

# **Standard Documentation Metainformation**

**(Definitions, Explanations, Methods, Quality)**

**on**

## **Population and Migration Estimates**

This documentation applies to the reporting period:  
2018

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## **1 Overview**

The CSO has been producing annual population estimates since 1951, thus enabling the production of a continual population time series for inter-censal periods. Migration estimates have been compiled since 1987. In more recent years, further data breakdowns have been published. Migration estimates by nationality are available from 2006. Migration by principal economic status and by level of education attained is available from 2009.

A number of data inputs are required in order to produce the population and migration estimates.

The most recent Census (2016) is used to establish the base population. The Labour Force Survey (LFS) is used to estimate emigration and immigration. Births and deaths (administrative data) is provided by the Vital Statistics unit. The data is collated and compiled by the Demography unit of the CSO (see 3.5).

The results are provided at a broad aggregate level in the annual population and migration estimates publication with mid-April as the annual reference point. The annual estimates typically publish in August of the reference year.

The population and migration estimates for inter-censal periods are revised following the publication of The Census of Population.

## **2 General Information**

### **2.1 Statistical Category**

The population and migration estimates are compiled from:

- Census data - Used to establish the base population.
- Survey data – The LFS provides migration flows.
- Administrative data – The Vital Statistics unit provides births and deaths which it receives from the General Register Office (GRO).

## **2.2 Area of Activity**

Population and Migration Estimates.

## **2.3 Organisational Unit Responsible, Persons to Contact**

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## **2.4 Objectives and Purpose; History**

- To maintain a record of population stocks and migration flows on an annual basis for inter-censal periods.
- To provide population and migration estimates quarterly to the QNHS/LFS.
- To meet Eurostats regulatory requirements and national statutory needs.

## **2.5 Periodicity**

Population and migration estimates are published annually, typically in August of the reference year. Publication is generally delayed by one month in the year subsequent to a Census, this allows for the incorporation of Census revisions into the process.

## **2.6 Client**

The population and migration estimates meet a wide range of national and international requirements. The Irish Government and Eurostat are primary clients and the data collected is used as an input for a wide range of public policy and planning activities.

## **2.7 Users**

The data has wide national usage from government departments (particularly those involved in policy formation and planning), economists and research bodies. A number of special interest groups working in the area of migration and integration also require the data. International users include Eurostat, The European Commission and various international organisations.

## **2.8 Legal basis**

Demographic data collection is governed by two EU regulations: Regulation (EU) No 1260/2013 outlines the requirements in relation to population statistics. Regulation (EC) No 862/2007 outlines the requirements in relation to migration statistics. The collection of vital statistics is governed at a national level by the Vital Statistics Act (2004).

## **3 Statistical Concepts, Methods**

### **3.1 Subject of the Statistics**

Measurement of population stock and migration flows for inter-censal periods.

### **3.2 Units of Observation/Collection Units/Units of Presentation**

Data is collected at unit (person) level and presented in thousands (rounded to one decimal place).

### **3.3 Data Sources**

The Census of Population – Provides the base population.

The QNHS/LFS – Provides migration flows.

The Vital Statistics unit – Provide data in relation to births and deaths.

### **3.4 Reporting Unit/Respondents**

Data is reported in thousands (rounded to one decimal place).

### **3.5 Type of Survey/Process**

The Census (2016) is used to establish the base population.

The principle source for the migration estimates is the Labour Force Survey (LFS). This is the largest household survey undertaken by the CSO (the total quarterly sample at any point in time is designed to be approximately 26,000 households). The selected households are surveyed for 5 consecutive quarters with inter-regional movements and grossed migration flows recorded.

Births and deaths (administrative data) is provided by the Vital Statistics unit. Every person is also aged by one year (over the course of the year). The data feeds into a matrix structure at single year of age, based on the NUTS 3 regions. The components are added or subtracted as appropriate to arrive at an updated population figure. See below:

- Base Population year T
- + Births
- - Deaths
- + Immigration
- - Emigration
- = Population year T+1

### **3.6 Characteristics of the Sample/Process**

#### **3.6.1 Population and Sampling Frame**

The Census of Population data (2016) is used to establish the base population.

