

CENSUS_INS21ES_A_FR_2021_0000

National Reference Metadata in Euro SDMX Metadata Structure (ESMS)

Compiling agency: Insee: National Institute of Statistics and Economic Studies



Eurostat metadata

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1. Contact

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1.1. Contact organisation

Insee: National Institute of Statistics and Economic Studies

1.1.1. Responsible party	Insee, Direction des Statistiques Démographiques et Sociales, Département de la Démographie, Division des méthodes et traitements du recensement
1.1.2. Responsible party role	Resource Provider
1.2. Contact organisation unit	Direction des Statistiques Démographiques et Sociales Département de la Démographie
1.5. Contact mail address	Muriel Barlet Insee Direction des Statistiques Démographiques et Sociales Département de la Démographie 88 avenue Verdier CS 70058 92541 MONTRouGE CEDEX

2. Metadata update Top	
2.1. Metadata last certified	31/12/2022
2.2. Metadata last posted	31/12/2022
2.3. Metadata last update	31/12/2022

3. Statistical presentation Top	
3.1. Data description	
Total population on a 1 km ² grid.	
3.1.1. Resource title	
2021 population and housing census grid data	

3.1.2. Resource abstract
This dataset contains provisional estimates of 2021 French mainland population disseminated on a 1km ² grid.
3.1.3. Resource type
Spatial data set series
3.1.3.1. Additional information if 'spatial data set' is marked
https://data.europa.eu/en <ul style="list-style-type: none"> • spatial (spatial dimension): grid cell identifier • frequency: annual • measure: population at residence place • measurement method: count • unit measure: persons • populated: 1 if populated else 0 • area of dissemination : France (mainland population) • obs_value (observation value): provisional estimate of 2021 total population (excluding homeless people and people in mobile dwellings)
3.1.4. Resource locator
3.1.5. Unique resource identifier
https://data.europa.eu/en
3.1.6. Coupled resource
https://data.europa.eu/en
3.1.7. Resource language
English
3.1.8. Keyword value
Population Distribution

3.1.9. Originating controlled vocabulary
https://inspire.ec.europa.eu/theme/pd
3.1.10. Metadata language
English
3.2. Classification system
<p>The data disseminated uses:</p> <ul style="list-style-type: none"> • The official geographical code (COG), valid from 1 January 2021. <p>The NUTS 2021 classification is available here.</p>
3.3. Coverage - sector
Not applicable on total population data.
3.3.1. Topic category
Society
3.3.2. Spatial data service type
Download Service
3.4. Statistical concepts and definitions
<p>The population comprises the persons having their usual residence on the territory.</p> <p>For grid data, homeless persons, persons residing in mobile dwellings and boatmen are counted in a separate grid cell, at the national level.</p> <p>Usual residence</p> <p>Persons are registered where they spend most of the year, generally more than 6 months of the year.</p> <p>The resident population of an area corresponds to:</p> <ul style="list-style-type: none"> - persons living permanently in a dwelling in the area, including spouses who live away for professional reasons and pupils or students who are minors; - persons living in a community in the area (except for persons living in educational establishments housing school children or students (including military training establishments), or in penitentiary establishments - adults residing in an 'educational' community in the area;

- persons detained in penitentiary establishments in the area;
- homeless persons present in the area on the first day of the census;
- persons who usually reside in mobile dwellings present in the area on the first day of the census;
- boatmen.

Total population (cf. 3.4.1 Total population) is the sum of individuals whose usual residence is in metropolitan France (overseas territories are excluded for grid data) at the Census reference date (2021). Usual residence means the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage.

Here « total population » differs from the total population concept in French Census data, which include both usual and non usual residence, with double counts at the national level. In French Census data, the total population is the sum of the municipal population and the population counted separately.

3.4.1. Statistical concepts and definitions - Total population

For census purposes, the total population of the country consists of all the persons falling within the scope of the census in EU on usual residents.

Usual residence means the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage.

Persons usually resident in the place of enumeration but absent, or expected to be absent, at the time of the census for less than one year shall be considered as temporarily absent persons and thus included in the total usually population. In contrast, persons living or expected to live outside the place of enumeration for one year or more shall not be considered temporarily absent and shall therefore be excluded from the total population. This is regardless of the length of visits that they may pay to their families from time to time.

Persons who are enumerated but do not meet the criteria for usual residence in the place of enumeration, i.e. do not live or do not expect to live in the place of enumeration for a continuous period of at least 12 months, are considered temporarily present and are therefore not counted in the total usually resident population. Unless otherwise stated in this report.

3.4.2. Statistical concepts and definitions - Sex

Not applicable.

3.4.3. Statistical concepts and definitions - Age

Not applicable.

