals who have left the country or authority. Also other data sources may cover only a subset of the population.

## Use of Administrative Data

As described in earlier sections, the Local Authority and National Park projections and household estimates for Wales use administrative data held by the ONS.

[ONS quality and methodology information reports for the population theme](#).

The reports contain information on the methods used to compile the data for the named output and on the quality of that data. They are designed to give information on the strengths and limitations of the data so that decisions can be made on the appropriate uses of the data. ONS has the primary responsibility for assuring the quality of administrative data for use in official statistics. Whilst Welsh Government receives aggregate information on births, deaths, migration and special populations in reality these are produced by ONS based on multiple sources, all of which will have different strengths and weaknesses.

The aggregate data provided to us and used in the projections has been subject to internal checks for consistency and plausibility by the Welsh Government. As a key user and producer of statistics in future the Welsh Government will give further consideration with ONS to how it can contribute to the quality assurance process around these data sources on a consistent basis.

During the production of the next round of projections during 2016-17 this will involve quality assurance sessions between relevant ONS staff and Welsh Government statisticians on particular data sources. We will also work with ONS on their rolling programme of quality assurance assessments of their administrative sources to develop our levels of assurance around the administrative data.

Using the guidance provide by the UK Statistics Authority's [administrative data quality assurance toolkit](#) we below provide an initial assessment of the risk profile of the aggregate administrative data used within our population and household projections. This assessment will be refined as we continue to take into account this guidance in the development of future projections and continue work with ONS as they document and assess the entirety of the underlying sources against the UK SA guidance.

For **birth and death statistics** we consider these to be of **low risk** since there are clear procedures in place which are documented and well understood (and described below), as well as a statutory basis for registration which ensures full coverage of the population and different geographies. The context and purpose of why the data are collected are clear and we consider them to be fit for the purpose intended within these statistics. This is consistent with the ONS assessment of these data. According to the UK Statistics Authority toolkit, this suggests we should be seeking basic assurance (A1) on matters such as the collection processes, communication with data suppliers, quality assurance methods and documentation. In working with ONS we will ensure that we will build on the information provided below along the lines of the UK SA guidance.

**Migration statistics** are based on a wide range of sources. There are some known coverage issues within different sources such as the patient registers and the higher education data which may impact on the quality of the statistics. This includes issues around young people, particularly male, being slow to update their GP registrations or lack of information around their term-time address as opposed to their parental home. This is an area that we want to work further with ONS to understand the processes and quality issues during 2016, although it should be noted that we use aggregate estimates which are based on a National Statistics series. However given the impact of migration estimates on our population and household

data, our initial assessment would be **high risk**. According to the UK Statistics Authority toolkit, this suggests we should be seeking comprehensive assurance (A3) on matters such as the collection processes, communication with data suppliers, quality assurance methods and documentation. We consider at this stage that we need to work with ONS to significantly increase the documentation around the strengths and weaknesses of these data and we will do so during the next production of sub-national projections.

For **special populations** we also receive aggregate data from the ONS. Again, further work is needed with ONS to understand the potential quality issues. These sources have a low impact on the overall estimates and projections and we understand from ONS that they consider these sources to be **low risk**. According to the UK Statistics Authority toolkit, this suggests we should be seeking basic assurance (A1) on matters such as the collection processes, communication with data suppliers, quality assurance methods and documentation. In working with ONS we will ensure that we will build on the information provided below along the lines of the UK SA guidance.

Further detail on the assurance processes for each administrative source follow:

### *Births*

Birth statistics are based on the number of births occurring in a given year. They present data on births that occur and are then registered in England and Wales. Statistics are based on information collected at birth registration. Annual data are released in a series of theme-specific packages, usually between July and December. Annual birth statistics for the UK and its constituent countries are published in the 'vital statistics: population and health reference tables'.

ONS birth statistics are based on registrations provided by the General Register Office (GRO). The data represent a legal record, making it the best and most complete data source.

As part of the birth registration process, before data are submitted through the Registration Online system for births and deaths (RON), the registrar asks the informant to verify that all data entered are accurate. The registrar is then able to correct any errors. There are some validation checks built into RON to help the registrar with this process. Information supplied at birth registration is generally believed to be correct since wilfully supplying false information may render the informant liable to prosecution.

When ONS receive birth registrations, a number of checks are carried out on records to ensure that they are valid. Checks are more frequent on those records with extreme values for main variables (such as age of mother and age of father) as these have a greater impact on published tables. Any birth records which appear questionable are raised with the GRO on a monthly basis for further investigation. Any proposed changes to the recording and collection of birth registration data are carefully managed and involve ONS, GRO, and other stakeholders. This ensures that any implications on birth statistics are taken into full consideration.