The principle source of the migration estimates is the Labour Force Survey (LFS). The total quarterly sample at any point in time is designed to be approximately 26,000 households. The sampling frame consists of the stock of private households as recorded by The Census of Population.

Births and deaths (administrative data) is compiled by the Vital Statistics unit and provided by the General Register Office (GRO).

### **3.6.2 Sampling Design**

Not relevant.

### **3.7 Survey Technique/Data Transfer**

Please refer to section 3.5 (above).

### **3.8 Questionnaire (including explanations)**

The questions pertaining to migration are surveyed via the LFS.

[https://www.cso.ie/en/media/csoie/methods/labourforcesurvey/Labour\\_Force\\_Survey\\_Interviewers\\_manual\\_Q2\\_2018.pdf](https://www.cso.ie/en/media/csoie/methods/labourforcesurvey/Labour_Force_Survey_Interviewers_manual_Q2_2018.pdf)

### **3.9 Participation in the Survey**

- The Census is a statutory survey and under Section 26 of the Statistics Act, 1993, participation is compulsory.
- Participation in the LFS is voluntary.
- The recording of births and deaths is compulsory, the Vital Statistics unit are provided with registered births and deaths by the General Register Office (GRO).

### **3.10 Characteristics of the Survey/Process and its Results**

The principal source of information for the estimation of the gross annual migration flows is the Quarterly National Household Survey (QNHS), which also provides the basis for the classification of the flows by sex, age group, origin/destination and nationality, principal economic status and educational attainment.

### **3.11 Classifications used**

- Migration is classified by sex, nationality, age group and country of origin/destination.
- Migration (aged 15 and over) is classified by sex and educational attainment.



- Migration (aged 15 and over) is classified by sex and principal economic status.
- Population is classified by sex, nationality, 5 year age group and NUTS 3 geographical region.

### 3.12 Regional Breakdown of Results

A regional breakdown is provided for the estimated population of the State only. This is published classified by sex and age group and is aggregated to a NUTS 3 classification. This is a geographical classification which identifies Irish regions broken down as follows;

NUTS2 Code	NUTS 2 Name	NUTS3 Code	NUTS 3 Name	County
IE04	Northern & Western	IE041	Border	Donegal
				Sligo
				Leitrim
				Cavan
				Monaghan
		IE042	West	Galway
				Mayo
				Roscommon
IE05	Southern	IE051	Mid-West	Clare
				Tipperary
				Limerick
		IE052	South-East	Waterford
				Kilkenny
				Carlow
				Wexford
		IE053	South-West	Cork
				Kerry
IE06	Eastern & Midland	IE061	Dublin	Dublin
		IE062	Mid-East	Wicklow
				Kildare
				Meath
				Louth
		IE063	Midlands	Longford
				Westmeath
				Offaly
				Laois

## **4 Production of the Statistics, Data Processing, Quality Assurance**

### **4.1 Data Capture**

The base population is collected by the Census area and provided to the Demography unit in an anonymised format. LFS Data are collected by our team of trained interviewers.

Administrative data relating to births and deaths is provided to the Vital Statistics unit by the General Register Office (GRO).

### **4.2 Coding**

Not Relevant.

### **4.3 Data Editing**

Data inputs have generally been edited in advance of being submitted to the Demography unit.

### **4.4 Imputation (for Non-Response or Incomplete Data Sets)**

Imputation is used to accurately record total emigration figures. There are 3 ways in which emigrants are recorded. Imputation is used in relation to those who are absent or missing (see no.3 below).

1. Those currently in the household are asked if anyone previously living in the household has now moved to another country. No imputation is required.
2. Those in the household in the current quarter express an intention to move, if they are gone in the subsequent quarter they are deemed to be emigrants to their chosen destination. No imputation is required.
3. Some households/householders don't express any intention to leave but yet are absent or missing when the survey is due. Imputation is used to proportion the absent or missing in the same ratio as total movers who have gone abroad.

