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### **Group of Experts on Migration Statistics**

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**Improvements in use of administrative data for migration statistics**

## **New migration statistics after the birth of annual censuses**

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### *Abstract*

The 2021 census in Spain has been based entirely, for the first time, on administrative sources. Its structure is that of the main source, the population register of Spain (Padrón), subsequently applying the signs of life method. This allows the process to be replicated each year to provide annual censuses.

In order to measure migration in a consistent way between every two consecutive censuses, a new migration statistics was created (EMCR, for Estadística de Migraciones y Cambios de Residencia), which provides the migratory flows that occurred during the year. Its methodology can be summarised in two steps: firstly, people who have left, entered or remained in the population are identified from the censuses and, secondly, all migratory movements of these people are sought in the population register.

The fact that censuses are an input for the construction of the EMCR will make it possible, in the near future, to easily obtain very rich information on migration, such as more geographic level (currently it has been constructed only up to the municipal level) or adding typical census variables (educational attainment, labour variables, etc.). This will result in a better understanding of the socio-demographic characteristics of migrants.

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NOTE: The designations employed in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

## I. Introduction

1. Starting with the publication of the 2021 Population and Housing Censuses, on 30 November 2022, there was a paradigm shift in the demographic statistics, since the methodology used in constructing this census was based for the first time entirely on exploiting official administrative registers. Its structure is that of the main source, the Population Register of Spain, subsequently applying the signs of life method<sup>1</sup>. This makes it possible to replicate each year the process to provide annual population censuses (housing census will be less frequent).
2. Thus, from 2023, the regular production of the population census is established, which will be published at the end of each year with a reference date of 1 January<sup>2</sup>.
3. Between every two successive censuses, there is a population growth or decrease, which will be explained by the demographic components that occurred during the intervening year. These components are births, deaths and migrations.
4. To measure migrations in a consistent way between every two consecutive censuses, the Migration and Changes of Residence Statistics<sup>3</sup> (EMCR, for the Spanish name: Estadística de Migraciones y Cambios de Residencia) was created, with data starting in 2021.

## II. The Population Register in Spain

5. In Spain there is a Population Register, or Municipal Register, called *Padrón*, for each municipality (more than 8,000). It is coordinated and managed by the National Statistics Institute (INE).
6. All residents are obliged to register in the *Padrón* of the municipality where they live for most of the year, including people without legal residence or those registered in non-conventional dwellings. Furthermore, since the implementation more than 25 years ago of the *Padrón* as a continuous record (with monthly updates), it has matured greatly as a population register, establishing, among other things, procedures for expiration and periodic verification of the residence of foreigners that make it an updated, reliable and accurate population register.
7. The Municipal Register records various types of variations: registration and de-registration, which are, or may be associated, with a residential change, as well as a series of modifications. A significant part of these variations are recorded on the initiative of the person concerned and others are carried out ex officio by the municipal authority itself.

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<sup>1</sup> Population and Housing Census methodology, page 18:

[https://www.ine.es/censos2021/censos2021\\_meto.pdf](https://www.ine.es/censos2021/censos2021_meto.pdf)

Paper presented at UNECE Group of Experts on Population and Housing Censuses:

<https://unece.org/statistics/documents/2023/08/working-documents/general-overview-2021-register-based-census-spain>

<sup>2</sup> Only demographic variables will be disseminated at the end of the year. Other variables, such as educational or labour market ones, will be published in later editions.

<sup>3</sup> Methodological details: [https://ine.es/en/metodologia/meto\\_emcr\\_2023\\_en.pdf](https://ine.es/en/metodologia/meto_emcr_2023_en.pdf)

8. The fact that registration in the Municipal Register is required as a necessary condition for the exercise of very basic rights, such as health coverage, schooling or for the future obtaining of legal residence permits, means that the vast majority of the flow of **immigration from abroad** ends up being registered.
9. With regard to **emigration abroad of Spaniards**, the monthly comparison of the Population Register with the consular registration records abroad allows the emigration of Spaniards to be recorded, provided that they register with the corresponding consulate.
10. In the case of **emigration of foreign citizens**, there are few who order the de-registration in their municipality of residence at the time of their departure from Spain. However, the de-registration mechanism carried out ex officio in those cases of non-usual residence in the municipality or the implementation of the process of expiry of the registrations of non-EU foreigners in the register without a permanent residence permit, guarantees that the emigration abroad of foreign nationals not declared by the interested party in their municipality of residence, end, to a large extent, recorded in the Municipal Register, sooner or later.
11. **For both Spaniards and foreign nationals**, in addition, there is a process of "natural cleaning" of the registry, which occurs when new residents in a dwelling are registered, indicating that former residents must be de-registered.