3.4.4. Statistical concepts and definitions - Employed person
Not applicable.
3.4.5. Statistical concepts and definitions - Place of birth
Not applicable.
3.4.6. Statistical concepts and definitions - Place of usual residence one year prior to the census
Not applicable.
3.5. Statistical unit
Individuals.
3.6. Statistical population
<p>Persons enumerated in the 2021 census are those who were usually resident in the territory of the reporting country at the census reference date. Usual residence means the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage.</p> <p>For grid data, the scope is limited to people residing in metropolitan France (overseas territories are excluded, according from European Regulation (EC) No 2018/1799).</p> <p>Homeless persons, persons residing in mobile dwellings and boatmen are counted in a separate grid cell, at the national level.</p>
3.7. Reference area
<p>Data is available at grid cell of the 1 km² reference grid.</p> <p>According from European Regulation (EC) No 2018/1799, the reference grid is the Equal Area Grid 'Grid_ETRS89-LAEA1000'.</p>
3.7.1. Geographic bounding box
<p>The spatial extent of the reference grid is limited to easting values between 900,000 and 7,400,000 metres and northing values between 900,000 and 5,500,000 metres for the purpose of this Regulation.</p> <p>Overseas territories are thus excluded: data are available for people living in Metropolitan France.</p>
3.7.2. Spatial resolution
1000

Unit:m
3.7.3. Coordinate Reference System
EPSG:3035 - ETRS89 / LAEA Europe
3.8. Coverage - Time
Data refer to the situation in the reporting country at the census reference date (see item 5.1.).
3.9. Base period
Not applicable.

4. Unit of measure	Top
Estimated counts of persons.	

5. Reference Period	Top
The 2021 census results refer to 1st January 2021.	
5.1. Temporal extent	
The 2021 census results refer to 1st January 2021.	

6. Institutional Mandate	Top
6.1. Institutional Mandate - legal acts and other agreements	
At national level:	
<p>The law of 27 February 2002 on local democracy (title V, articles 156 to 158) sets the objectives of the population census:</p>	
<ul style="list-style-type: none">• the publication each year of the legal population figures (municipal population, population counted separately and total population). These figures are calculated for France, all its municipalities and administrative districts. Insee is responsible for calculating the legal populations;	

- description of the demographic and social characteristics of the population;
- enumeration and description of characteristics of dwellings.

The law n° 2002-276 of 27 February 2002 founds also the principles of execution of the census.

The main other legal texts are:

- [Decree in Council of State n° 2003-485 of 5 June 2003](#) defining the methods of application of the law;
- [Order of 26 June 2003](#) authorising the collection of information from people living in communities;
- [Order of 19 July 2007](#) governing the dissemination of the results of the population census.

Bodies responsible :

The census on population and housing is conducted under the responsibility and control of the State ([law of 27 February 2002 on local democracy](#)).

The municipality or the public inter-municipality cooperation establishments (EPCI) are required by law to prepare and conduct the census surveys and therefore receive financial allowance from the State.

Insee's mission is to organise the collection of the information and ensure the quality of the collected information. It gathers the collected information, processes the questionnaires and disseminates the results.

Enumerators recruited by the municipality or EPCI drop off the questionnaires and pick them back up once they have been filled in. People living in institutions such as military quartering, hospitals, etc. are surveyed by Insee.

At European level, for 2021 Census:

- [Commission Implementing Regulation \(EU\) 2017/543 of 22 March 2017 laying down rules for the application of Regulation \(EC\) No 763/2008 of the European Parliament and of the Council on population and housing censuses as regards the technical specifications](#)
- [Commission Regulation \(EU\) 2017/712 of 20 April 2017 establishing the reference year and the programme of the statistical data and metadata for population and housing censuses provided for by Regulation \(EC\) No 763/2008 of the European Parliament and of the European Parliament of the Council](#)
- [Commission Implementing Regulation \(EU\) 2017/881 of 23 May 2017 implementing Regulation \(EC\) No 763/2008 of the European Parliament and of the Council on population and housing censuses, as regards the modalities and structure of the quality reports and the technical format for data transmission, and amending Regulation \(EU\) No 1151/2010](#)
- [Commission Implementing Regulation \(EU\) 2018/1799 of 21 November 2018 on the establishment of a temporary direct statistical action for the dissemination of selected topics of the 2021 population and housing census geocoded to a 1 km2 grid](#)

6.2. Institutional Mandate - data sharing

Eurostat data collection and data production.

7. Confidentiality

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7.1. Confidentiality - policy

At the national level, Article 6 of Law No. 51-711 of 7 June 1951, as amended, on the obligation, coordination and secrecy of statistics determines what statistical secrecy is, its limits and the conditions for its application.