Imputation is also used to estimate births and deaths by nationality. Births by nationality are imputed using the distribution of the nationality of babies as recorded in the 2011 census, while deaths by nationality are also imputed using the latest Census results.

#### **4.5 Grossing and Weighting**

The Census of Population is used to establish the base population at unit (person) level. The LFS is used to ensure that emigrants and immigrants receive grossing factors based on the gender, age group, region and nationality breakdown in the current population. Births and deaths are added and subtracted at a unit (person) level to arrive at an updated population.

#### **4.6 Computation of Outputs, Estimation Methods Used**

The grossed migration flows are smoothed using Census data to produce a representative single year of age distribution. The components are added or subtracted at unit (person) level as appropriate to arrive at an updated population figure. See below:

- Base Population year T
- + Births
- - Deaths
- + Immigration
- - Emigration
- = Population year T+1

#### **4.7 Other Quality Assurance Techniques Used**

LFS data are subject to ongoing audit and quality checks.

The migration estimates are compiled with reference to movements in other migration indicators such as the number of Personal Public Service (PPS) numbers allocated to non-Irish nationals and the number of visas issued to Irish nationals to a number of the destinations including Australia, US and Canada. In addition, data on National Insurance numbers (equivalent to PPS numbers) issued to Irish nationals in the UK is referenced.

## **5 Quality**

### **5.1 Relevance**

The population and migration estimates release is the primary source of population estimates in the period between each Census of Population. The publication provides estimates of population stock by sex, age, region and nationality. It also provides migration flows by origin and destination as well as other social indicators such as migration by educational attainment and principle economic status.

Accurate population estimates are critical with regards to providing evidence based data for future planning and policy formulation.

Other CSO sections which make use of the population data include: LFS and Vital Statistics.

External users who make significant use of the population estimates data include, but are not limited to:

The ESRI, The Department of Finance, The Department of Health, The Department of Children and Youth Affairs, The Department of Environment and Natural Resources, The Oireachtas, Special Interest Groups (particularly those with an interest in migration) and National media organisations.

### **5.2 Accuracy and Reliability**

#### **5.2.1. Sampling Effect & Representivity**

The base population is sourced from the national Census and therefore is fully representative and highly accurate.

Births and deaths are sourced from registered data and are therefore fully representative.

The migration estimates are primarily based on the QNHS, which is a sample survey and therefore subject to sampling error. Precision estimates are not calculated as part of the survey process.

### **5.2.2 Non-Sampling Effects**

In addition to known sampling errors, data can also be subject to non-sampling errors (for example measurement errors arising from questions not capturing the desired information accurately). The exact level of the non-sampling error is far more difficult to measure than the sampling error and no formal estimate of the non-sampling error is available in the QNHS.

Information on the interviews is collected and analysed to help minimise non-sampling effects (including, for example, when interviews are concluded and their duration). This information is compared across the interview team to ensure no unusual variation in interviewer performance exists.

#### **5.2.2.1 Quality of the Data Sources used (other than survey register)**

The Census which provides the base population is considered to be highly accurate. Migration flows are more difficult to measure but the LFS survey is considered to have a high level of accuracy due to the relatively large sample, though no error calculations have been made.

#### **5.2.2.2 Register Coverage**

Births and deaths are sourced from registered data, which is provided to the Vital Statistics unit by the General Register Office (GRO).

#### **5.2.2.3 Non-response (Unit and Item)**

Currently there is no non-response adjustment used in the QNHS.

#### **5.2.2.4 Measurement Errors**

Measurement error is not formally measured for this survey; however the various data components are revised following the publication of the Census of Population (every 5 years).

### 5.2.2.5 Processing Errors

#### a. Data capture errors

The data used to compile the population estimates, has been checked and verified by the various data providers, prior to being provided to the Demography unit.

#### b. Data editing

Minor edits are performed to correct for inconsistencies and missing values within the data provided.

### 5.2.2.6 Model-related Effects

It is assumed for the purpose of outwards migrants that non-respondents have the same migration profiles as respondents.

