UK Population Estimates & Projections
2015 Release

Product Guide
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Further Information
Pitney Bowes
The Smith Centre
The Fairmile
Henley-on-Thames
Oxfordshire
RG9 6AB
Telephone: +44 (0) 800 840 0001
e-mail: software.support@pb.com
http://www.pitneybowes.co.uk/software

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UK Population Data

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Introduction

The 2015 update to Pitney Bowes (PB) UK Population Data includes Population Estimates and Population Projections data products. This latest data update has been aligned to each of the four countries’ census data which allows users to compare matching census variables to the estimate and projection trend. Not only is the data aligned to the Census but conforms to the latest estimates and projections series from ONS and affiliated statistical agencies. The purpose of this document is to provide helpful content and structure detail of Pitney Bowes UK Population Data.

What’s New

The UK Population Data update for 2015 has an expanded variable set offering. The coverage of 5 year age categories now includes the projection 2016 and 2026 years. Further coverage with private household counts for each projection year and expansion of Household Reference Person data set now included for 2016, 2025 and 2026 years.

Product Specifications

Number of Variables

Population Estimates (EST1, EST2 and EST3) product contains 616 variables.

Population Projection (PRJ) product contains 70 variables.

Coverage Area

The two databases cover the four countries (England, Wales, Scotland and Northern Ireland) within the United Kingdom.

Reference Years

The Population Estimates product’s EST1 file reference years include 2013 (BY), 2014 (1Y) & 2015 (CY). The product EST2 file reference years include 2016 (3Y), 2018 (5Y) and 2020 (7Y). The product’s EST3 file reference years include 2025 (12Y) and 2026 (13Y).

The Population Projection product’s PRJ file reference years include 2013 (BY), 2014 (1Y), 2015 (2Y), 2016 (3Y), 2017 (4Y), 2018 (5Y), 2019 (6Y), 2020 (7Y), 2021 (8Y), 2022 (9Y), 2023 (10Y), 2024 (11Y), 2025 (12Y) and 2026 (13Y).
Product Descriptions

This document describes the following two products:

- Population Estimates: 2013
- Population Projections: 2013 to 2026

The documentation for these products has been combined because the sources and methodologies used for the development of the products have been integrated and synchronised. Nevertheless, the two products are sold separately.

See the `uk_demographics_variables_2015.xlsx` file in the `docs\` folder on your product media for a complete list of variables used in both products. This file is a Microsoft Excel spreadsheet.
Population Estimates: 2013

Population Estimates: 2013 is a database of demographic variables – total population, population by age and sex, households, etc., in addition to the population by broad age group variables, a set of five-year age group variables for males and females is included. Also, estimates of the distribution of households by the age of the household reference person are provided.

Standalone files for the products described in this Guide contain data at Output Area and Postcode Sector level. Refer to the Postcode Sector Roll-Up Process on page 15 for the methodology.

The following reference years are provided in the database: 2013, 2014, 2015, 2016, 2020, 2025 and 2026. The first year – 2013 – continues the tradition of basing the updates on the latest year for which population estimates are available from the ONS (Office of National Statistics) and affiliated agencies. In addition, one-year (2014), two-year (2015), three-year (2016), seven-year (2020), twelve-year (2025) and thirteen-year (2026) projections are provided. This means that users can analyse the recent historical trend from the census year to 2013, and also, where they require a more current estimate and/or a sense of trend for their local area or market territory, analyse the trend from 2013 to the current/next year, or to a seven, twelve- or thirteen-year projection.

Whilst the projections conform to the latest ONS population projection series at the LGA (Local Government Area) level, and make use of the LGA-level cohort models (refer to Methodology on page 15), the results should be interpreted as forecasts whose accuracy is dependent upon the continuation of current trends and assumptions.

Population Projections: 2013 to 2026

Population Projections: 2013 to 2026 is a database of demographic variables – total population, population by broad age groups and households – that is identical in content to prior releases. The database contains total population, population by broad age groups and households for each year from 2013 through 2026.

Insofar as is possible, the projection is consistent with recent estimates and projections published by the ONS and affiliated agencies.

