An Phríomh-Oifig Staidrimh

Central Statistics Office

Standard Report on Methods and Quality for Labour Force Survey (LFS)

Standard Report
on
Methods and Quality

for the
Labour Force Survey (LFS)

This documentation applies to the current reporting period:

2020 – Quarter 4

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1 Overview

The Labour Force Survey (LFS) replaced the Quarterly National Household Survey (QNHS) from Q3 2017.

The survey meets the requirements of Council Regulation (EC) No.577/98, adopted in March 1998, which requires the introduction of quarterly labour force surveys in EU Member States. Outputs are primarily used to produce quarterly labour force, employment and unemployment estimates for Ireland. The LFS may also be used as a means of collecting data on important social topics, included as modules in the survey for EU requirements. Outputs are also supplied to other internal users such as National Accounts, Tourism and Earnings.

The LFS is conducted using mixed mode data collection with the introduction of Computer Assisted Telephone Interviewing (CATI). As with the QNHS, 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.

Due to the COVID-19 Pandemic and the associated public health measures in place since mid-March, all direct face to face-to-face household interviews in the Labour Force Survey have been suspended with the result that all interviews are now carried out over the telephone. For the first interview, the CSO interviewer sends an introductory letter to the household before the first interview, to explain the purpose of the survey and to arrange a suitable time for a phone call.

Please see https://www.cso.ie/en/csolatestnews/pressreleases/2020pressreleases/pressstatementcovid-19pandemicandtheproductionofofficialstatistics/

Information is collected continuously throughout the year from households surveyed each week in each quarter. To account for the additional attrition resulting from the introduction of mixed mode data collection, the LFS sample has been increased incrementally from Q3 2017. An additional 1,300 households have been included in each Wave 1 and this has resulted in a final design sample of 32,500 households from Q3 2018 onwards.

Households which contain only respondents who are aged 75 or over who are each classified as Inactive (Not in the Labour Force) are not re-interviewed. This is to reduce unnecessary burden and instead answers are copied forward from the last available interview.

The actual achieved sample varies over time depending on the level of response. The achieved sample can be seen in section 5.2.2.3.

2 General Information

2.1 Statistical Category

Primary Statistical survey

2.2 Area of Activity

Labour Market

2.3 Organisational Unit Responsible, Persons to Contact

The relevant sections are part of the Social and Demographic Statistics Directorate.

The work of LFS section is largely divided into two areas – a Household Survey Collection Unit (HSCU) and a Labour Market Analysis unit. Each unit is headed by a Senior Statistician who also has responsibility for other survey areas.

Labour Market Analysis queries
Jim Dalton   Tel: +353 021 453 5623   Email: labour@cso.ie
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Household Survey Collection Unit queries
Kevin Healy   Tel: +353 021 453 5370   Email: qnhs@cso.ie

2.4 Objectives and Purpose; History

The LFS replaced the QNHS from Q3 2017. The primary purpose of the survey is to collect information on the Irish labour market (collected via what is known as the "CORE" questionnaire. It may also be used to pilot additional labour market related questions.

2.5 Periodicity

Information is collected continuously throughout the year. The sample is designed to be representative on a quarterly basis with a target of 2,500 households to be surveyed each week giving a total design sample of 32,500 households from Q3 2018 onwards. The reference quarters for survey results are: Q1- January to March, Q2- April to June, Q3- July to September and Q4- October to December. (i.e. calendar quarters).

The original QNHS changed from seasonal quarters to calendar quarters in Q1 2009. Prior to that, the QNHS operated on a seasonal quarter basis. (Q1- December to February, Q2- March to May, Q3- June to August, Q4- September to November) For further information on the changeover to calendar quarters, see the supplementary note linked below.

http://www.cso.ie/en/media/csoie/qnhs/documents/calendar/supplementarynote.pdf

Results previously published on a seasonal quarter basis were reissued on a calendar quarter basis for the periods Q1 1998 to Q4 2008.

2.6 Client

Each Member State in the EU must undertake a Labour Force Survey (LFS) to provide information on key labour market indicators. The LFS is the Irish implementation of the EU-LFS. The LFS also provides important inputs to national policy makers.

2.7 Users

- European Union/Eurostat
- Government departments (Department of the Taoiseach, Department of Finance, Department of Business, Enterprise and Innovation, Department of Social Protection, Department of Education and Skills etc)
- SOLAS – National Skills Training Agency
- Other research centres and universities involved in labour market research
- National media
- The general public

2.8 Legal basis

The LFS is carried out under EU Council Regulation No 577/98. There are also a number of implementing regulations which outline various aspects of the survey, how data should be coded for transmitting to Eurostat, the topics for pan European ad-hoc modules etc.

Please see the following link for further details:

http://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_%E2%80%93_main_features_and_legal_basis

While Ireland as a Member State is obliged to undertake the LFS, participation in the survey is voluntary for respondents.

3 Statistical Concepts, Methods

3.1 Subject of the Statistics

Labour market statistics.

3.2 Units of Observation/Collection Units/Units of Presentation

The survey population is individuals living in private households. It therefore excludes individuals living in institutions or communal accommodation and persons of no fixed abode. The collection units are households containing at least one individual aged 15 years or over for whom it is the main residence. Information is collected on each individual within a surveyed household.

The main units of presentation are:

- Demographic variables such as Sex, Age, Nationality
- Other personal characteristics such as Regional classification NUTS 2 & 3 (Nomenclature of Territorial Units), Highest level of education attained etc.
- International Labour Office labour force classification (ILO Status)
- Industrial activity classification NACE Rev.2 (Nomenclature des Activités de la Communauté Européenne)
- Occupation
- Employment status

While the above are the primary presentation units for regular publication the LFS can present data according to a wide variety of classifications based on the comprehensive range of questions asked in the survey. Such analysis is often provided on an ad hoc basis following user requests.