## 5.3 Timeliness and Punctuality

### 5.3.1 Provisional Results

No provisional outputs are published.

### 5.3.2 Final Results

The annual population and migration estimates (mid-April reference period) are typically published in August, in conjunction with the Q2 QNHS publication.

Recent publication dates are:

Year	Reference date	Publication date	Timeliness (days)
2013	15/04/2013	29/08/2013	136
2014	15/04/2014	29/08/2014	136
2015	15/04/2015	26/08/2015	133

2016	15/04/2016	23/08/2016	130
2017	15/04/2017	28/09/2017	166
2018	15/04/2018	28/08/2018	135

## **5.4 Coherence**

The migration estimates are compiled with reference to movements in other migration indicators such as the number of Personal Public Service (PPS) numbers allocated to non-Irish nationals and the number of visas issued to Irish nationals to a number of the destinations including Australia, US and Canada. In addition, data on National Insurance numbers (equivalent to PPS numbers) issued to Irish nationals in the UK is referenced.

## **5.5 Comparability**

Annual population estimates are available since 1951. Migration estimates have been compiled since 1987, with additional series added over time:

- Estimated population by age group, sex, regional authority area and year is available from 1996.
- Estimated population by sex, nationality and year is available from 2006.
- Estimated migration by nationality, year and sex is available from 2006.
- Estimated migration by principal economic status is available from 2009.
- Estimated migration by education level is available from 2009.

## **5.6 Accessibility and Clarity**

### **5.6.1 Assistance to Users, Special Analyses**

Population and migration publications dating back to 2003 are available on the CSO website (the 2003 publication contains 6 years of retrospective data). Information on methodology is available on the CSO website and in the background notes of the publication.

A press conference is held annually on publication day to enable users and commentators to fully understand the data or seek further clarification. Longer time series are available on the CSO databank see:

[http://www.cso.ie/px/pxeirestat/Database/eirestat/Annual%20Population%20Estimates/Annual%20Population%20Estimates\\_statbank.asp?SP=Annual%20Population%20Estimates&Planguage=0](http://www.cso.ie/px/pxeirestat/Database/eirestat/Annual%20Population%20Estimates/Annual%20Population%20Estimates_statbank.asp?SP=Annual%20Population%20Estimates&Planguage=0).

## **5.6.2 Revisions**

The population estimates are revised following the publication of The Census of Population. The most recent revisions to the population estimates data series were scheduled revisions, arising as a result of the 2016 Census of Population. As a result of the Census, new population estimates were calculated for the years 2002-2016 (inclusive), using the 2016 Census usually resident population stock as the base. Inter-censal revisions of the type described above will be completed every 5 years after each Census of Population.

## **5.6.3 Publications**

### **5.6.3.1 Releases, Regular Publications**

The Population and Migration estimates are typically published annually in August. Annual Population and Migration estimates for 2018 with a mid-April reference period were published on August 28<sup>th</sup> 2018.

### **5.6.3.2 Statistical Reports**

The population estimates are reproduced in a number of statistical releases in the office such as Men and Women in Ireland, Measuring Ireland's Progress and The CSO Yearbook etc.

### **5.6.3.3 Internet**

All available data relating to the population estimates are available on the CSO website.

Publications are available in .PDF format from 2003–2012 and in electronic release format for subsequent years.

<http://www.cso.ie/en/statistics/population/archive/>



In addition data is made available via the CSO's main databank dissemination tool and is also hosted on the CSO website in Excel format.

#### **5.6.4 Confidentiality**

The confidentiality of all information provided to the CSO by individual respondents is guaranteed by law under the 1993 Statistics Acts. The data inputs which are used to collate the population and migration estimates i.e. Census of Population, births and deaths (Vital Statistics) and migration estimates (LFS) are anonymised prior to being provided to the Demography unit.

### **6 Additional documentation and publications**

The main Population Estimates homepage can be accessed at the following link:

<http://www.cso.ie/en/statistics/population/>

Population data relating to Ireland is also available on the Eurostat website at the following link:

<http://ec.europa.eu/eurostat/web/population-demography-migration-projections>