Generally speaking, as regards access to public data, confidentiality obligations relating to the protection of privacy or business secrecy and the protection of personal data are guaranteed by law (Article 1 of the Law for a Digital Republic).

A Statistical Confidentiality Committee ensures that these statutory guarantees are maintained.

The answers to the annual census survey questionnaire are protected by statistical secrecy and are intended for INSEE. Their use and access are strictly controlled and limited to the preparation of statistics or research work. In particular, surnames and first names are not kept beyond 31 December of the year following the survey.

The General Regulation 2016/679 of 27 April 2016 on data protection (RGPD) and Law No. 78-17 of 6 January 1978 on information technology, files and freedoms apply to this survey.

Enumerated people may exercise a right of access, rectification or limitation of processing for data concerning them during the period of conservation of identification data.

Rules on the dissemination of the results of the population census are set out in the [Order of 19 July 2007](#) which specifically indicates geographical levels (and size) for distribution, the list of sensitive variables and the possible forms of products (maps, tables, detailed files).

Four variables are defined as sensitives: place of birth, country of citizenship, year of arrival in France, place of usual residence one year prior to the census.

7.2. Confidentiality - data treatment

'Total population' is not concerned by the issue of confidentiality.

8. Release policy

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8.1. Release calendar

A schedule for the release of census results is publicly available on insee.fr : [Census results: timing and outputs](#).

- In France, the legal 2021 populations will be disseminated in December 2023.
- Detailed databases will be disseminated in June 2024.
- Sub-municipal results will be disseminated in October 2024.

8.2. Release calendar access

Not applicable.
8.3. Release policy - user access
Not applicable.
8.3.1. Conditions applying to access and use
https://inspire.ec.europa.eu/metadata-codelist/ConditionsApplyingToAccessAndUse/noConditionsApply
8.3.2. Limitations on public access
https://inspire.ec.europa.eu/metadata-codelist/ConditionsApplyingToAccessAndUse/noConditionsApply

9. Frequency of dissemination	Top
Data on population and housing censuses are disseminated every decade.	
Data on population by grid cell are disseminated for the first time for the 2021 Census.	

10. Accessibility and clarity	Top
10.1. Dissemination format - News release	
Not applicable.	
10.2. Dissemination format - Publications	
Provisionnal estimates of total population on a grid are not disseminated nationally.	
10.3. Dissemination format - online database	
Not applicable.	
10.4. Dissemination format - microdata access	
Not applicable.	
10.5. Dissemination format - other	

Not applicable.

10.6. Documentation on methodology

The methodology of the population census was renewed in 2004 and resulted in an *Insee méthodes* « Pour comprendre le recensement de la population » in 2005.

The quality of population estimates in the census also led to an [Insee méthodes in 2020](#).

The documentation also consists of thematic advice sheets, technical notes and sheets on data processing after collection. They present the information you need to know in order to make the best use of the census results. They are available on insee.fr (*cf.* 10.7).

Dissemination of the 2021 population geocoded to a 1 km² grid

To provide population data on a 1 km² grid, the French INS (Insee) had to face two challenges:

- geocoding of dwellings in municipalities with fewer than 10,000 inhabitants
- cell-level estimates for municipalities with more than 10,000 inhabitants

Moreover, early estimates were conducted to provide Eurostat with 2021 population in December 2022, whereas 2021 population will be disseminated in France in December 2023.

Population geocoding in municipalities of fewer than 10,000 residents

Addresses of dwellings in municipalities of 10,000 residents or more are listed in a geocoded register. This is also the case for communal establishment addresses.

However, in municipalities with fewer than 10,000 inhabitants, addresses of dwellings are not geocoded in the current production process of the Census.

Two geocoding methods are used for these municipalities:

- geocoding by matching on street address: this process assigns coordinates to addresses from the annual census survey by comparing them with an address register (on the basis of the municipality code, the lane and the lane number), in which coordinates are taken from the land register ;
- geocoding by matching on individuals characteristics: this process consists in using the characteristics of individuals who resid at a certain address (date of birth, municipality of birth and sex) to match addresses from the annual census survey with those from the geocoded tax files. If

the two addresses contain individuals with the same combination of sex, date of birth, and municipality of birth, it is very likely that they are the same so they are matched.

For both geocoding methods, a quality score is calculated, which depends on coordinates quality and matching quality. A selection rule was defined based on the coordinates' quality score in each method, to determine which coordinates would be selected for each address. If both methods propose bad quality coordinates, they are interpolated using the coordinates of addresses nearby. And in very few cases, the coordinates are randomly imputed in the municipality.