3.3 Data Sources

Information is collected from individuals in households.

3.4 Reporting Unit/Respondents

All 'usual residents[1]' in responding households are surveyed. Where a particular individual is not available for interview, information can be provided by another member of the household in most circumstances via a proxy interview. A proxy interview refers to data which is collected from another member of the household due to the unavailability of the specific respondent at the time of the interview.

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[1]A person is defined as a "Usual Resident" of a private household if he or she

    (i) Lives regularly at the dwelling in question
            and
    (ii) Shares the main living accommodation (i.e. kitchen, living room or bathroom) with the other members of the household.

Households which contain only respondents who are aged 75 or over who are each classified as Inactive (Not in the Labour Force) are not re-interviewed. This is to reduce unnecessary burden and instead answers are copied forward from the last available interview.

3.5 Type of Survey/Process

Sample survey.

3.6 Characteristics of the Sample/Process

3.6.1 Population and Sampling Frame

The reference population is all individuals living in private households in Ireland. It therefore excludes persons with no usual address or those with a usual residence in a public institution, such as hospitals, nursing homes etc. All usual residents in each household are included. The sampling frame is all private households in Ireland. Beginning in Q1 2019 a new sample for the LFS based on the 2016 Census of Population was introduced incrementally and this sample will be fully operational by Q2 2020.

3.6.2 Sample Design

Sample size and design was initially determined after consultation with relevant experts[2,3] who considered a mix of factors including cost, levels of precision of estimates etc. The LFS sampling approach is based on the review by Haase Pratschke.

With this design, a two-stage sample design is used. The sample frame of households is clustered into blocks (small areas) with each block containing a minimum of 60 occupied households on the night of the 2016 Census of Population. The sample is stratified using administrative county and the Pobal HP (Haase and Pratschke) Deprivation Index. In the first stage 1,300 blocks are selected using Probability Proportional to Size (PPS) sampling and in the second stage 20 households are selected using Simple Random Sampling (SRS).

To account for the additional attrition due to the introduction of mixed mode data collection, the LFS sample was increased incrementally from Q3 2017. An additional 1,300 households have been included in each Wave 1 resulting in a total final design sample of 32,500 from Q3 2018 onwards. The actual achieved sample varies over time depending on the level of response.

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[2] Steel report, httphttp://www.cso.ie/en/media/csoie/qnhs/documents/steel_report_qnhs_sample_design.pdf

[3] http://www.cso.ie/en/media/csoie/methods/quarterlynationalhouseholdsurvey/Haase_Pratschke_Report_on_Optimising_the_Sampling_Methodology_for_ CSO_Household_Surveys.pdf

Households are asked to take part in the survey for five consecutive quarters and are then replaced by other households in the same block. Thus, one fifth of the households in the survey are replaced each quarter and the LFS sample involves an overlap of 80% between consecutive quarters and 20% between the same quarters in consecutive years.

Households which contain only respondents who are aged 75 or over who are each classified as Inactive (Not in the Labour Force) are not re-interviewed. This is to reduce unnecessary burden and instead answers are copied forward from the last available interview.

It is important to note that there is no overlap in sample between the QNHS and the LFS.

3.7 Survey Technique/Data Transfer

The survey is carried out using mixed mode data collection. The survey is voluntary and participating households are surveyed over five successive quarters. The first interview is carried out with a CSO interviewer using CAPI on encrypted laptop computers and every night the data collected is transferred to the CSO using a secure encrypted data tunnel.

The four follow-up interviews are conducted using CATI from a dedicated call centre, where householders have agreed to conduct a telephone interview. In circumstances where householders have not agreed to conduct a telephone interview, the interviews are conducted using face-to-face interviews.

Each night, the data collected that day by the call centre is collated into a single zip file, encrypted and password protected. The file is then uploaded to a secure Secure File Transfer Protocal (SFTP) site at the dedicated call centre. This CSO then extracts this zip file to a secure CSO location for processing.

As mentioned above, households which contain only respondents who are aged 75 or over who are each classified as Inactive (Not in the Labour Force) are not re-interviewed.

Please note that from mid-March 2020, all direct face-to-face interviewing for the LFS was suspended due to COVID-19. As a result, all interviews are carried out by telephone only.

3.8 Questionnaire (including explanations)

The LFS questionnaire contains approximately 200 questions on a range of topics including the respondents economic status (i.e. employed, unemployed, not in the labour force), industry of employment, nationality, employment status, occupation, education level, length of time unemployed etc. It can be noted that not all questions are asked of all respondents as questions are filtered based on the responses given by the interviewee.

Additional questions on a particular topic may be included for modules which are run in individual quarters to meet EU requirements.

The LFS core questionnaire is published at the following link:

https://www.cso.ie/en/methods/surveyforms/labourforcesurvey/

3.9 Participation in the Survey

Participation in the survey is voluntary.

3.10 Characteristics of the Survey/Process and its Results

The survey is designed to produce Labour Force estimates for the State.

The data which are published in the main quarterly release refer to the estimated number of persons aged 15 years or over in the state classified by various characteristics including economic status (e.g. employed, unemployed, not in the labour force) in accordance with the ILO (International Labour Organisation) definition. Three key rates are also produced from the survey: the participation rate (the proportion of all persons aged 15 or more who are in the Labour Force), the employment rate (the proportion of all persons aged 15-64 who are in employment) and the unemployment rate (the proportion of all persons aged 15-74 in the Labour Force who are unemployed.

