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Future censuses beyond 2020

Plans for the 2021 EU census programme and for the development of European population statistics beyond 2021: an update

Note by Eurostat*

Summary

This document presents an overview of Eurostat's work on the population and housing census, covering the work to complete the EU census programme for 2021 and to prepare a redeveloped collection of population statistics after 2021. There are three main activities that are at different stages of completion: the main legal base for 2021 data collection; the development of a collection of 2021 census data for a 1km square geographical grid; and the introduction of a completely redeveloped set of population statistics to be collected for the 2024 reference year onwards.

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I. Introduction

1. This document presents an overview of Eurostat's work on the population and housing census, covering the work to complete the EU census programme for 2021 and to prepare a redeveloped collection of population statistics after 2021. There are three main activities that are at different stages of completion: the main legal base for 2021 data collection; the development of a collection of 2021 census data for a 1km square geographical grid; and the introduction of a completely redeveloped set of population statistics to be collected for the 2024 reference year onwards.

2. For these three areas of work, Eurostat has been assisted by the active involvement of the 'Task Force on future EU censuses' (the Task Force) – a group of census experts from around 20 National Statistical Offices (NSIs). As the work has developed and proposals have become more concrete, input and support have been received at different stages from the Census Working Group (composed of all EU NSIs).

3. Through various programmes, Eurostat has established a series of grants available to NSIs to help support the costs of developing the use of new data sources and methods. These grants, which are expected to continue under different programmes subject to budget availability, apply to the implementation of the 2021 census programme, to the introduction of census geo-referenced grid data, and to preparations for the post-2021 population statistics.

II. The 2021 EU census programme

4. As reported to the October 2017 meeting of the Expert Group, the legal base for the 2021 data collection was completed and came into force in the first half of 2017. This consists of three updated regulations, implementing for 2021 the existing European Parliament and Council Regulation (763/2008) that was used in 2011. In 2013, the decision had been made that the 2021 data collection would be an update of the 2011 collection, taking into account information and experience gained from this earlier data collection. As in 2011, the 2021 data will be produced in the form of detailed multi-dimensional cross-tabulations (hypercubes) that will be accessed using the online Census Hub system. Although it was clear that a more fundamental redevelopment of European population statistics would be needed in the longer-term future, it was decided that this would take place for censuses after 2021. One benefit of this approach is that NSIs have clarity relatively early in the decennial census cycle as to the requirements and obligations of the 2021 EU programme.

5. The existing principles that applied in 2011 are also maintained for 2021. Comparable results between Member States are to be achieved through a process of output harmonisation. NSIs are free to produce the data required using any appropriate methods and data sources. However, the data must fully meet the standards defined in the legislation relating to definitions, breakdowns, cross-tabulations and quality reporting. The data must also be produced in accordance with the 'essential features' of censuses, as defined in Regulation (EC) 763/2008 and based on the CES Recommendations for population and housing censuses.

6. The legal base for 2021 consists of three separate implementing regulations which govern particular aspects of the data and metadata collection. Each of these regulations was developed with input from the Task Force, with initial proposals from Eurostat attempting to build on and make improvements from the 2011 data collection. These changes included simplifying where possible the classifications used for census topics, removing cross-tabulations and topic dimensions that were little used for 2011, and updating definitions and breakdowns to ensure ongoing relevance of the data. Although in some aspects the data collection has been reduced and simplified, there has been an expansion in the data required

for some high-priority areas including migration-related topics and for small area data. Efforts have been made to retain the uniqueness of the census as a source of multi-dimensional and geographically detailed data.

7. The three implementing regulations that are now in force for 2021 are:

(a) 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 of the topics and of their breakdowns;¹

(b) 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 Council;²

(c) 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 1151/2010.³

III. Geo-referenced grid data from the 2021 census

8. A second part of the work to develop the 2021 data has concerned the collection of census data geo-coded to a 1 km square grid. This is a new development for 2021 that is intended to respond to the emerging needs for geo-referenced data – needs which were cited particularly by the European Commission’s DG for Regional Policy (DG REGIO) during a consultation on user needs for future census statistics. Although the census is a long-established source of small area data, outputs have previously been for pre-defined statistical or administrative areas. A limitation to this is that these geographical areas can change relatively quickly over time, making it difficult or impossible to compare data over time. Grid-based outputs allow for different types of analyses that are not possible using pre-defined areas. DG REGIO expressed the need for geo-coded population data to ensure the efficient development and evaluation of policies and allocation of funds (e.g., European Cohesion Policy budget – approximately EUR 50 billion/year), the analysis of population for small urban and rural areas, assessing the accessibility of services for citizens, population exposure to environmental risks, and emergency preparedness. In addition, recently proposed definitions and analyses of territorial typologies⁴ such as urban and rural regions, border or coastal areas make direct use of 1 km square grid population counts.
9. The growing importance of geo-referenced statistics has been widely noted over recent years. This is an area where there is increasing user interest and which is undergoing rapid development in many NSIs. The 2015 report of the UN Global Geospatial Information Management (UN_GIMM) expert group highlighted that the 2020 round of censuses would be an important opportunity for the integration of statistical and geospatial data. Most recently, the Budapest Memorandum agreed by the Directors General of the EU NSIs in

¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1491315145905&uri=CELEX:32017R0543>

² http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.105.01.0001.01.ENG

³ http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.135.01.0006.01.ENG&toc=OJ:L:2017:135:TOC

⁴ Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 1059/2003 as regards the territorial typologies (Tercet), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016PC0788>

September 2017 noted the need 'to develop a basic set of census-related geo-referenced data covering a limited range of demographic and socio-economic characteristics, as a source of geographically detailed regional data on migrants' as a permanent fixture of censuses.

10. The dissemination of grid data was not foreseen in Regulation (EC) 763/2008. Therefore, unlike the main parts of the 2021 data collection, it was not possible to base the grid data collection on this earlier Regulation. A new and separate legislative approach has been adopted – a Temporary Statistical Action under the general Regulation on European Statistics (Regulation (EC) 223/2009). This allows a legal base for a new statistical action, provided that it relates to no more than three reference years, that the data are readily available or accessible within NSIs (or can be obtained directly), and that Eurostat makes financial contributions towards the incremental costs of the new activity. Of note is that Eurostat's consultation with Member States showed that all NSIs could (or expected to be able to) provide census population data at the 1 km square grid level – normally by geocoding the population data to a single point (coordinate) location.
11. The grid data collection – as defined in the draft regulation – allows for 13 data items for each 1 km square grid cell:
 - (a) Total population;
 - (b) Sex (males, females);
 - (c) Age (under 15, 15–64, 65 and over);
 - (d) Employed persons (where these data are available in the reporting country);
 - (e) Place of birth (in the reporting country, in another EU country, outside EU);
 - (f) Usual residence 12 months before (unchanged, within reporting country, outside of the reporting country).
12. There will be no cross-tabulation of the different topics/data items.
13. Two important issues have been addressed as part of the preparatory work for this new data. These concern compliance with the INSPIRE Directive and, more significantly, arrangements for the protection of statistical confidentiality.
14. The INSPIRE Directive⁵ aims to create a spatial data infrastructure for the EU. This involves common technical standards intended to enable the sharing of environmental spatial information between administrations and to facilitate public access. A particular aim is to assist in policy making and evaluation across national boundaries by the use of compatible standards. The Directive came into force in 2007, with staged implementation to be completed by 2021. Under INSPIRE, EU Member States must ensure that any spatial data that they produce comply with the common INSPIRE standards relating to data, metadata and output production. Grid data produced as part of the EU census programme would need to comply with the requirements of the INSPIRE Directive. The technical requirements of the grid data such as the definition of the grid and cell codes, as well as aspects of the dissemination infrastructure, are determined by INSPIRE.
15. A number of NSIs were anyway planning to produce 2021 census outputs geo-coded to a grid as part of their national census programmes. These data would also need to be INSPIRE compliant.
16. An approach has been developed whereby the NSIs will be able to fulfil their INSPIRE obligations by supplying the agreed set of European census grid and metadata. Eurostat will

⁵ Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

provide a central INSPIRE-compliant dissemination infrastructure for the grid datasets, based on an extension of the Census Hub. There are potential benefits for both Eurostat and the NSIs of this common centralised approach to the production of geo-coded census grid data. For the NSIs, the additional burden of complying with the INSPIRE Directive for the European census grid data is reduced. This approach will also maximise the use of the existing Census Hub software, and provide a single access point to European grid data for users.

17. The dissemination of grid data poses particular statistical disclosure control challenges. Not only are data being released for very small areas that will often have small populations, there is the further risk of differencing where grid cell boundaries cross those of existing output areas, which might allow the census results for extremely small areas – possibly just one or two dwellings – to be disclosed. Eurostat hosted a grant project "Harmonised protection of census data in the ESS", which was undertaken by a group of NSIs lead by Statistics Netherlands. The results of the project give recommendations for protection of the 1 km square grid data in combination with other census tabulations based on NUTS/LAU areas. NSIs are free to apply either the recommendations of the grant project or their own method(s).
18. Consultations with DG REGIO as a key user of these data showed that for key types of analyses, it was important to know exactly which grid cells were populated or not. However, this could impact on the use of particular disclosure control methods. To overcome this problem, the draft regulation requires that a flag of 'populated' is to be added to all grid cells where the observed population is not zero – "observed" meaning here the best available knowledge after the census, in particular before applying any confidentiality treatment. This approach was supported by the results of the SGA project and can be readily used with the disclosure control methods recommended by the project.
19. After extensive discussion in Eurostat's Task Force on future EU censuses, the draft regulation on the 2021 census grid data was agreed by the Census Working Group in November 2017 and then approved by the Directors of Social Statistics Group in March 2018. The draft regulation will be presented for adoption by the European Statistical System Committee in October 2018 and is expected to come into force by the end of 2018.