Method for disseminating Census on a grid in municipalities of 10,000 residents and more

The dissemination on a grid is not an issue in two cases, due to exhaustive data:

- municipalities with fewer than 10,000 residents are surveyed exhaustively, in turn, every five years ;
- individuals living in a communal establishment or in a tourist residence are also exhaustively enumerated during a five-year cycle.

Moreover, homeless people and people living in mobile homes will not be enumerated on each grid cell, due to the lack of precise geocoding. They will be assigned to a virtual "unallocated" grid cell, at the national level, in accordance with the [Regulation \(EU\) 2018/1799](#).

On the contrary, municipalities with more than 10,000 inhabitants are surveyed every year, by means of a survey on approximately 8% of their dwellings. Within a 5-year cycle, about 40% of the dwellings of the municipality have been surveyed. As the census of these municipalities is not exhaustive, the challenge is to produce reliable cell-level estimates, despite the low number of sampled dwellings in some grid cells. Indeed, this low level of information in certain grid cells questions the reliability of the usual estimation method at such a fine level.

A hot deck imputation method is used to estimate population in a grid cell in municipalities of 10,000 residents and more. This method consists to impute characteristics of dwellings and individuals to every address in the buildings register from the surveyed addresses and auxiliary information of tax origin, matched beforehand with the buildings register. Imputation is possible because of the high sampling rate (40%) and the existence of a register of localised buildings, listing all the residential addresses of large municipalities.

The aim is that surveyed address keep a weight equal to 1 and allocate the rest of their estimation weight (and the associated characteristics) to non-sampled addresses. To do that, the distance between donor addresses (the addresses surveyed) and recipient addresses is minimised in terms of auxiliary information (the distance is calculated from the average number of persons per dwelling

and the structure of the population by sex and by age group), under some constraints (each address must receive its number of dwellings in the buildings register).

More information is available in the Final Methodological Report for Grant Agreement, on methodology for estimating census data on a grid (No. 881993 — 2019-FR-CENS-GEOLoc) and in 2 articles presented at the 2022 edition of the French statistical methods seminar.

- [« La géolocalisation du recensement de la population dans les communes métropolitaines de moins de 10 000 habitants »](#)
- [« Méthodes de carroyage du recensement de la population dans les communes métropolitaines de 10 000 habitants et plus »](#)

Early estimates: method for disseminating 2021 total population one year prior the French Census dissemination

In France, the legal 2021 populations will be disseminated at the end of December 2023. In order to disseminate 2021 total population one year before the French dissemination, early estimates have been conducted.

A census year is created from five annual census surveys for the calculation of legal populations.

In municipalities of 10,000 residents and more, the population is estimated by multiplying the addresses' survey weights by the ratio of the number of dwellings according to the "median buildings register" (as of January, 1st of the median year of the census cycle) over the number of dwellings estimated during the five years of the cycle.

This is equivalent to multiply the average number of persons per dwelling by the number of dwellings according to the "median buildings register". To estimate provisional 2021 population were used:

- the number of dwellings as of January, 1st , 2021 is known (source: buildings register)
- the average number of persons per dwelling in 2021 is estimated by applying a trend extension to the average number of persons per dwelling in 2019 (last known figure at the time of estimation), based on the trend between 2014 and 2019.

In municipalities with fewer than 10,000 residents, different estimation methods are used according to the survey year of the municipality. The legal 2021 populations, which will be disseminated at the

end of December 2023, will use 5 annual census survey: 2018, 2019, 2020, 2022 and 2023 (the 2018 survey is used since there was no survey in 2021, due to sanitary context).

At the end of 2023, the municipal populations as of January, 1st 2021 will be calculated.

- If the municipality was surveyed in 2018, in 2019 or in 2020, the collected data will be extrapolated using the evolution of the number of dwellings observed in tax data combined with an estimate for the variation in the households' average size.

- If the municipality was surveyed in 2022 or in 2023, a linear interpolation will be made between the last legal population (N-1 census) and the new data collection.

To estimate provisional 2021 population, some adjustments are made:

- for extrapolation, the method applied is the same as usual but tax data used is more recent and less precise ;

- a linear interpolation is applied to municipalities surveyed in 2022 from provisional figures ;

- for municipalities which will be surveyed in 2023, data from the previous survey, in 2017, have been extrapolated using the evolution of the number of dwellings observed in tax data combined with an estimate for the variation in the households' average size.

For individuals living in a communal establishment or in a tourist residence, homeless people and people living in mobile homes, the 2019 census results are used.

More information is available in the Report for Grant Agreement on early estimates (No. 07112.2017.007-2017.442).