The calculation of the unemployment rate has been revised slightly as of Q2 2015 to ensure coherence with Eurostat. Prior to this, the Unemployment Rate was calculated as the number of unemployed expressed as a percentage of the total labour force aged 15 and over. The change introduced limits the labour force to persons aged 15-74 and this excludes a small number of persons aged 75 and over in employment from the total labour force used in the calculation. The overall impact of this change was minimal.

Economic status is in turn classified by various characteristics such as age, sex, region, educational level, etc.

Some of the key indicators produced are estimates of those in employment by occupation and industry and estimates of those unemployed by duration of unemployment.

For full details of published indicators please see the latest LFS release on

http://www.cso.ie/en/statistics/labourmarket/

3.11 Classifications used

There are a number of different classifications used in the LFS:

- The main classifications of economic activity are the standard ILO definitions of persons in employment, unemployment (which are summed to derive the labour force total) and persons not in labour force.

- Industry is published by the NACE Rev 2 classification.

- Occupation is primarily published using the UK SOC 2010 classification for national purposes and is also coded to ISCO-08 classification for EU purposes.

- For EU purposes, education details have been coded to ISCED 1997 (International Standard Classification of Education) up to Q4, 2013 and to ISCED 2011 thereafter. A national classification for Irish purposes is also available. Field of education is also published.

- Regional data is coded to NUTS3 as described in Section 3.12

Detailed data is collected through the interview to allow outputs to be produced according to all the relevant classifications.

3.12 Regional Breakdown of Results

The regional classifications used are based on the NUTS (Nomenclature of Territorial Units) classification used by Eurostat. Until Q4 2017, the NUTS3 regions corresponded to the eight Regional Authorities established under the Local Government Act, 1991 (Regional Authorities) (Establishment) Order, 1993, which came into operation on 1 January 1994. The NUTS2 regions, which were proposed by Government and agreed by Eurostat in 1999, were groupings of these historic NUTS3 regions.

However, the NUTS3 boundaries were amended on 21st of November 2016 under Regulation (EC) No. 2066/2016 and have come into force from Q1 2018. The changes resulting from the amendment are that County Louth has moved from the Border to the Mid-East and what was formerly South Tipperary has moved from the South-East to the Mid-West, resulting in the new NUTS2 and NUTS3 regions

These new groupings are reflected in the LFS results from Q1 2018 onwards. In addition, data for Q1 2012 to Q4 2017 has also been reweighted to these new regions.

The sample itself is designed to be representative at NUTS3 level although some results may be repressed depending on the number of observations in the particular cell.

The new composition from Q1 2018 is:

NUTS2:

Northern and Western		**Southern**		**Eastern and Midland**	

NUTS3:

Border	Cavan Donegal Leitrim Monaghan Sligo	**Mid-West**	Clare Limerick Tipperary	**Dublin**	Dublin City Dun Laoghaire-Rathdown Fingal South Dublin
West	Galway Mayo Roscommon	**South-East**	Carlow Kilkenny Waterford Wexford	**Mid-East**	Kildare Meath Wicklow Louth
		South-West	Cork Kerry	**Midland**	Laoighis Longford Offaly Westmeath

The composition of the regions before Q1 2018 was:

NUTS2:

Border, Midlands and Western		**Southern and Eastern**	

NUTS3:

Border	Cavan Donegal Leitrim Louth Monaghan Sligo	**Dublin**	Dublin Dún Laoghaire-Rathdown Fingal South Dublin
Midlands	Laoighis Longford Offaly Westmeath	**Mid-East**	Kildare Meath Wicklow
West	Galway Mayo Roscommon	**Mid-West**	Clare Limerick North Tipperary
		South-East	Carlow Kilkenny South Tipperary Waterford Wexford
		South-West	Cork Kerry

4 Production of the Statistics, Data Processing, Quality Assurance

4.1 Data Capture

The survey is carried out using mixed mode data collection. The survey is voluntary and participating households are surveyed over five successive quarters. The first interview is carried out by face-to-face interview with a CSO interviewer using CAPI. The four follow-up interviews are conducted using CATI from dedicated call centre, where householders have agreed to conduct a telephone interview. In circumstances where householders have not agreed to conduct a telephone interview, the interviews are conducted using face-to-face interviews.

4.2 Coding

In the LFS, interviewers collect from respondents, a detailed description of the business of their place of work and their own occupation. This information is then coded in-house at the CSO by an automated process which is reviewed by a small dedicated team of coding experts using a series of consistency checks.

Field of education data is captured and coded in the field to the relevant classification (see Section 3.11) while the region of place of work is coded using the 34 administrative counties (see Sections 3.11 and 3.12).

4.3 Data Editing

Most of the survey questions only allow answers to be entered to a limited set of predefined categories and therefore the number of edits required is limited. Questionnaire routing is used to ensure questions are only asked to relevant respondents e.g. unemployment questions are only asked to those who are unemployed. In addition, invalid responses are prevented at the point of capture where appropriate (for example a flag is raised to an interviewer if the date of birth captured implied a derived age of more than 110) and this ensures that implausible data is prevented from being captured. The most significant data editing done is the quality checking review of the industry and occupation coding.

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

No imputation for non-response currently takes place on the LFS, either for entirely missing households or missing data for particular individuals. Proxy interviews are allowed to obtain data for respondents who are not present in the house at time of interview. Up to 50% of interviews are proxy interviews where information has been provided by another resident of the household due to unavailability of the person in question. There are known issues with the quality of data for proxy responses for certain information. For example, while a proxy respondent may know the age of other residents in the household, they may not know how long they have worked with their current employer (particularly in shared households where residents are not related).