The data is also consistent with the Population Estimates: 2013 data product described above, as the two series were produced with an integrated methodology and consistent assumptions.

Users should take into account that, as the timeframe of the projection increases, the likelihood of divergence of reality from underlying assumptions also increases. Also, since smaller geographic units place increasing burdens on those assumptions, projections for larger aggregations of the smallest units may be expected to generate high confidence.
This chapter explains file names and provides you with instructions for installing the data:

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File Names

The Population Update database contains the following file sets:

| 2015 Population Estimates | EST1_OA, EST2_OA, EST3_OA, EST1_SC, EST2_SC, EST3_SC, EST1_UK, EST2_UK, EST3_UK |

The Population Projections database contains the following file sets:

| 2015 Population Projections | PRJ_OA, PRJ_SC, PRJ_UK |

Both products include the following file types:

| .DAT | Data file |
| .ID | Identification file |
| .MAP | Map file |
| .TAB | Tabular file |

To use a product database correctly, you must have access to all of the files in the file set. They must all be located in the same directory.

Copying Files onto your System

The data is supplied on disk to ISO 9660 standard and may be used either directly from the disk, or copied to your hard drive. We recommend that the data is installed into a discrete directory on your hard drive that is separate from any program or application directories.

- Data copied from the disk will remain read-only unless the file attributes are reset.

To copy the files onto your system:

1. Insert the disk into your disk drive.
2. Run Windows Explorer.
3. Double click on the disk drive icon to display the disk contents.

4. Select all the files associated with the file set you want to copy.

5. Copy the files to the desired, discrete directory on your computer.
Database Attributes

This chapter describes the spatial referencing and display characteristics of the demographic databases:

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**Spatial Referencing**

The **2011 Census Output Area 2015 Population Estimates** database for the United Kingdom uses the following projection and co-ordinates:

<table>
<thead>
<tr>
<th>Projection</th>
<th>British National Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-ordinates</td>
<td>British National Grid co-ordinates to ten centimetre resolution (one metre in Scotland)</td>
</tr>
</tbody>
</table>

**Display Characteristics**

Objects in the **2011 Census Output Area 2015 Population Estimates** database display as points.

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1. England, Wales, Scotland and Northern Ireland contain 2011 Census definition for Output Area.
2. Northern Ireland contains 2011 Census definition at the Output Area level but is known as Small Area. For standardizing reference purposes, Output Area will be used.
Methodology and Notes

The products described in this Product Guide have been compiled by Pitney Bowes using the latest available population and household estimates and projections from the Office of National Statistics and affiliated agencies.

In this appendix:

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- Methodology ..........................................................15
- Notes .................................................................16

Sources

The following agencies provided input data that either informed or controlled the estimates and projections at higher geographic levels, that is, local government authority units and above:

- Office of National Statistics (ONS)
- National Records of Scotland (NRS)
- Welsh Government (WG)
- Northern Ireland Statistics and Research Agency (NISRA)
- Department for Communities and Local Government (DCLG)

Whilst each of the above provided valuable inputs, no responsibility for the accuracy or comprehensiveness of the data is accepted by any of the listed agencies.
Methodology

The Pitney Bowes estimation and projection methodology involves a combination of top-down methods (national to local government area) using traditional demographic techniques, and bottom-up methods (output area to local government area) using demographic techniques along with proprietary spatial modeling techniques. Significant efforts are applied to the task of integrating the latest official statistical data from government agencies into the Pitney Bowes demographic update process. While the overall base year for this data series is the 2011 Census, the Pitney Bowes 2015 Population Update is based on the 2013 round of population estimates and the latest round of household projections from the Office of National Statistics and affiliated agencies.

The top-down estimates and projections (control totals) are based on a series of LGA-level cohort-component demographic models developed by Pitney Bowes that conform in their total populations by sex to the ONS estimates series. The five-year age distributions generated by the models conform in large part to the latest assumptions for fertility, mortality, and net migration. The overall population and projection totals conform to the latest projections developed by the Office of National Statistics and affiliated agencies.

The bottom-up phase of the process involves estimating local, small area change in households using Postal Address Files. Differential growth trends in postal statistics are captured and translated to Output Area geographies via correspondence tables. The resulting preliminary estimates are forced to control to higher level control totals via iterative proportional fitting techniques which ensures both horizontal and vertical consistency across all geographic layers.