### III. Objectives of the new migration statistics

12. The purpose of the Migration and Changes of Residence Statistics is to provide, in each autonomous community (NUTS2), in each province (approximately NUTS2) and in each municipality (LAU), a quantitative measurement of the:
  - **Foreign migrations**: migratory flows between Spain and abroad.
  - **Internal migrations**: migratory flows that occur within Spain. Depending on the geographical area of origin and destination of the movement, be it an autonomous community, a province, or a municipality, we will talk about inter-autonomous, inter-provincial or inter-municipal migration.
13. The migration series will be disaggregated by sex, age, year of birth, country of citizenship, country of birth and origin and destination of migration, as well as year and quarter of movement.
14. In addition, it will continue to comply (as the previous migration statistics already did) with the European legislative framework governed by Regulation 862/2007 on community statistics on migration and international protection, which regulates the migratory movements of each country, adapting in turn to the future regulation that will replace it.
15. The geographical scope is the entire national territory, with disaggregation for its autonomous communities, provinces and municipalities.

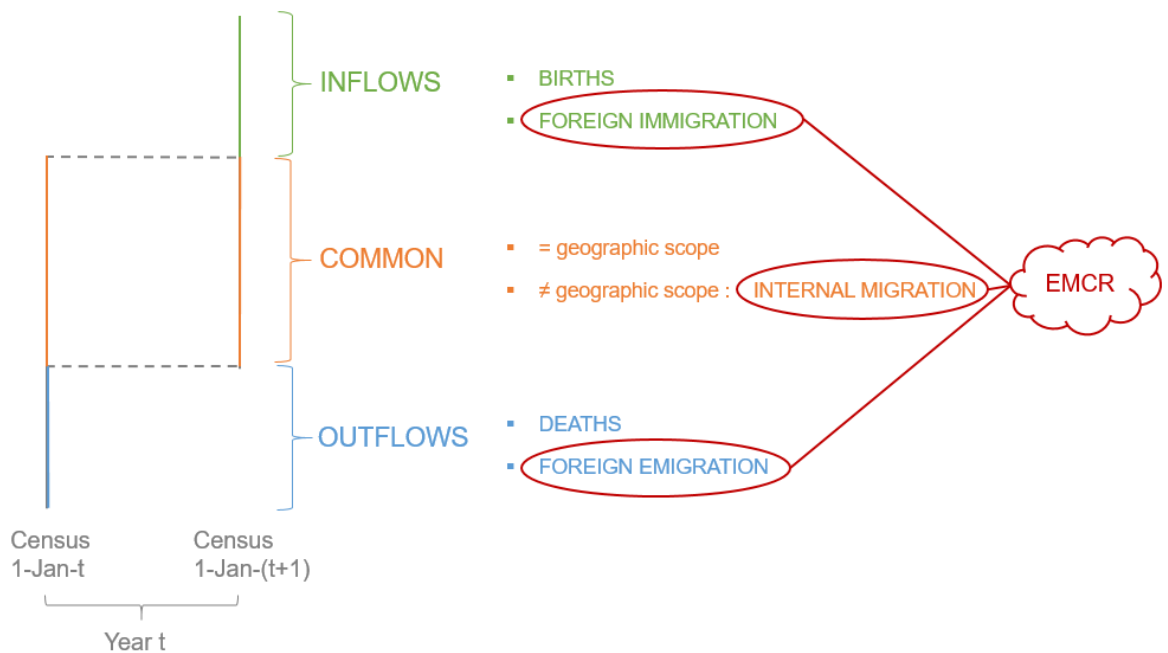
### IV. Methodology

16. The starting point to obtain the reference data for a given year from the Migration and Changes of Residence Statistics are the population censuses at the beginning and end of said

year. The first will be the census on January 1 of the reference year, and the one at the end of the period will correspond to the census on January 1 of the following year<sup>4</sup>.

17. With the two censuses available, we compare which people were in one and not in the other, or are present in both. Those who were in the second census and not in the first one, constitute the entries into the population (which can be foreign immigrations or births), and in the opposite way we obtain the exits from the population (foreign emigrations and deaths).