Changes recently made to the Population (Statistics) Act 1938 mean that improved data on previous children has been collected since May 2012. The changes will improve the accuracy of birth statistics by birth order and feed into estimates for family size and measures of fertility. ONS carry out quarterly checks on the births dataset.

There is an issue relating to the registered location of stillbirths. That is, the figures are based on the area of usual residence of mother rather than where the stillbirth took place. This is an issue for England and Wales and is in the process of being resolved by ONS and the Department of Health. Having looked into it as part of the ongoing quality work between the Welsh Government and ONS it is now clear that the issue does not affect the projections for Wales or England.

## *Deaths*

The Births and Deaths Registration Act (1836) made it a legal requirement for all deaths to be registered from 1 July 1837. Mortality statistics for England and Wales are based on the information collected when a death occurs and is then registered. Published figures represent the number of deaths registered in a reference period.

The annual mortality statistics cover England and Wales. The Annual Time Series Data table in the “vital statistics: population and health reference tables” provides a range of mortality statistics for the UK and its constituent countries, with some measures available back to 1838.

Daily extracts of death registrations from RON are received by ONS and then pass through a series of automatic validation processes which highlight any inconsistencies. The Mortality Metadata provides detailed information on the collection, processing, and quality of mortality data for England and Wales.

Internal consistency checks are then conducted to eliminate any errors made during the recording of deaths, and to ensure the annual dataset is complete. Before becoming usable for analysis the data pass through more validation checks and processes, these include running frequency counts on a range of variables, checking the plausibility of combinations of fields, and checking inconsistencies. Suspect records are referred back to register offices. Any concerns relating to cause of death are referred to a Medical Advisor or Medical Epidemiologist.

## *Migration*

Long-term international and internal migration estimates at local authority level for England, Wales, Scotland and Northern Ireland are produced by ONS, NRS, and NISRA for the purpose of producing a range of population estimates. They are derived from a number of different sources, including the NHS patient registers, the Higher Education Statistics Agency student record, the DWP Migration Worker Scan information on international migration through the Home Office and the National Asylum Seeker support service. Further information on these sources can be found through the relevant links to internal migration, short-term and long-term international migration on the [ONS quality pages](#).

The data are presented as:

- Long-term international immigration and emigration volumes - representing the number of people arriving in the UK or leaving the UK for a period of at least 12 months.
- Internal in-migration and out-migration volumes - an estimate of migration within the UK (crossborder flows between each of the constituent countries, as well as migration between local authorities).
- Long-term international and internal migration turnover rates (such as volume of movement between in- and out-migration) per 1000 (of the total population)
- Long-term international inflow and outflow rates per 1000 (of the total population)
- Total volume of migration per 1000 (the sum of internal and international migration). This indicates more clearly the areas with high levels of population turnover

As part of the ongoing quality work between the Welsh Government and ONS the Welsh Government has set up a group of contacts in ONS and the Home Office to ensure that the most up-to-date data sources for Wales are used for internal migration, short-term and long-term international migration, refugees, and asylum seekers.

The assumptions for the flows between UK countries are set by ONS as rates instead of fixed numbers of migrants. Annual age- and sex-specific migration rates for each UK cross-border flow are calculated as the number of migrants at the end of the year divided by population of the country of origin at the start of the year. An average of the rates for the last 5 years of actual data (currently year ending mid-2010 to year ending mid-2014) is then taken and

applied to the population of the UK country of origin at the beginning of each projection year to calculate the projected number of migrants for each flow.

The fluctuations occurring in the earlier years are due to the new method taking into account the underlying age and sex structure and population size of the countries. The underlying age and sex distributions for cross-border migration are based on data from NISRA, NRS, and ONS.

Assumptions of future international migration have been derived from modelling recent trends in civilian migration to and from the UK. Migrants are defined as individuals who change their country of usual residence for a period of at least a year, so that the country of destination becomes the country of usual residence.

International migration figures are derived from a number of sources. The principal source is the International Passenger Survey (IPS). Adjustments are made to account for people who enter or leave the country initially for a short stay but subsequently decide to remain for a year or more (known as visitor switchers), and for people who originally intend to be migrants but in reality stay in the UK or abroad for less than 1 year (known as migrant switchers). Flows to and from the Republic of Ireland, taking into account the discontinuity in 2008 due to methodological changes, are included in the IPS flows.

The IPS also excludes most, but not all, people seeking asylum. Estimates of the flows of asylum seekers (and their dependants) not captured by the IPS are obtained from Home Office data.