Annexes:

[Final Methodological Report for Grant Agreement, on methodology for estimating census data on a grid \(No. 881993 — 2019-FR-CENS-GEOLOC\)](#)

[Final Report for Grant Agreement No. 07112.2017.007-2017.442](#)

10.7. Quality management - documentation

The French census documentation is available on the insee.fr website:

- [Insee méthodes Special edition: To understand the population census](#)

- [The quality of population estimates in the census \(Insee Méthodes n°136 - October 2020\)](#)
- [Processing population census data](#)
- [Tips on using census results](#)

The documentation specifically related to the dissemination of the 2021 population geocoded to a 1 km² grid is available in the Final Methodological Report for Grant Agreement, on methodology for estimating census data on a grid (No. 881993 — 2019-FR-CENS-GEOLOC).

11. Quality management

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11.1. Quality assurance

Since 2005, the European Statistics Code of Practice has been the benchmark for assessing the quality of the output of national statistical institutes. Periodic reviews by European peers are organised to ensure that the principles of this reference framework are implemented and to ensure that each institute is committed to continuous improvement. Within this framework, INSEE adopted a process-based approach. A range of tools, pooled within the Official Statistical Service (SSP), were created to describe statistical production processes, analyse their strengths and weaknesses, assess the risks involved, examine their documentation (metadata) or provide expert appraisal of a particular stage (analysis of user needs, data validation, etc.). The diagnoses resulting from these « quality approach » lead to the establishment of action plans that are regularly monitored in the context of « process review ». In addition, INSEE regularly conducts satisfaction surveys on the indicators and data it produces. The results of these surveys are available on the insee.fr website.

In addition, with regard to surveys carried out by public statistics producing services (INSEE, ministerial statistical services, other related bodies such as INED, Céreq, Inserm, etc.), the Label Committee is responsible for examining, on behalf of the National Council for Statistical Information (CNIS), all projects for which the approval provided for in Article 2 of the Law of 7 June 1951 is requested. Over time, the Committee has developed a method and an experience for examining the files submitted to it. Starting from considerations expressed in terms of the burden or proportionality of the collection to the objectives pursued, the Committee extended its examination

rules to cover all dimensions of statistical quality, as formalised in the European Statistics Code of Practice. For the SSP, the Label Committee thus constitutes a lever for ensuring compliance with these principles, in terms of consultation, methodological quality, proportionate burden, dissemination or availability of duly documented statistical sources.

On a more strategic level, the INSEE Inspectorate General carries out evaluations, assessments and audits of the Institute's work, its operations and the organisation of its services. Some of these missions focus more specifically on INSEE's key processes.

11.1.1. Lineage

Data on population by grid cell are disseminated for the first time for the 2021 Census. In France, data on population by grid cell will be disseminate in 2024.

The documentation on methodology to produce the 2021 population geocoded to a 1 km² grid is available in the Final Methodological Report for Grant Agreement (No. 881993 — 2019-FR-CENS-GEOLOC, *cf.* 10.6 Documentation on methodology).

11.1.2. Conformity, specification

[Regulation \(EU\) 2018/1799 of 21 November 2018 on the establishment of a temporary direct statistical action for the dissemination of selected topics of the 2021 population and housing census geocoded to a 1 km² grid](#)

11.1.3. Conformity, degree

Grid population data are computed such as to be consistent with the French legal populations at the municipality level. The 2021 legal populations will be computed only in 2023, and disseminated by the end of that same year. In order to be able to compute grid population data for the 2022 provisional delivery 2021, early estimates of the 2021 legal populations have been conducted (*cf.* 10.6. Documentation on methodology). These early estimates differ from the early estimates conducted at the regional and national level for the French demographic report (combining data from the Census and civil registries), that are disseminated through the European demographic statistics regulation.

11.2. Quality management - assessment

The quality of a census mostly depends on the quality of data collection. The French census method ensures good quality, precisely because it is conducted annually and by survey. These two original features mean that the collection burden is spread out over time and that the different players develop their skills compared to a decennial exhaustive Census. The French Census method also ensures to cover all population files and not only those appearing in the administrative data.

Moreover, each of the ingredients involved in elaborating the results of the census is validated progressively as it is implemented. In addition to these data checks (collected or administrative), different operations verify the processing. For example:

→ In municipalities of 10,000 residents and more, which are surveyed every year by means of a survey, the quality of the survey depends in part on the exhaustivity of the localised buildings register (RIL). This register is used for collection and for population estimates. The RIL is updated every year, both by Insee and the municipalities. Moreover, national survey operations measuring the quality of the RIL have been organised on several occasions since 2004 (every two years on average) to check the match between the RIL and the ground. In practice, they have conducted exhaustive "combing" of a certain amount of districts (IRIS), thus ensuring good coverage of the survey address base.