Figure 1  
Population in and outflows



18. Once it has been determined which people have entered or left the country, or remain in it, we go to the centralized base of the Municipal Register to retrieve their registry history, which will allow us to reconstruct their migratory history. Migration flows are thus determined as follows:
19. **Foreign immigrations:** When we search the municipal register database for entries in the population, which are consistent with the two successive population censuses at the beginning and end of the year, we can distinguish the way in which these people entered the population, thus determining immigration abroad. In summary, foreign immigration will be made up of those people who are not in the census at the beginning of the year and are in the census at the beginning of the following year, and who were not born in the reference year.

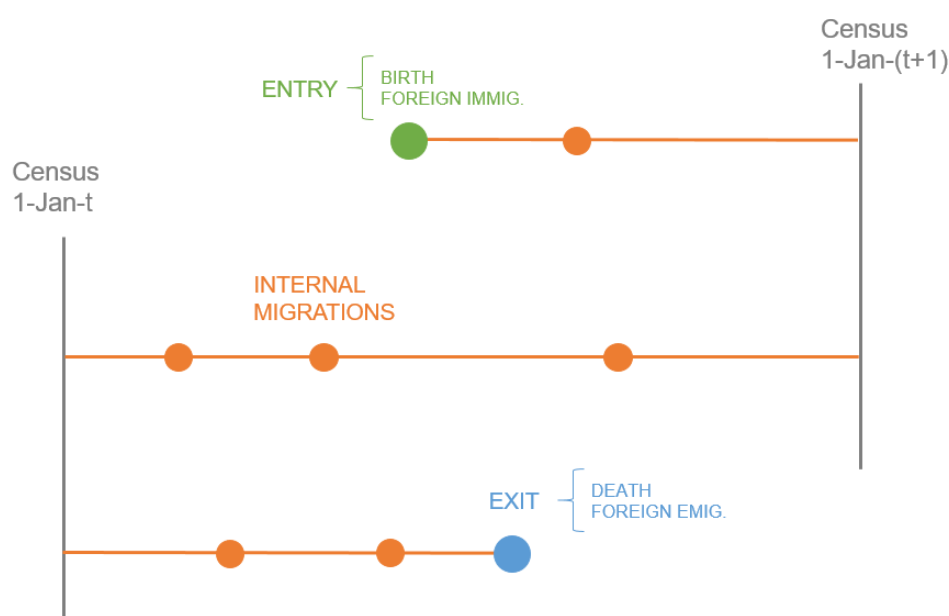
<sup>4</sup> The dates of December 31 at the end of the day and January 1 at the beginning of the day are considered equivalent.

20. **Foreign emigrations:** Similarly, when we search the Municipal Register database for population exits, we can distinguish the way in which these people left the population, thus determining foreign emigration. In summary, out-migration consist of persons who are in the census at the beginning of the year and are not in the census at the beginning of the following year, and who have not died in the reference year.

**Internal migrations:** The domestic migrations of a given year of the people who are in one or another population census are formed by joining all the changes of municipality that occurred between:

- The movement of entry into the population and the census at the end of the year.
- The census at the beginning of the year and the exit movement of the population.
- The two censuses.

Figure 2  
Foreign and domestic migrations



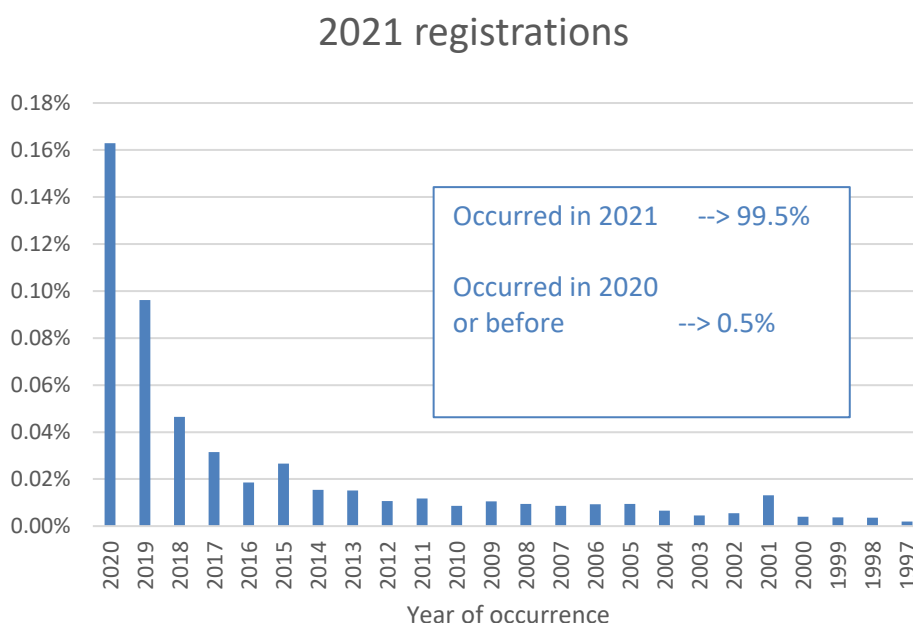
21. On the other hand, it should be noted that the only types of registry variation in which the country of origin or destination is available are those declared by the citizen. Therefore, these variables will contain an “Unknown” category, which is particularly large in out-migration.