A new method for calculating cross-border migration assumptions is being implemented by ONS for future national population projections. The assumptions for the flows between the countries of the UK are now set as rates which are based on National Health Service Central Register (NHSCR) trend data from the previous 5 years. Annual age and sex-specific migration rates for each cross-border flow are calculated as the number of migrants at the end of the year divided by population of the country of origin at the start of the year. An average of the rates for the last 5 years of actual data is then taken and applied to the population of the country of origin at the beginning of each projection year to calculate the projected number of migrants for each flow. The main advantage of applying rates for cross-border migration is that the migrant flows are linked to the changing underlying population size and age structure. This means that the projections cannot produce implausible values, such as negative population stocks, when projected fixed levels of emigration are greater than the initial population size.

An adjustment has also been applied to the rates to take the population of the country of destination into account, ensuring that net migration levels between countries of the UK are stabilised over the course of the projection. More detail can be found in the cross-border methodology document on the ONS website.

Short-term international migration estimates at local authority level for England and Wales are produced by ONS. The data consists of short-term international immigration volumes, representing the number of people who stayed in England and Wales for a period between 3 and 12 months.

The coverage of international migrants joining an administrative source will depend on the purpose of the particular administrative system and will invariably differ between sources.

## **Response Burden**

The statistics under consideration here draw on data that is captured for other purposes (e.g. births, deaths and migration data) and used in the derivation of estimates of population or households or projections. In this way we are making greater use of the data that is captured for those purposes.

## **Dissemination**

We follow departmental guidance on checking, validating and analysing data. Quality assurance procedures are built into the process of compiling each output to ensure the data are of sufficient quality to justify publication. The high level messages are published on the first page of the relevant release and high level tables are generally included in the release. We provide additional, detailed data on our interactive website StatsWales, or as Excel tables published alongside the release. The format we use is in line with our departmental guidance.

## **Evaluation**

We always welcome feedback on any of our statistics. Please contact us via: [stats.popcensus@wales.gsi.gov.uk](mailto:stats.popcensus@wales.gsi.gov.uk)

Produced by Knowledge and Analytical Services, Welsh Government  
Last updated: August 2016.

## **ANNEXE: comparison of the projections and the mid-year estimates**

This annexe presents a comparison of previous local authority population projections with [the mid-year estimates of population](#) published by the Office for National Statistics, to illustrate how accurately the projections have estimated future population change in the past. Population projections are based solely on trends in the most recent years to inform decision making and planning. They do not forecast the impact of future policy changes. Therefore if decisions are made as a result of these projections, or if external factors lead to significant changes in the levels of births, deaths or migration, it would not be unsurprising for levels of population to differ from the projections.

In summary the 2011-based local authority projections have, overall, slightly overestimated population growth from 2011 to 2013 and 2014. This was also true for 15 of the 22 local authorities in Wales. The percentage differences varied from +1.1 per cent for Wrexham to -0.7 per cent for Rhondda Cynon Taf.

Comparisons with the 2008-based projections are not presented here as the publication of the 2011 Census results and subsequent revision to previous population estimates and underlying assumptions mean that comparisons would not be on a consistent or useful basis. For example, the revised mid-year estimate for 2008 was 3,025,867. This is around 26,000 higher than the mid-year estimate used as a base year for the 2008-based local authority projections and any subsequent trends would be significantly different as a result.

**2011-based population projections for 2013 and 2013 mid-year estimates, local authorities in Wales**

	2013 mid-year estimate	2 0 1 1 - b a s e d p o p u l a t i o n p r o j e c t i o n s					
		principal projection	% difference from MYE	lower variant	% difference from MYE	higher variant	% difference from MYE
Isle of Anglesey	70,091	70,018	-0.10%	69,986	-0.15%	70,033	-0.08%
Gwynedd	121,911	122,104	0.16%	122,054	0.12%	122,127	0.18%
Conwy	115,835	115,604	-0.20%	115,554	-0.24%	115,626	-0.18%
Denbighshire	94,510	94,713	0.21%	94,667	0.17%	94,733	0.24%
Flintshire	153,240	153,403	0.11%	153,335	0.06%	153,435	0.13%
Wrexham	136,399	137,617	0.89%	137,547	0.84%	137,649	0.92%
Powys	132,705	133,692	0.74%	133,642	0.71%	133,715	0.76%
Ceredigion	75,964	75,601	-0.48%	75,574	-0.51%	75,614	-0.46%
Pembrokeshire	123,261	123,265	0.00%	123,209	-0.04%	123,289	0.02%
Carmarthenshire	184,681	185,847	0.63%	185,766	0.59%	185,885	0.65%
Swansea	240,332	241,220	0.37%	241,111	0.32%	241,271	0.39%
Neath Port Talbot	139,898	140,303	0.29%	140,235	0.24%	140,333	0.31%
Bridgend	140,480	140,867	0.28%	140,796	0.22%	140,898	0.30%
Vale of Glamorgan	127,159	127,594	0.34%	127,541	0.30%	127,620	0.36%
Cardiff	351,710	353,713	0.57%	353,526	0.52%	353,802	0.59%
Rhondda Cynon Taf	236,114	234,938	-0.50%	234,812	-0.55%	234,992	-0.48%
Merthyr Tydfil	59,021	59,319	0.50%	59,286	0.45%	59,332	0.53%
Caerphilly	179,247	179,653	0.23%	179,561	0.18%	179,693	0.25%
Blaenau Gwent	69,789	69,576	-0.31%	69,542	-0.35%	69,591	-0.28%
Torfaen	91,407	91,477	0.08%	91,428	0.02%	91,497	0.10%
Monmouthshire	92,100	91,734	-0.40%	91,704	-0.43%	91,750	-0.38%
Newport	146,558	147,634	0.73%	147,551	0.68%	147,671	0.76%
<b>TOTAL</b>	<b>3,082,412</b>	<b>3,089,894</b>	<b>0.24%</b>	<b>3,088,427</b>	<b>0.20%</b>	<b>3,090,556</b>	<b>0.26%</b>