IV. Post-2021 – a new strategy for European population statistics

A. Background to the post-2021 strategy

20. Whereas the 2021 EU census programme can be seen as an evolution and modernisation of the 2011 programme, for beyond 2021 there are plans for a full redevelopment of European population statistics, covering the census as well as Eurostat's existing annual demographic statistics, the migration statistics (excluding statistics on administrative events related to asylum and managed migration), and possibly other relevant data (e.g. on cities). In parallel with its work on the 2021 data, the Task Force has been working on this redeveloped population statistics system.

21. Based on its earlier 'vision' document for post-2021, a small sub-group of the Task Force (consisting of the Task Force members from France, Germany, the Netherlands and the UK, together with Eurostat) drafted a 'Strategy for the post-2021 census'.

22. The strategy document was generally supported by the Directors of Social Statistics group in March 2018. Eurostat and the Task Force were asked to continue with this work towards implementing the strategy in the form of a new and comprehensive framework regulation for European population statistics.

23. Several developments have impacted on the preparation of the strategy. Consultations indicated the need for more timely and frequent census-like data – especially on core population and migration topics. Indeed, it was suggested that the value of the 2011 EU census programme was greatly reduced by the fact that data were only available on a decennial basis and were not published until three years after the reference date. The vast majority of European countries have made, or are planning or considering, major changes to the data sources and methods used for the census; most widely, the increased use of data from administrative sources and a move away from a traditional door-to-door census enumeration. This means that it is feasible to move towards a faster and more frequent (in some cases, annual) data production.

B. Key aspects of the post-2021 strategy

24. The strategy document provides a framework for the development of census-and-demography type population statistics over the coming 10–15 years, covering the more timely and frequent (annual) census-type statistics to be introduced and expanded after the completion of the 2021 census programme (from around reference year 2024), as well as consideration of the possible need for a full census programme in 2031.

25. The post-2021 population/census statistics can be defined in the form of two sets. The first of these would be an annual data based essentially on administrative data sources, to be introduced in the mid-2020s. The annual data could be supplemented by larger multi annual and/or decennial data in the form of the recurring decennial census. The first could be done in 2031. The content of the annual data would continue to evolve as user needs changed and the availability of administrative data improved. Over time, the distinction between the annual and the less frequent data is likely to evolve. Some of those data that might now be considered only for the decennial data might, in future, be feasibly collected annually or at an intermediate frequency.

26. The initial need identified is to have basic demographic and migration data available on an annual basis. However, beyond this initial need, it is currently unclear which data will be provided annually and when further topics could be added to the developing annual data even though education attainment and current activity status are the two most widely sought topics. However, some general trends can be identified, such as an increasing availability over time of administrative data, and a growing interest in having a larger amount of key data available on an annual basis. This uncertainty about the future availability of annual data means that some flexibility is required to allow the annual statistics to develop incrementally in line with the availability of appropriate data sources. At the same time, NSIs require firm information about forthcoming priorities and obligations to allow appropriate methods to be developed, tested and implemented.

27. Based on the key points of the strategy, and initial Task Force discussions on its implementation, the following points can be identified:

- (a) Population statistics and a harmonised census round every ten years supported by annual updates on relevant topics;
- (b) Annual updates starting with a core set of demographic and migration topics (e.g. age, sex, country of birth / citizenship, place of residence 12 months previously) with limited cross-tabulations and less detailed disaggregations;
- (c) Flexibility regarding the topics of the annual updates, and the timetable for increasing the amount of data available on an annual basis. Developments will be subject to ongoing review of (primarily administrative) data availability, costs and user needs and priorities;

- (d) Data provision of annual updates on a detailed regional level (LAU 2 or NUTS 3) and of annual population counts for a geographical grid (1 km squares – and possibly smaller 500m square grid squares in densely populated urban areas);
- (e) Integration of annual census updates into the annual work programmes of the national and European Statistical systems. This implies a convergence and merging with the annual demographic and migration statistics (and possibly other data such as those on cities), as well as coherence with other European social statistics developments (e.g. in the area of social surveys, such as the Labour Force Survey). The close involvement of NSI and Eurostat teams responsible for demographic statistics will be important at every stage in the planning and implementation of the new population statistics;
- (f) The reference date for all variables should be 31December / 1 January. However, for socio-economic topics, the reference dates could vary up to 3 months (i.e. from 1 October to 31 March).

V. Way forward – developing a new legal base at EU level

28. Eurostat will continue to work with the Task Force to develop proposals for a new framework regulation on population statistics. It is intended that the technical drafting of this should be completed by the end of 2019, allowing the legislative process with the European Parliament and Council to begin. Among other aspects, this would specify the statistical domains and topics to be covered, as well as issues such as population bases, data transmissions and quality.

29. Eurostat has begun a process of parallel consultations with NSIs (concerning the likely future availability of annual data) and key population statistics users (concerning their likely priority future needs for statistics). These consultations will continue.