4.5 Census 2016 Population revisions

As the LFS (and previously the QNHS) is a sample survey, independent population estimates are required each quarter to provide a weighting basis for the labour market statistics produced. The process of deriving these population totals involves using the population counts from the most recent Census of Population as a base, and updating these each quarter using information on births, deaths and migration for that quarter. These population estimates are then revised once a new Census of Population has been completed.

With the availability of results from the Census of Population 2016, the CSO has revised the population estimates for the period Q3 2011 to Q2 2017 using the new benchmark population totals for 2016. The introduction of the difference would be expected to be cumulative in nature, with relatively small differences in the earlier periods with the difference increasing over time.

Given the critical importance of accurate labour market estimates, the CSO also revises labour market estimates using the updated population estimates. Therefore, from the publication of the Q3 2017 LFS, the results published incorporate the new population estimates for each quarter since Q3 2011 into the weighting methodology.

The focus of the labour market estimates derived from the LFS is the working age population (persons aged 15 years or more). The original population estimate for the QNHS for the second quarter of 2016 for the working age population was 3,637,700 while the revised estimate from the Census of Population 2016 for the same quarter is 3,734,100 - a difference of 2.7% (96,400).

4.6 Back-casting of QNHS data series

Because of the move to the LFS, the previously published labour market series was revised. In order to minimise the breaks in the series to the key survey estimates, the CSO created a back-casted QNHS series from Q1 1998 to Q2 2017. These back-casted series were created using scaling factors from a comparison of data captured from a parallel run of the QNHS and LFS at the beginning of 2017.

Therefore, in Q3 2017, separate scaling factors were calculated for ILO status by age and sex together with the fifteen economic sector categories (table 2 of this release) by sex:

- ILO status (Employed, Unemployed, Inactive) by sex (Male and Female) and by age (15-24 years and 25+ years)

- NACE Rev. 2 groups (table 2 of this release) by sex (Male and Female)

In Q1 2018, additional scaling factors were calculated for the eight NUTS3 regions by Labour Force ILO status, occupation categories (table 4 of this release) and highest level of education completed (supplementary table 8 of this release) by sex:

- NUTS3 Regions (pre-Q1 2018 groupings) by Labour Force ILO status (Employed and Unemployed)

- Occupation groups (table 4 of this release)

- Highest level of education completed supplementary table 8 of this release) by sex (Male and Female).

It should be noted that there may be changes in the levels of other series not included in this solution from Q3 2017 onwards. Consequently, such series before and after the introduction of the LFS may not be comparable and users should therefore note this when examining annual and quarterly changes.

Please refer to the following information notes for further details:

https://www.cso.ie/en/releasesandpublications/in/lfs/informationnotice-labourforcesurveyquarter32017/

https://www.cso.ie/en/releasesandpublications/in/lfs/informationnotice-labourforcesurveyquarter12018/

4.7 Grossing and Weighting

Once a final dataset has been created, the data is weighted to population totals. To derive grossing factors, population estimates are produced by the CSO's Demography Unit each quarter by sex, age (5-year age groups) and region (8 NUTS 3 regions). In addition, the Demography unit produce estimates of population for each quarter by sex, broad age (less than 15 and 15 or more) and nationality (5 nationality groups including Ireland, UK, EU13, EU13 (the EU excluding the EU15) and Rest of World). The individual returns are matched to these population estimates, and the grossing factor is calculated by dividing the total estimates population in a given cell by the number of valid responses in that cell - i.e. if there are 1,000 respondents from the sample in a given cell and an estimated population of 40,000 then each of the respondents in this cell will have a grossing factor of 40. The grossing procedure is carried out using the SAS CALMAR statistical software routine which was developed by the French National Statistical Institute, INSEE.

As the eight NUTS3 regions changed in Q1 2018, the data is now weighted to these new regions. Data for Q1 2012 to Q4 2017 were also reweighted to these new regions.

The CSO introduced a non-response adjustment into the weighting procedure for the LFS from Q3 2017 onwards. The adjustment applies extra weight to the groups who tend to be

less likely to respond to the survey to make the results from the achieved sample more representative of the target sample and target population.

The grossing factors (now inclusive of the non-response adjustment) calculated for each individual cell are a function of the number of valid responses in that cell. It can be noted that the overall number of valid responses and the revised average grossing factor assigned in the LFS (formerly the QNHS) for recent quarters was as follows:

Period	Total valid responses	Total valid responses – persons age 15+	Average grossing factor assigned – persons aged 15+
Q2 2013	53,249	40,886	86.66
Q3 2013	49,518	38,266	93.38
Q4 2013	51,403	39,872	90.11
Q1 2014	52,381	40,604	88.54
Q2 2014	52,763	40,889	88.04
Q3 2014	52,915	41,054	88.02
Q4 2014	50,515	39,048	92.42
Q1 2015	49,197	37,978	95.08
Q2 2015	50,939	39,367	92.03
Q3 2015	47,110	36,571	99.82
Q4 2015	45,047	35,136	104.67
Q1 2016	41,286	32,236	114.23
Q2 2016	44,048	34,434	107.60
Q3 2016	42,059	32,842	113.12
Q4 2016	42,853	33,317	111.37
Q1 2017	44,027	34,332	108.67
Q2 2017	41,315	32,254	116.00
Q3 2017	33,620	26,505	142.95
Q4 2017	34,419	27,280	139.96
Q1 2018	35,635	28,189	135.65
Q2 2018	35,830	28,418	135.42
Q3 2018	36,399	28,998	133.12
Q4 2018	36,455	29,126	133.12
Q1 2019	38,701	30,944	126.72
Q2 2019	36,385	29,023	134.81
Q3 2019	35,828	28,549	137.50
Q4 2019	37,297	29,622	133.10
Q1 2020	34,831	27,804	142.37
Q2 2020	30,666	24,592	161.59
Q3 2020	30,620	24,884	160.10
Q4 2020	30,950	25,269	157.97

4.8 Computation of Outputs, Estimation Methods Used

Output results are aggregated to produce the various totals published. These aggregations are usually produced using key variables such as sex, age region, ILO status etc. In general, all aggregations produced are done by way of various SAS procedures. The aggregate results produced for any given set of classifications will be the sum of the individual grossing factors of the valid responses which belong to that set of classifications and no estimates are made unless the data itself has been captured within the survey.