source StatsWales

The 2011-based principal population projections for 2013 were higher than the 2013 mid-year estimates for 16 of the 22 local authorities in Wales. The percentage differences varied from +0.9 per cent for Wrexham to -0.5 per cent for Rhondda Cynon Taf.

On average the 2011-based principal population projections for 2013 were within 0.24 per cent of the 2013 mid-year estimates compared with 1.8 per cent for the 2008-based projections.

**2011-based population projections for 2014 and 2014 mid-year estimates, local authorities in Wales**

	2014 mid-year estimate	2 0 1 1 - b a s e d p o p u l a t i o n p r o j e c t i o n s					
		principal projection	% difference from MYE	lower variant	% difference from MYE	higher variant	% difference from MYE
Isle of Anglesey	70,169	70,075	-0.13%	69,987	-0.26%	70,115	-0.08%
Gwynedd	122,273	122,425	0.12%	122,287	0.01%	122,486	0.17%
Conwy	116,287	115,753	-0.46%	115,620	-0.57%	115,814	-0.41%
Denbighshire	94,791	95,126	0.35%	95,002	0.22%	95,181	0.41%
Flintshire	153,804	153,763	-0.03%	153,582	-0.14%	153,849	0.03%
Wrexham	136,714	138,905	1.60%	138,716	1.46%	138,992	1.67%
Powys	132,675	133,997	1.00%	133,865	0.90%	134,061	1.04%
Ceredigion	75,425	75,764	0.45%	75,691	0.35%	75,799	0.50%
Pembrokeshire	123,666	123,603	-0.05%	123,454	-0.17%	123,670	0.00%
Carmarthenshire	184,898	186,832	1.05%	186,613	0.93%	186,935	1.10%
Swansea	241,297	242,540	0.52%	242,247	0.39%	242,678	0.57%
Neath Port Talbot	140,490	140,543	0.04%	140,360	-0.09%	140,626	0.10%
Bridgend	141,214	141,589	0.27%	141,401	0.13%	141,675	0.33%
Vale of Glamorgan	127,685	128,049	0.29%	127,905	0.17%	128,117	0.34%
Cardiff	354,294	357,982	1.04%	357,479	0.90%	358,221	1.11%
Rhondda Cynon Taf	236,888	235,243	-0.69%	234,901	-0.84%	235,391	-0.63%
Merthyr Tydfil	59,065	59,567	0.85%	59,479	0.70%	59,604	0.91%
Caerphilly	179,941	180,103	0.09%	179,854	-0.05%	180,212	0.15%
Blaenau Gwent	69,674	69,482	-0.28%	69,388	-0.41%	69,522	-0.22%
Torfaen	91,609	91,641	0.03%	91,510	-0.11%	91,698	0.10%
Monmouthshire	92,336	91,836	-0.54%	91,755	-0.63%	91,877	-0.50%
Newport	146,841	148,617	1.21%	148,391	1.06%	148,718	1.28%
<b>TOTAL</b>	<b>3,092,036</b>	<b>3,103,436</b>	<b>0.37%</b>	<b>3,099,487</b>	<b>0.24%</b>	<b>3,105,241</b>	<b>0.43%</b>

source StatsWales

The 2011-based principal population projections for 2014 were higher than the 2014 mid-year estimates for 15 of the 22 local authorities in Wales. The percentage differences varied from +1.6 per cent for Wrexham to -0.7 per cent for Rhondda Cynon Taf. The lower variants were higher for 12 of the 22 local authorities, and the higher variants were higher for 17 of the 22 local authorities.