



**An
Phríomh-Oifig
Staidrimh**

Central
Statistics
Office

**Standard Report
on
Population and Migration Estimates**



Standard Documentation
Metainformation
(Definitions, Explanations, Methods, Quality)
on
Population and Migration Estimates

This documentation applies to the reporting period:
April 2021

Last Edited: June 10th 2022

CENTRAL STATISTICS OFFICE

Skehard Road,

Cork

T12X00E

Telephone: +353 21 4535000

Email: Demography@cso.ie

www.cso.ie



Table of Contents

1 Overview	4
2 General Information.....	5
2.1 Statistical Category	5
2.2 Area of Activity	5
2.3 Organisational Unit Responsible, Persons to Contact.....	6
2.4 Objectives and Purpose; History	6
2.5 Periodicity	6
2.6 Client.....	6
2.7 Users	6
2.8 Legal basis	6
3 Statistical Concepts, Methods	7
3.1 Subject of the Statistics	7
3.2 Units of Observation/Collection Units/Units of Presentation	7
3.3 Data Sources	7
3.4 Reporting Unit/Respondents	7
3.5 Type of Survey/Process	7
3.6 Characteristics of the Sample/Process	8
3.6.1 Population and Sampling Frame	8
3.6.2 Sampling Design	8
3.7 Survey Technique/Data Transfer	8
3.8 Questionnaire (including explanations)	8
3.9 Participation in the Survey	9
3.10 Characteristics of the Survey/Process and its Results.....	9
3.11 Classifications used.....	9
3.12 Regional Breakdown of Results.....	9
4 Production of the Statistics, Data Processing, Quality Assurance.....	10
4.1 Data Capture	10
4.2 Coding.....	11
4.3 Data Editing	11



4.4 Imputation (for Non-Response or Incomplete Data Sets).....	11
4.5 Grossing and Weighting	11
4.6 Computation of Outputs, Estimation Methods Used	11
4.7 Other Quality Assurance Techniques Used	12
5 Quality.....	12
5.1 Relevance.....	12
5.2 Accuracy and Reliability.....	13
5.2.1. Sampling Effect & Representivity	13
5.2.2 Non-Sampling Effects.....	13
5.2.2.1 Quality of the Data Sources used (other than survey register).....	13
5.2.2.2 Register Coverage	13
5.2.2.3 Non-response (Unit and Item).....	14
5.2.2.4 Measurement Errors	14
5.2.2.5 Processing Errors	14
5.2.2.6 Model-related Effects.....	14
5.3 Timeliness and Punctuality	14
5.3.1 Provisional Results.....	14
5.3.2 Final Results.....	15
5.4 Coherence	15
5.5 Comparability	15
5.6 Accessibility and Clarity	16
5.6.1 Assistance to Users, Special Analyses	16
5.6.2 Revisions.....	16
5.6.3 Publications.....	16
5.6.3.1 Releases, Regular Publications	16
5.6.3.2 Statistical Reports	16
5.6.4 Confidentiality	17
6 Additional documentation and publications.....	17

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 end-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

Cathal Doherty Statistician Telephone +353 (21) 4535099

Demography@cso.ie

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

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 for respondents but collection is mandatory.
- 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 Labour Force Survey (LFS), 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 NUTS3 classification. This is a geographical classification which identifies Irish regions broken down as follows;



NUTS2 Code	NUTS 2 Name	NUTS3 Code	NUTS 3 Name	Coun
IE04	Northern & Western	IE041	Border	Doneg
				Sligo
		IE042	West	Leitr
				Cavan
IE05	Southern	IE051	Mid-West	Monag
				Galwa
				Mayo
IE06	Eastern & Midland	IE061	Dublin	Rosco
				Clare
				Tippe
IE062	Mid-East	IE052	South-East	Limer
				Water
				Kilke
IE063	Midlands	IE053	South-West	Carlo
				Wexfo
				Cork
IE063	Midlands	IE063	Midlands	Kerry
				Dubli
				Wickl
IE063	Midlands	IE063	Midlands	Kilda
				Meath
				Louth
IE063	Midlands	IE063	Midlands	Longf
				Westm
				Offal
IE063	Midlands	IE063	Midlands	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.

The LFS is conducted using mixed mode data collection with the introduction of Computer Assisted Telephone Interviewing (CATI). Information is collected from each sample household over 5 successive quarters or waves. However, in the LFS, the first interview is conducted by a team of face-to-face interviewers using Computer Assisted Personal Interviewing (CAPI). The four follow-up interviews are conducted using CATI from a dedicated call centre where householders have agreed to conduct a telephone interview on



each occasion. In circumstances where householders have not agreed to conduct a telephone interview, the interviews are conducted using face-to-face interviews.

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 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 2016 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 Residence permits issued and 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 important 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.

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

The migration estimates are primarily based on the LFS, which is a sample survey and therefore subject to sampling error. Precision estimates are measured 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 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.

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 LFS.

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 LFS publication.

Recent publication dates are:

Year	Reference date	Publication date	Timeliness (days)
2013	30/04/2013	29/08/2013	121
2014	30/04/2014	29/08/2014	121
2015	30/04/2015	26/08/2015	118
2016	30/04/2016	23/08/2016	115
2017	30/04/2017	28/09/2017	151
2018	30/04/2018	28/08/2018	120
2019	30/04/2019	27/08/2019	119
2020	30/04/2020	20/08/2020	113
2021	30/04/2021	30/08/2021	122

5.4 Coherence

The migration estimates are compiled with reference to movements in other migration indicators such as Residence permits issued to 3rd Country Nationals and 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&Language=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 2020 with an end-April reference period were published on August 30th 2021.

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>