4.9 Other Quality Assurance Techniques Used

A series of audits are carried out each quarter to verify the quality of the individual data being collected by interviewers during face to face interviews with respondents. Interviewers receive regular feedback on the quality of the data they are producing, and any unusual trends are highlighted and followed-up. Interviewers undergo training when first employed and regular meetings are held with field co-ordinators to ensure standards are maintained. Further training is also provided to interviewers where appropriate.

Call centre interviewers also undergo training before commencing work on the LFS. Interactions between the call centre and survey respondents are audited on a random selection of cases. The audit process involves listening back to the telephone interaction and then rating the quality of the interviewer's work on a standardised score sheet. Interview outcomes such as complete or partial interviews and refusals are checked during the audits. When auditing an interview, the questionnaire is reviewed to ensure that the data gathered was entered accurately. Any issues that arise are addressed initially with the call centre supervisor and subsequently at the quarterly training sessions where members of the CSO based staff deliver detailed training on any questionnaire changes.

At an aggregate level, account is taken of other national economic indicators (e.g. Live Register trends, taxation trends) when quality checking the data produced from the LFS.

5 Quality

5.1 Relevance

The data is required under EU Council Regulation No 577/98. The LFS is the primary source of a number of key national indicators including official estimates of employment and unemployment. In addition to the main labour market estimates published on a quarterly basis, LFS (formerly QNHS) data is used in a number of other reports and publications produced by the CSO. In the period between each Census of Population, the LFS provides estimates of various demographic and other social indicators such as levels of educational attainment. Given the critical nature of estimates produced the relevance of the LFS can be taken as very high.

Other CSO sections which make use of LFS data include:

- National accounts
- Construction
- Earnings and Labour Costs
- Tourism

External users who make significant use of LFS data include, but is not limited to:

- ESRI
- Eurostat
- OECD
- Central Bank
- SOLAS
- Health and Safety Authority
- The Oireachtas
- Department of Finance
- Department of Public Expenditure and Reform
- Department of Business, Jobs and Innovation
- Department of Education and Skills
- Department of Health and Children
- Department of Social Protection
- National media organisations

5.2 Accuracy and Reliability

5.2.1. Sampling Effect & representativeness

As the LFS is a sample survey it is subject to sampling error. Precision estimates are calculated using Jackknife replication for key variables. The table below shows estimated standard errors and confidence intervals for some of the key estimates for the LFS in respect of the most recent quarter. The 95% confidence intervals indicate the range within

which we can be 95% confident the true value of the estimate in question will lie based on measurable sampling error.

Q4 2020 Estimates of Standard Error, Coefficient of Variation and 95% Confidence Interval for key ILO results

ILO Classification	Actual measure (Thou)	Standard Error (Thou)	CV (%)	95% CI – Lower Limit (Thou)	95% CI – Upper Limit (Thou)
Employed	2306.2	14.5	0.63	2277.7	2334.6
Unemployed	138.9	7.1	5.14	124.9	152.9
Total Labour Force	2445.1	13.7	0.56	2418.2	2472
Not in the Labour Force	1546.6	13.7	0.89	1519.7	1573.5

Q4 2020 Estimates of Standard Error, Coefficient of Variation and 95% Confidence Interval for NACE Rev.2 Sector of Employment

Sector of Employment	Actual measure (Thou)	Standard Error (Thou)	CV (%)	95% CI – Lower Limit (Thou)	95% CI – Upper Limit (Thou)
A Agriculture, forestry and fishing	106.4	5.8	5.48	94.9	117.8
B – E Industry	298.2	8.5	2.84	281.6	314.8
F Construction	136.4	6.4	4.67	123.9	148.9
G Wholesale and retail trade; repair of motor vehicles and motorcycles	316.1	9.4	2.98	297.6	334.5
H Transportation and storage	107.8	5.6	5.19	96.8	118.7
I Accommodation and food service activities	133.1	6.7	5.02	120	146.1
J Information and Communication	139.4	6.2	4.44	127.3	151.6
K-L Financial, insurance and real estate activities	124.5	5	3.99	114.7	134.2
M Professional, scientific and technical activities	145.7	6.4	4.42	133	158.3
N Administration and support service activities	82.1	4.7	5.66	73	91.2
O Public administration and defence; compulsory social security	122.4	5.2	4.24	112.2	132.6
P Education	196.5	6.9	3.51	182.9	210
Q Human health and social work activities	293	8	2.74	277.3	308.7
R-U Other NACE activities	100.5	5.2	5.16	90.4	110.7

Variance estimation for stratified household surveys is complex and there are a number of different methods. Further information is also available from the following links regarding variance analysis. It can also be noted that CSO continues to examine alternative methods of estimation and will expand the availability of measures for which such data is produced.