→ In municipalities of fewer than 10,000 residents, the exhaustivity of dwellings is checked on the ground before each survey.

→ To ensure collection quality, all players receive proper training (enumerators, municipal coordinators, supervisors and INSEE personnel). Next, as soon as the questionnaires are available, different indicators are checked in the INSEE offices and a score is assigned to each municipality in the census. If the score is insufficient, INSEE operators conduct checks on the ground. These checks can lead to correcting the questionnaires, in collaboration with the municipalities concerned, thus contributing to improving the collection and verification protocols.

→ The non-response is very low (less than 4%) and methods for dealing with non-response are applied.

→ The quality of data entry is checked each year: a sample of questionnaires (between 5,000 and 6,000) is double-entered, one by the usual service provider and the other by a competitor. The INSEE analyses differences between the two entries for each question and deduces error rates that can be assigned to the main service provider. This double entry of data is conducted in the course of the entry campaign, ultimately enabling correction of protocols for the following batches (all questionnaires are distributed each year into twenty batches).

→ The population estimates are subjected to consistency and likelihood checks, and then assessed (for example, to identify atypical trends).

12. Relevance

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12.1. Relevance - User Needs

The census data disseminated by Eurostat are addressed to policy makers, researchers, media and the general public.

12.2. Relevance - User Satisfaction

In France, a survey on the dissemination of legal populations was conducted from 27 December 2018 to 11 January 2019 among Internet users visiting the legal populations pages of the insee.fr website.

A survey on the dissemination of statistical results of population census was conducted from 25 June 2019 to 24 July 2019 among Internet users visiting the census pages of the insee.fr website.

- [Dissemination of legal populations \(results of the survey conducted in 2018\)](#)

At the european level, no user satisfaction surveys are carried out. User inquiries are handled by the Eurostat User Support service.

12.3. Completeness

The French census operation complies with the regulatory requirements specified in the section 6. Institutional mandate.

13. Accuracy

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13.1. Accuracy - overall

Methods used for data collection and population estimation are designed to ensure the accuracy of the census results. However, there are few elements that can affect this accuracy:

- Rolling census and survey: the french census is based on a 5 years cycle. Each year, there is a census survey concerning 8% of the dwellings in large municipalities (10,000 inhabitants and more) and 100% of the dwellings in 1/5 th of the small municipalities (less than 10,000 inhabitants). During a 5 years cycle, 100% of the inhabitants of small municipalities have been interrogated and 40% of the inhabitants in large municipalities.
- Absence of 2021 survey: in 2021, the census survey was cancelled because of the pandemic. The method to estimate the population has been adapted.
- Non-response treatments
- Quality of geocoding
- Imputation method in municipalities with 10,000 inhabitants or more to estimate population in a 1km² grid

- Early estimates: early estimates have been made in order to disseminate the 2021 total population one year prior the French Census dissemination.
- Integer numbers: integer numbers are disseminated in the grid data, according from European Regulation (EC) No 2018/1799. The sum of these grid cell integer numbers does not add up to the estimated population at the national level.

13.2. Sampling error

Some documents on the accuracy of census results are available:

- [The accuracy of census results \(Topic Sheet, March 2017\)](#)
- [Population census: The accuracy of the population figure in the major metropolitan areas](#)
- [The quality of population estimates in the census \(Insee Méthodes n°136 - October 2020\)](#)
- Imputation method in municipalities with 10,000 inhabitants or more to estimate population in a 1km² grid:« [Méthodes de carroyage du recensement de la population dans les communes métropolitaines de 10 000 habitants et plus](#) »

The last two items are also detailed in the Final Methodological Report for Grant Agreement, on methodology for estimating census data on a grid (No. 881993 — 2019-FR-CENS-GEOLOC) [*cf.* 10.6 Documentation on methodology].

13.3. Non-sampling error

- Non-response treatments: a fact sheet on the non-response treatment is available on the Insee website ([in French](#)).
- [Absence of 2021 survey: adaptation of the methods for calculating population](#)
- Geocoding of dwellings in municipalities with fewer than 10,000 inhabitants:« [La géolocalisation du recensement de la population dans les communes métropolitaines de moins de 10 000 habitants](#) »
- Data collected over 5 years, with the median year of the cycle as reference
- Integer numbers, while data is estimated

14. Timeliness and punctuality

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14.1. Timeliness

The provisionnal 2021 population data is disseminated in December 2022. The definitive data will be disseminated in March 2024.
14.1.1. Date of publication
31/12/2022
14.1.2. Date of last revision
31/12/2022
14.1.3. Date of creation
31/12/2022
14.2. Punctuality
Not applicable.