## V. Consistency between annual population censuses and EMCR

22. As mentioned previously, the EMCR was created with the objective of being consistent with the annual censuses, necessary for correct demographic analysis. Therefore, there are several elements to take into account:
23. Migratory movements in a population registry such as the Padrón can be reflected with a **delay**, even of several years, although it is usually only a few months. But censuses

(stocks) consider all resident persons on a reference date, regardless of the delay in their registration. The coherence between population and migration statistics obliges us to include these delays in the migration data of a certain reference year, and is a consequence of prioritising stocks over flows.

Graph 1  
2021 registrations



NOTE: For the purposes of the EMCR, where records are assessed about six months after the reference year.

24. Furthermore, considering movements from previous periods as occurring in the reference year approximately alleviates the deficit of movements that we cannot include because they will arrive later. In other words, it is a better estimate of the migratory flows that occurred in a year, instead of only taking those that have a recorded date of occurrence in that year at the time of compiling the statistics.

Table 1  
Estimation of 2018 registrations

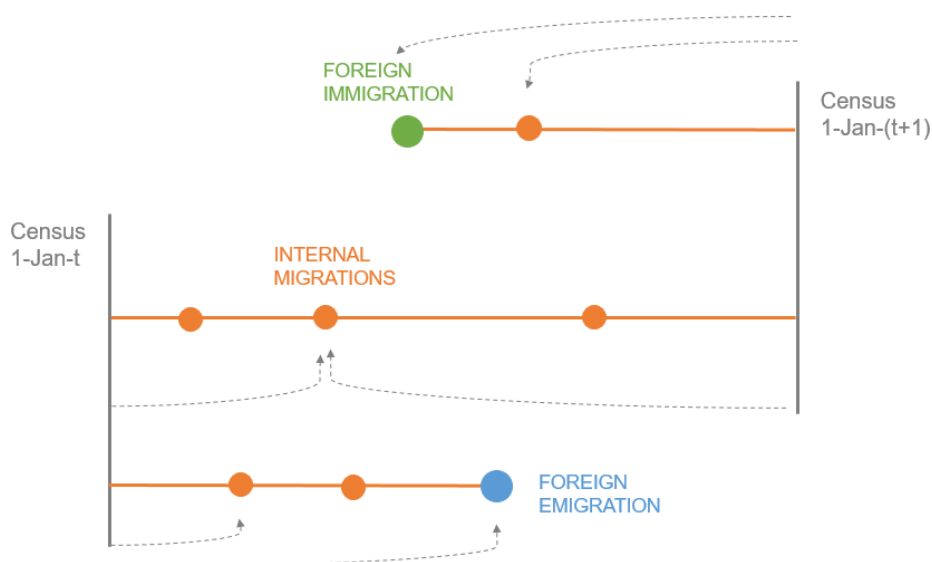
	Theoretical registrations 2018	Estimated registrations 2018
Registered and occurred in 2018	792,965	792,965
Delays (registrations in 2018 and occurred in previous years)		2,929
Occurred in 2018 and registered later	2,226	
<b>TOTAL</b>	<b>795,191</b>	<b>795,894</b>

25. Some persons have been counted or not in the censuses by the signs of life method, that is, by searching for them in other administrative registers. In this way, not all entries or exits of the population are reflected in entries or exits in the Padrón and, nevertheless, for consistency with the censuses, they are considered migrations.