http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-RA-13-029?inheritRedirect=true&redirect=%2Feurostat%2Fpublications%2Fmanuals-and-guidelines%3Fp_p_id%3D101_INSTANCE_8v4nUYMbAXCj%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1%26_101_INSTANCE_8v4nUYMbAXCj_delta%3D20%26_101_INSTANCE_8v4nUYMbAXCj_keywords%3D%26_101_INSTANCE_8v4nUYMbAXCj_advancedSearch%3Dfalse%26_101_INSTANCE_8v4nUYMbAXCj_andOperator%3Dtrue%26p_r_p_564233524_resetCur%3Dfalse%26_101_INSTANCE_8v4nUYMbAXCj_cur%3D3

5.2.2. Non-Sampling Effects

In addition to known sampling errors, any survey will be subject to other non-sampling errors (for example measurement errors arising from questions not capturing the desired information accurately). Non-sampling error is far more difficult to measure than sampling error and no formal estimate of non-sampling error is available in the LFS.

Information on the interviews is collected and analysed to help minimise non-sampling effects (including, for example, when interviews were conducted and their duration). This information is compared across the interview teams to ensure no unusual variation in interviewer performance exists. Co-ordinators, as an additional check on the quality of the interviewer's work, call back to around 2% of households to check the quality of the collected data. Audit checks are also carried out on interviews carried out at the call centre.

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

Not applicable.

5.2.2.2 Register Coverage

The entire stock of private households at the time of the most recent Census of Population in the country represents the full sampling frame for the LFS. The sample based on the 2011 Census was first introduced on a wave by wave basis in Q1 2016 and was fully in effect as of Q1 2017. Effective from Q2 2019, a new sample based on the 2016 Census of Population was introduced incrementally on a quarterly basis and was fully operational in Q2 2020.

5.2.2.3 Non-response (Unit and Item)

An adjustment for non-response was introduced into the weighting procedure for the LFS from Q3 2017 onwards. The adjustment applies extra weight to the groups who tend to be less likely to respond to the survey to make the results from the achieved sample more representative of the target sample and target population. The table below gives a breakdown of the response and non-response beginning with the introduction of the new LFS in Q3 2017:

	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Target households	32,500	32,500	32,500	32,500	32,500
Houses dropped*	9,466	9,672	4,276	2,780	2,334
Revised household target	23,034	22,828	28,224	29,720	30,166
of which:					
Vacant - CAPI	1,218	987	540	547	621
Uncontactable - CAPI	1,976	3,081	9,628	11534	12,454
Uncontactable - CATI	2,111	2,021	1,956	1698	1,470
Refusal – CAPI	2,027	1,745	1,856	1780	1,570
Refusal - CATI	203	207	182	141	154
Other non-interview - CAPI	561	750	885	1186	1,292
Other non-interview - CATI	301	307	541	457	323
Actual houses interviewed	14,637	13,736	12,635	12,377	12,282
of which:					
Insufficient data to assign grossing factor	25	22	39	19	17
Final total number of houses used to generate outputs	14,612	13,714	12,596	12,358	12,265

* Households are sometimes dropped due to staffing shortages and unforeseen local circumstances.

For reference purposes, the table below gives a break-down of the response and non-response to the now defunct QNHS:

	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017
Target households	26,000	26,000	26,000	26,000	26,000
Houses dropped*	3,560	4,338	3,960	3,859	4,921
Revised household target	22,440	21,662	22,040	22,141	21,079
of which:					
Vacant	2,377	2,478	2,458	2,391	2,337
Uncontactable	1,930	1,913	2,063	1,892	1,854
Refusal	1,687	1,623	1,691	1,734	1,594
Actual houses interviewed	16,446	15,648	15,828	16,124	15,294
of which:					
Insufficient data to assign grossing factor	26	18	20	8	7
Final total number of houses used to generate outputs	16,420	15,632	15,808	16,116	15,287

* Households are sometimes dropped due to staffing shortages and unforeseen local circumstances.

5.2.2.4 Measurement Errors

No formal evaluation of sources of error is available, although measures are in place to minimise error (details below).

- The quality of the data collected is improved using regular field staff training (including the use of video recording of training interviews) and debriefings – for example, suggestions from field staff regarding the wording of certain questions. The office audits the interactions between the call centre and survey respondents on a random selection of cases. The audit process involves listening back to the telephone interaction and then rating the quality of the interviewer's work on a standardised score sheet. Interview outcomes such as complete or partial interviews and refusals are checked during the audits. When auditing an interview, the questionnaire is reviewed to ensure that the data gathered was entered accurately. Any issues that arise are addressed initially with the call centre supervisor and subsequently at the quarterly training sessions where members of the CSO based staff deliver detailed training on any questionnaire changes.

- Respondent effects - most of the requested information is readily available to respondents. Proxy responses are not allowed for certain questions (for example income). A lot of the national modules only allow direct responses to improve data quality.

- Comprehension errors - most of the terms used by the survey are readily understood, although some issues occasionally arise.

5.2.2.5 Processing Errors

a. Data capture errors: These errors are minimised by logic checks and limits on values that can be keyed for each question in the electronic questionnaire at the data collection point.

b. Coding error: Checks are in place to minimise this risk, particularly with respect to Industry and occupational coding. The coding is conducted in-house at the CSO using an automated coding facility which is reviewed by a small team of coding experts. This approach reduces subjectivity and coding error. Overall it increases the quality and standard of coding of these key variables.

5.2.2.6 Model-related Effects

Not applicable.

5.3 Timeliness and Punctuality

5.3.1 Provisional Results

No provisional outputs are published.