15. Coherence and comparability Top
15.1. Comparability - geographical
<p>The harmonised French census is such as to guarantee European-wide spatial comparisons.</p> <p>The French census is based on surveys, not on administrative registers. Multiple annual surveys are used and a calibration ensures coherence with the reference date.</p>
15.1.1. Geographic information - data quality
<p>Geographic coordinates are of good quality.</p> <p>The source of information for the geographical coordinates is specific to each field :</p> <ul style="list-style-type: none"> - Addresses of dwellings in municipalities of 10,000 residents or more are listed in a geocoded register. This register is validated by municipalities. - This is also the case for communal establishment addresses. - In municipalities with fewer than 10,000 inhabitants, two geocoding methods are used : geocoding by matching on street address and geocoding by matching on individuals characteristics. For both methods, a quality score is calculated, which depends on coordinates quality and matching quality. A selection rule was defined based on the coordinates' quality score in each method, to determine which coordinates would be selected for each address. If both methods propose bad quality

coordinates, they are interpolated using the coordinates of addresses nearby. And in very few cases, the coordinates are randomly imputed in the municipality.

15.2. Comparability - over time

Not applicable: data on population by grid cell is disseminated for the first time, for 2021 population.

15.3. Coherence - cross domain

'Total population' figures provided in the framework of the 2021 Population and Housing Census may differ from those transmitted in the Demographic domain due to differences in methodologies used in population estimation.

15.4. Coherence - internal

Not applicable: only 2021 total population is disseminated in December 2022.

16. Cost and Burden

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Collecting and processing census each year costs about €45 million. The main expenditure items are:

- €19.3 million that INSEE pays to the municipalities, in charge of conducting the surveys and particularly paying the enumerators;
- €4.8 million for printing the questionnaires and other collection documents, digitisation of data and measurement of the quality of this digitisation, communication, etc.
- €0.2 million to pay the personnel specifically recruited by the INSEE for certain ground operations (interviewers for communities, data collection check surveys...);
- €21 million for INSEE personnel, to pay the persons who work on the operation all year round (upgrading survey bases, preparing, following up and checking surveys, data processing) and the 450 agents who supervise operations on the ground for 2 months.

As it takes five surveys to produce the complete results of the census, the cost of the census is less than €230 million.

Insofar as France does not have a population register capable of reliably confirming local population figures, the cost of the census is reasonable with regard to the services it provides.

17. Data revision

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17.1. Data revision - policy
The results of the RP are generally not subject to revision. Exceptionally, the legal population of a municipality (in the framework of a rectifying decree) or certain detailed results may be subject to correction.
17.2. Data revision - practice
Last revision: 31 december 2022

18. Statistical processing	Top
18.1. Source data	
<p>The census is based on an annual collection of information, covering successively all the municipal territories over a period of five years. Municipalities with fewer than 10,000 inhabitants carry out an enumeration of the entire population in one municipality out of five each year. Municipalities of 10,000 inhabitants or more carry out an annual sample survey of a sample of residential buildings representing 8% of their dwellings.</p> <p>With a total of five surveys, all the inhabitants of municipalities with fewer than 10,000 inhabitants and approximately 40% of the population of municipalities with 10,000 inhabitants or more are taken into account.</p> <p>Taking all sizes of municipalities together, after 5 years, 70% of dwellings have been covered by a census survey.</p> <p>The information collected in this way is adjusted to apply to a single date for all municipalities in order to ensure equal treatment between them. This reference date is set at 1 January of the median year of the five survey years in order to obtain more robust data.</p>	
18.2. Frequency of data collection	
The French census data collection is annual.	
18.3. Data collection	
Data collection period	

Collection begins on the third Thursday in January, except in La Réunion and in Mayotte where it begins two weeks later and in March-April in Saint-Pierre-et-Miquelon.

It lasts a little over four weeks in municipalities with fewer than 10,000 inhabitants and in communities, and a little over five weeks in municipalities with 10,000 inhabitants or more.

The other overseas territories carry out general population censuses every five years by way of derogation (Article 157).

The last full enumeration in Mayotte took place in 2017. Mayotte integrated the annual census surveys in 2021 and will be subject to a joint dissemination to the metropolitan territories and other DOMs from the 2023 census.

Collection mode

- Face to face by interviewer
- By internet

Survey unit

- Dwelling
- Individual

Sampling method

For each annual survey, the municipalities with 10,000 inhabitants or more follow a two-phase sampling plan in the Address Survey Base (ASB) created from the annual data of the Localised buildings register (RIL).

First phase of sampling:

In metropolitan France, the residential buildings (or addressed entities) were divided into five rotation groups by balanced random draw. The drawing of the sample of buildings from a given annual census survey mobilises only one of the five rotation groups, by rotation. The constitution of the buildings rotation groups constitutes the first phase of the draw.