## VI. Planned improvements

26. The improvements envisaged are related to the possibility of extracting information from the population censuses, given the coherence between both operations.
27. In a given year,  $t$ , foreign immigration (and all possible subsequent domestic migrations) can be linked with the census at the end of that year; foreign emigration (and all the possible previous domestic migrations) with the census at the beginning of the year; and finally, domestic migrations of persons who were in both censuses, can be linked with both censuses, as shown in the following figure:

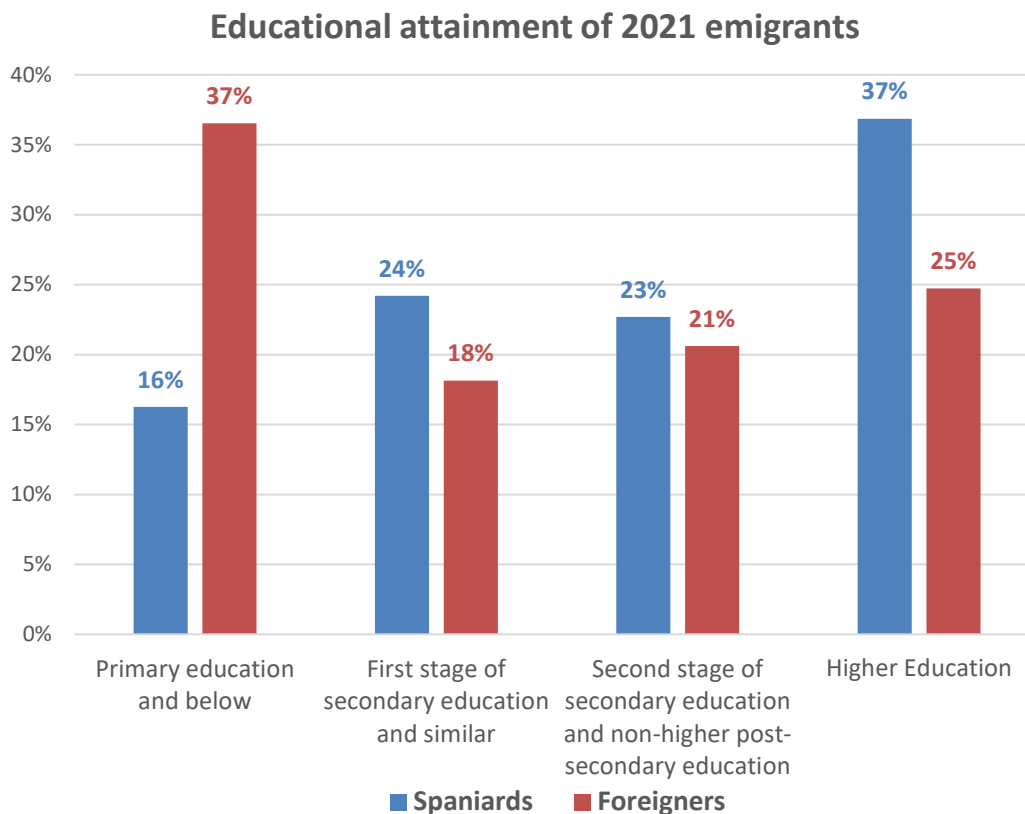
Figure 3  
Migrations and census information



28. The main examples are:
29. (1) The geographical level is susceptible to being extended below the municipal level. Initially, the statistics are proposed with a municipal breakdown, but will be able to offer results for movements of an infra-municipal nature. Hence the denomination of "migrations and changes of residence" insofar as infra-municipal movements are considered changes of residence rather than migratory movements. Since the population is geo-referenced in the census, we can also geo-reference the EMCR. Mobility studies between different areas of a city, for example, are particularly interesting.
30. (2) The fact that it is fully consistent with the censuses will make it possible to add typical census classification variables (educational attainment, work activity, etc.).

31. In the following graph we can see the foreign emigration in 2021<sup>5</sup>, crossed by their level of studies in the 2021 census:

Graph 2  
Educational attainment of 2021 emigrants



32. We can appreciate the difference between Spanish and foreign population in emigrations abroad in 2021. We can see that most of the foreigners who emigrate do so with primary education or less, while most of Spaniards who emigrate abroad have higher education.

## VII. Conclusions

- 33. This has been a major change, which was made necessary by the implementation of the annual censuses.
- 34. Consistency with annual population censuses allows for an explanation of population change through demographic phenomena, which is also very useful for making population projections based on assumptions about such phenomena.
- 35. The improvements envisaged are promising, and open up a path of analysis and knowledge of the socio-demographic characteristics of migrants that has been impossible until now.

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<sup>5</sup> At the time of writing this paper, only the education variables of the 2021 census were available.