5.3.2 Final Results

Since the third quarter of 2012, results have been published in the ninth week after the end of the quarter (the end of quarter is the Sunday of the final reference week in the quarter). The target is T+56 days and actual timeliness for recent quarters is:

Period	End of quarter date	Publication date	Timeliness (days)
Q1 2015	29/03/2015	21/05/2015	53
Q2 2015	28/06/2015	26/08/2015	59*
Q3 2015	27/09/2015	17/11/2015	51
Q4 2015	03/01/2016	23/02/2016	51
Q1 2016	03/04/2016	24/05/2016	51
Q2 2016	03/07/2016	23/08/2016	51
Q3 2016	02/10/2016	22/11/2016	51
Q4 2016	01/01/2017	21/02/2017	51
Q1 2017	02/04/2017	23/05/2017	51
Q2 2017	02/07/2017	22/09/2017	82**
Q3 2017	01/10/2017	16/01/2018	107**
Q4 2017	31/12/2017	14/03/2018	73**
Q1 2018	01/04/2018	20/06/2018	80***
Q2 2018	01/07/2018	28/08/2018	58****
Q3 2018	01/10/2018	20/11/2018	50
Q4 2018	30/12/2018	19/02/2019	51
Q1 2019	31/03/2019	21/05/2019	51
Q2 2019	30/06/2019	23/08/2019	58
Q3 2019	29/07/2019	19/11/2019	52
Q4 2019	29/12/2019	18/02/2020	51
Q1 2020	29/03/2020	21/05/2020	53
Q2 2020	28/06/2020	25/08/2020	58
Q3 2020	03/10/2020	17/11/2020	45
Q4 2020	23/01/2020	25/02/2021	33

* Note that the QNHS release was postponed as a result of a planned upgrade to the CSO website during the week of August 17th to 24th 2015 inclusive.

** Note that this delay arose due to the phased implementation of a major redevelopment of the CSO's household surveys in the context of a significant Household Survey Development (HSD) project.

*** Note that this delay arose due to the phased implementation of a major redevelopment of the CSO's household surveys in the context of a significant Household Survey Development (HSD) project together with the introduction of new NUTS2 and NUTS3 regional groupings

**** Note that this delay arose due to the previous delays due to the new LFS and new NUTS regions as described above

The main indicators which are published in the core release are ILO status (employed, unemployed etc.), industry of employment, occupation of employment, status of employment, duration of unemployment etc. Indicators are published by a range of classifications including sex, age, nationality, region of residence and highest level of education attained although not all indicators are published by each classification due to small cell sizes.

The primary classification used for the LFS results is the ILO (International Labour Office) labour force classification. Labour Force Survey data on this basis have been published since 1988. The ILO classification distinguishes the following main subgroups of the population aged 15 or over:

- In Employment: Persons who worked in the week before the survey for one hour or more for payment or profit, including work on the family farm or business and all persons who had a job but were not at work because of illness, holidays etc. in the week.

- Unemployed: Persons aged 15-74 who, in the week before the survey, were without work and available for work within the next two weeks, and had taken specific steps, in the preceding four weeks, to find work.

- Inactive Population (not in labour force): All other persons.

The labour force comprises persons employed plus unemployed.

Variables which are not published but required by Eurostat include for example work patterns, methods used in search for employment and current education involvement. Unpublished variables are often used in the calculation of European indicators such as life long learning and other education related matters. Such additional variables are provided by the Labour Market Analysis unit in ad-hoc data requests etc.

The LFS publications can be found on the CSO website

http://www.cso.ie/en/statistics/labourmarket/

5.4 Coherence

Coherence checks are regularly carried out with auxiliary sources – for example other CSO publications/releases such as Census of Population, Live Register, Retail Sales and external sources such as taxation trends, redundancy information etc. The following section illustrates details on coherence between the Labour Force Survey and Census of Population in relation to Labour Force and Unemployment rates.

5.4.1 Labour force rate and unemployment rate differences between the Labour Force Survey (LFS) and Census 2016

The following table illustrates the differences in rates calculated between the census in 2011 and 2016 and the corresponding LFS quarterly results.

Rate	Census (PES)		LFS (PES)		LFS (ILO)	
	Q2 2011	Q2 2016	Q2 2011	Q2 2016	Q2 2011	Q2 2016
Labour Force rate	61.9	61.4	61.5	60.5	62.3	62.6
Unemployment rate	10.0	12.9	16.9	10.3	15.3	9.1

One of the main reasons for the differences is that the LFS uses the International Labour Organisation (ILO) classification, which is based on a wider range of questions than used in the census to identify economic status. Under the ILO criteria, employment status is defined as follows:

In Employment:

Persons who worked in the week before the survey for one hour or more for payment or profit, including work on the family farm or business and all persons who had a job but were not at work because of illness, holidays etc. in the week

Unemployed:

Persons who, in the week before the survey, were without work and available for work within the next two weeks, and had taken specific steps, in the preceding four weeks, to find work.

Inactive Population (not in labour force):

All other persons

In contrast the census uses a self-declared Principal Economic Status (PES) question based on eight tick options.

> **How would you describe your present principal status?**
> **Mark one box only**
>
> 1 Working for payment or profit
> 2 Looking for first regular job
> 3 Unemployed
> 4 Student or pupil
> 5 Looking after home/family
> 6 Retired from employment
> 7 Unable to work due to permanent sickness or disability
> 8 Other, write in

Furthermore, the census form is completed by a responsible adult in each household throughout the State in respect of everyone present in the household on Census Night, while the LFS is by face to face or telephone interview.

The census relates to the *defacto* population at the time of the census (enumeration of entire population where they were on census night) while the LFS covers persons *usually resident* in Ireland in a sample survey.