In the French overseas departments, each large municipality was partitioned into several sets of contiguous buildings known as « îlots ». In each municipality, the « îlots » were divided into five rotation groups. The constitution of the rotation groups constitutes in this context the first phase of the draw.

Second draw phase:

Addressed entities belonging to the strata of large buildings, new buildings and tourist establishments are exhaustively enumerated. The buildings belonging to the stratum of known small addresses are selected in such a way as to obtain 40% of the dwellings surveyed in the annual rotation group.

Sample size

Over a 5-year cycle, 25 million dwellings and 47 million people are enumerated (for metropolitan France and French overseas departments).

Data collection documents

The individual form covers the characteristics of the individual: sex, age, marital status, place of birth, nationality, place of study, diplomas, place of previous residence (one year before), employment, social category, economic activity sector.

The housing form describes the characteristics of:

- The household: composition, size, family ties, number of cars, etc.;
- The dwelling: type, year of completion, size, type of occupation, public housing, heating, bathroom, sewage disposal, year of moving in, parking.

The forms (individual , individual for communities, housing for metropolitan France and the overseas territories) as well as the explanatory notes are available on the website « le recensement et moi ».

18.4. Data validation

Each of the ingredients involved in elaborating the results of the census is validated progressively as it is implemented. In addition to these data checks (collected or administrative), different operations verify the processing. For example:

→ In municipalities of 10,000 residents and more, which are surveyed every year by means of a survey, the quality of the survey depends in part on the exhaustivity of the localised buildings register (RIL). This register is used for collection and for population estimates. The RIL is updated every year, both by Insee and the municipalities. Moreover, national survey operations measuring the quality of the RIL have been organised on several occasions since 2004 (every two years on average) to check the match between the RIL and the ground. In practice, they have conducted exhaustive "combing" of a certain amount of districts (IRIS), thus ensuring good coverage of the survey address base.

→ In municipalities of fewer than 10,000 residents, the exhaustivity of dwellings is checked on the ground before each survey.

→ To ensure collection quality, all players receive proper training (enumerators, municipal coordinators, supervisors and INSEE personnel). Next, as soon as the questionnaires are available, different indicators are checked in the INSEE offices and a score is assigned to each municipality in the census. If the score is insufficient, INSEE operators conduct checks on the ground. These checks can lead to correcting the questionnaires, in collaboration with the municipalities concerned, thus contributing to improving the collection and verification protocols.

→ The non-response is very low (less than 4%) and methods for dealing with non-response are applied.

→ The quality of data entry is checked each year: a sample of questionnaires (between 5,000 and 6,000) is double-entered, one by the usual service provider and the other by a competitor. The INSEE analyses differences between the two entries for each question and deduces error rates that can be assigned to the main service provider. This double entry of data is conducted in the course of the entry campaign, ultimately enabling correction of protocols for the following batches (all questionnaires are distributed each year into twenty batches).

→ The population estimates are subjected to consistency and likelihood checks, and then assessed (for example, to identify atypical trends).

18.5. Data compilation

A census year is created from five annual census surveys for the calculation of legal populations.

In municipalities of 10,000 inhabitants or more, where census surveys are carried out every year by sampling: the principle of the calculation consists of adding up the observations of the last five

years, then deducting the entire municipality by referring to the number of dwellings in the middle of the period, as known by the localized building register (Ril).

In municipalities with fewer than 10,000 inhabitants, INSEE determines the legal populations by extrapolation or interpolation of the results obtained by the most recent census survey. In the case of extrapolation, these calculations consist of extending observed trends based on the number of dwellings provided by the tax data, and in the case of interpolation, establishing intermediate figures between two years for which the populations are known.

At the end of the collection, all the questionnaires are returned to INSEE (about 9 million individual bulletins and 4.5 million housing forms each year). They are divided into twenty entry batches and are digitised by optical scan, batch by batch. The questionnaires can also be completed on the internet (between 60 % and 70 % for the last surveys) They are then coded and many adjustments are made:

- To adjust for total nonresponse (nonrespondant dwellings), they first determine if the dwelling is a main residence and if so, the supposed number of occupants. The corresponding number of individual bulletins is then generated. Responses to these questionnaires are then assigned, as in the case of partial nonresponse.

The result of these operations is a detailed file containing all the dwellings and individuals surveyed.

18.6. Adjustment

Not applicable.

19. Comment

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Annexes

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[Rapport Final Grant EN Final No. 07112.2017.007-2017.442](#)

[Final methodological report Grant No. 881993 — 2019-FR-CENS-GEOLoc](#)