Postcode Sector Roll-Up Process

Changes to the Postcode Sector roll-up process may impact a data user’s interpretation of comparisons between the 2015 Population Update and previous Population Updates from Pitney Bowes.

Data users should exercise caution when making any year-over-year comparisons, due to:

- Updated input sources
- Enhancements to methodologies
- Geographic boundary changes
- Real demographic change

Whilst good-faith attempts are made to provide demographic estimates that reflect "real demographic change" only, the other factors may impact results to a degree where end-users question either the direction or magnitude of their year-over-year comparisons. The most stable trends for comparative purposes are those calculated on an average annual basis from the latest census figures to the current year. For this reason, the census year data is provided with each update for the given base geography.

The method used to aggregate Output Area (OA) level data to the Postcode Sector level has been modified from the 2006 Population Update dataset onwards. As a result, users are cautioned that data aggregations to the Postcode Sector level may differ from previous releases, even in areas not experiencing geographic, structural changes. Census year information has been re-aggregated using the same OA-Sector apportionment to enable a constant geography comparison.
Appendix A: Methodology and Notes

The following is a brief overview of the methodology currently used. The OA to Postcode Sector apportionment was developed using the domestic delivery points from the Royal Mail Postal Address File (PAF) 100M 2015_02 file. The PAF 100M 2015_02 file is associated with the Pitney Bowes PostMap 57 Postcode Sector boundary definition. The PAF 2015_02 postcodes are assigned to their respective OAs via ‘point-in-polygon’ methods, with only a few postcodes (approximately 0.02 percent of the 1.73 million postcodes) falling outside the coastlines of the Postcode Sector boundaries. These postcodes were assigned OAs based on the frozen 2011 lookup table. The point-in-polygon method was chosen as the most efficient method due to the many observed postcode location changes in the PAF 100M file between 2011 and 2015.

The point-in-polygon method was used in both the assignment of Postcodes to OAs as well as the assignment of OAs to Postcode Sectors. This provides a consistent aggregation method from Postcode to OA and OA to Postcode Sector. However, the implication of this aggregation method is that Postcode Sectors with the smallest areas may be most affected by the lower-precision of the PAF 100M file versus Code-Point based on the PAF 1M file. (Approximately 5 percent of postcodes, by this method, received assignments to Postcode Sectors other than their administrative Postcode Sector.)

The proportional allocation of OA to Postcode Sector is derived based on a weight calculated as the share of the residential household count (such as domestic delivery points) from the PAF 100M file. Lastly, the Postcode Sectors receive a weighted X and Y coordinate generated based on Postcode coordinates weighted by the number of domestic delivery points.

Notes

Population and Household Definitions

The Population Update counts included in this database include both population and household counts. Definitions of these categories are given below.

Usually Resident Population

According to ONS documentation, the main population base for statistics from the 2011 Census is the usual resident population as on the census day, 27 March 2011. Although the population base for enumeration included non-UK born short-term residents, this population is analysed separately and is not included in the main outputs from the 2011 Census. All statistics, unless specified, are produced only using the usual residents of the UK.

For 2011 Census purposes, a usual resident of the UK is anyone who, on the census day, was in the UK and had stayed or intended to stay in the UK for a period of 12 months or more, or had a permanent UK address and was outside the UK and intended to be outside the UK for less than 12 months. Schoolchildren and students in full-time education studying away from their family home are treated as usually resident at their term-time address. Basic demographic information only (name, sex, age, marital status and relationship) is collected at their non term-time address (their ‘home’ or ‘vacation’ address).

The information on families, household size and household composition for their non term-time address does not include them. The 2015 Population Update counts are provided on the same basis.
Notes

Private Households
A household comprises one person living alone, or a group of people (not necessarily related) living at the same address with common housekeeping—that is, sharing either a living room or sitting room or at least one meal a day.

Household Reference Person
A person owning or renting is responsible for the accommodation. In case of multiple householders, the person with the highest income is given a priority. A case where incomes are equal, the older of the two will be given precedence and becomes the HRP.