Coherence checks will continue to ensure differences in rates do not fluctuate as the contrasts have been relatively consistent over time for recent censuses and LFS findings.

5.5 Comparability

To ensure comparability with other official statistics, standard classifications are used for LFS estimates (e.g. NACE Rev 2 for industry, UK SOC 2010 for occupation). The classifications used are in the main set by EU regulation.

The classification of industrial activity changed from NACE Rev 1.1 to NACE Rev 2. from Q1 2009. The classification used for occupation coding changed from UK SOC 90 to UK SOC 2010 in Q1 2011. In the main these changes were required due to changes in the applicable EU regulation. To facilitate users, the CSO back-casted industrial coding data to Q1 1998 and back-casted occupation coding data to Q1 2007.

The LFS is undertaken on a calendar basis which was first adopted in the QNHS from Q1 2009 as described under section 2.5 above and section 5.6.2 below. All data from Q4 1997 onwards was revised to calendar quarter data and results are available on the website. Again, this ensures greater comparability with other quarterly data which is typically compiled on a calendar quarter basis (for example quarterly national accounts). A note on the changeover to NACE Rev. 2 and the introduction of calendar quarters is available on the CSO website in the labour market releases and publications section.

http://www.cso.ie/en/media/csoie/qnhs/documents/calendar/supplementarynote.pdf

Up to and including Q1 2006 the annual population estimates have been calculated using the de facto definition of population (i.e. all persons present in the state). From Q2 2006 onwards a new concept of usual residence was implemented, i.e. all persons usually resident and present in the state plus absent persons who are usually resident in Ireland but temporarily away from home and outside the state. This again ensures comparability with other demographic statistics where usual residence is taken as the most appropriate population definition. In 2008 revisions were produced to implement this change in methodology (see section 5.6.2).

5.6 Accessibility and Clarity

5.6.1 Assistance to Users, Special Analyses

All publications are available on the CSO website. Information on methodology is also available at the following link

http://www.cso.ie/en/methods/labourmarket/labourforcesurvey/

The background notes on the publication provide some detail on the survey.

For the core LFS publication, a press conference is held every quarter to facilitate greater understanding by users and commentators of the data or seek further clarification.

Ad-hoc analysis can also be produced on request.

Anonymised microdata (for all calendar quarters) is made available to researchers via the Irish Social Science Data Archive (ISSDA). Such data is accessible by researchers applying directly to the ISSDA.

For further information see:

http://www.ucd.ie/issda/

Access to a Research Microdata Files (RMFs) can be requested from the CSO under the CSO's microdata access policy. Extensive use is made of this facility by the research community.

For further information see:

http://www.cso.ie/en/aboutus/lgdp/csodatapolicies/dataforresearchers/researchmicrodatafilesrmfs/.

5.6.2 Revisions

The most recent revisions to the LFS data series were carried out following the 2016 Census of Population. New population estimates were calculated on a quarterly basis using the 2016 Census of Population figures as a base. These new population estimates were then used as a new grossing frame for the quarterly LFS (formerly QNHS) data and as a result, the estimates previously published were revised to take account of these new grossing frames for each quarter. This work was completed in 2018 and results for the entire new set of data are issued with the publication of result for Q3 2016 on 16th January 2018

Inter-censal revisions of the type described above are completed every 5 years after each Census of Population.

5.6.3 Publications

5.6.3.1 Releases, Regular Publications

LFS main labour market estimates are published every quarter with a target release data of T+56 days. In addition, LFS quarterly releases, modules are published on an ad hoc basis. Further information regarding these modules is available from this link:

http://www.cso.ie/en/qnhs/releasesandpublications/qnhs-specialmodules/

5.6.3.2 Statistical Reports

LFS contributes data to several statistical releases in the office such as Men and Women in Ireland, Measuring Ireland's Progress, the CSO Yearbook etc.

5.6.3.3 Internet

All LFS releases are available on the CSO website in electronic release format. 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:

Releases and publications

http://www.cso.ie/en/statistics/labourmarket/

Databank dissemination

 data.cso.ie/product/lfs

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. All CSO office, field personnel and dedicated call centre personnel become "Officers of Statistics" on appointment and are liable to penalties under this Act if they divulge confidential information to any outside person or body.

Extreme precautions are taken to ensure that there are no violations of this principle throughout the survey process. The laptops used by field staff in the data collection process are encrypted and contain several layers of password protection. Data collected each day is transferred to the CSO using a secure encrypted tunnel. There is a dedicated area in the call centre for LFS interviewing and access to this area is restricted those who have been appointed as Officers of Statistics for the LFS. There is a dedicated server at the call centre to administer the LFS and all computers used for the LFS at this centre are

password protected. Each night, the data collected that day is collated into a single zip file, encrypted and password protected. The file is then uploaded to a secure Secure File Transfer Protocal (SFTP) site at the dedicated call centre. This CSO then extracts this zip file to a secure CSO location for processing.

Data is only published in aggregate form and care is taken to ensure that the data are aggregated to avoid the indirect identification of respondents. Confidentiality is also ensured within the anonymised microdata by using coded variables instead of original values for key characteristics. For example, age groupings are provided instead of single year of age.

6 Additional documentation and publications

The main CSO LFS homepage can be found at the following link:

http://www.cso.ie/en/statistics/labourmarket/

Statcentral – Ireland's portal to official statistics:

http://www.cso.ie/px/pxeirestat/statire/SelectTable/Omrade0.asp?Planguage=0

Eurostat issue many releases which use LFS data and the central repository for such data can be found as below:

http://ec.europa.eu/eurostat/web/lfs/publications/results