INSTITUTO NACIONAL DE ESTADISTICA

Population Figures

Methodology

December 2018

1 Introduction

The *Population Figures* statistical operation has the purpose of providing, every six months, a quantitative measurement of the population with regular residence in Spain, in each Autonomous Community and in each province (or island, for island provinces), at 1 January and 1 July each year, starting in 2012, broken down by sex, year of birth, age, country of nationality and country of birth. This operation is integrated within the European legislative framework governed by Regulation (EU) No 1260/2013 of the European Parliament and the Council on European demographic statistics.

The Population Figures maintain total inter-territorial and demographic consistency, which implies the complete coherence of their results with those provided in the *Vital Statistics* and the *Migration Statistics*, at all breakdown levels considered. This operation thus enables the analysis of demographic change, from the perspective of any of its components (births, deaths and migrations). It should be borne in mind that the figures on births and deaths used to obtain the Population Figures are those referring to events that happened to the population resident in Spain, whereas the totals published by the Vital Statistics take into account all the events that took place in Spain.

The 2011 Population Census establishes the starting point of this operation, given that it sets the figures for the resident population on the census date (1 November 2011). As of the Census, and in coherence with it, the INE has prepared the 2001-2011 Intercensus Population Estimates, whose results reach 1 January 2012, linking with the series of population figures provided by the previous Censuses and Intercensus Estimates. All the above constitutes the historical statistical series of population figures for Spain.

Thus beginning in the year 2012, the Figures are obtained for the Population resident in each Spanish province (or island) at 1 January of year t through an accounting of demographic events (births, deaths, foreign and domestic migration and acquisition of Spanish nationality by the foreign population).

In this way, the Population Figures constitute synthesis statistics, whose results will be obtained from the data provided by other statistical operations and information sources. Specifically:

- The 2011 Population Census, as the starting point of the results series.
- The Vital Statistics, as a source of data on births and deaths.
- The Migration Statistics, which will provide the data on foreign and domestic migration.
- The records from the Civil Registry on the acquisition of Spanish nationality framed in the Statistics on Acquisition of Spanish Citizenship of Residents since 2013.

Population figures are not only first-rate information for depicting a society but also an essential cog in the machine of the statistical system. Both the generalization of the statistical production by using data form sample surveys and the calculation of various statistical indicators are carried out by using the

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population figures of the reference period (year, quarter). Because of this, although the population figures are disseminated every six months, the main population series are produced quarterly by using the latest demographic data available.

2 Definitions and concepts

Resident population: the population resident in a given geographical scope is defined as those persons who, on the reference date, have established their regular residence therein.

Regular residence[1] is understood to be that place where a person normally spends her/his daily rest periods, not including temporary absences due to travel for leisure, holidays, visits to relatives and friends, business, medical treatment or religious pilgrimage. Nevertheless, it is important to highlight that only regular residents in a district will be considered:

- Those who, according to the previous definition, would normally have lived therein for a continuous period of at least 12 months.

- Those who, according to the previous definition, would have established their regular residence therein less than 12 months ago, but with the intention of remaining therein for at least one year.

Nationality: legal link between an individual and a State, acquired by birth or naturalisation if it is by declaration or acquired by choice, marriage or other terms, according to the national legislation. This refers to the nationality at the reference date, classified as Spanish so long as the individual has said nationality, though s/he many have others as well.

Place of birth: country of regular residence of the mother at the time of birth.

3 Calculation method

The Population Figures[2] are calculated at 1 January and 1 July of each year, broken down by sex, year of birth, age, nationality and country of birth. They are derived from the Population Figures at the start of the previous semester (or the results from the Intercensus Population Estimates at 1 January 2012, in the starting year) and the demographic phenomena occurring throughout this

[1] Definition of regular residence established in *Regulation No 763/2008 of the European Parliament and of the Council on population and housing censuses* and *Regulation No 1260/2013 of the European Parliament and the Council on European demographic statistics*.

[2] In June 2017 a correction was applied to the population aged 100 and over at 1 January 2016 which had been published as definitive, since there was evidence that it had been over-estimated. This correction was carried out with the improvements in the cross-data comparisons of the historical death files and of the population register with the different administrative registers. Due to the design of the calculation method itself, all the populations subsequently obtained, initially taking the corrected population as a starting point, will implicitly include this correction.

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semester. That is to say, in order to obtain the population at 1 July of year t, the demographic phenomena that have occurred in the first semester of this year are applied to the population at 1 January of year t; in order to obtain the population at 1 January of year t+1, the demographic phenomena occurred in the second semester of year t are applied to the population at 1 July of the previous year t. With this, it is possible to guarantee total consistency of the information relating to demographic flow and population stocks, in all of the territorial levels considered.

In general, given a generic semester *sem*, the Population Figures at day 1 of the first month of the following semester *sem+1* are derived from the Population Figures at day 1 of the first month of the semester *sem* and the demographic phenomena that occurred in this semester, according to the following expressions:

To obtain the Spanish population (n = Spain):

$$P^{sem+1}_{r,s,x,España,p} = P^{sem}_{r,s,x,España,p} + N^{sem}_{r,s,x,España,p} - D^{sem}_{r,s,x,España,p} + I^{sem}_{r,s,x,España,p} - E^{sem}_{r,s,x,España,p} + It^{sem}_{r,s,x,España,p} - Et^{sem}_{r,s,x,España,p} + \sum_{n \neq España} Nac^{sem}_{r,s,x,n,p}$$

To obtain the foreign population (n ≠ Spain)

$$P^{sem+1}_{r,s,x,n,p} = P^{sem}_{r,s,x,n,p} + N^{sem}_{r,s,x,n,p} - D^{sem}_{r,s,x,n,p} + I^{sem}_{r,s,x,n,p} - E^{sem}_{r,s,x,n,p} + It^{sem}_{r,s,x,n,p} - Et^{sem}_{r,s,x,n,p} - Nac^{sem}_{r,s,x,n,p}$$

Where:

$P^{m}_{h,s,x,i,j}$ is the population resident in region *r*, of sex s, year of birth x, nationality *n* and country of birth *p* at day 1 of the first month of the semester *sem*.

$N^{m}_{h,s,x,i,j}$ are the births to women resident in region *r*, of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem* (observing that $N^{m}_{h,s,x,i,j} = 0$ if $x \neq t$).

$D^{m}_{h,s,x,i,j}$ are the deaths of residents in region *r*, of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem.*

$I^{m}_{h,s,x,i,j}$ are the immigrations from abroad in region *r*, of persons of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem*.

$E^{m}_{h,s,x,i,j}$ are the emigrations abroad of residents in region *r*, of persons of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem*.

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$Ii^{m}_{h,s,x,i,j}$ are the immigrations from the rest of Spain (domestic emigrations) in region *r*, of persons of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem.*

$Ei^{m}_{h,s,x,i,j}$ are the emigrations to the rest of Spain of residents) in region *r*, of persons of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem*.

$Nac^{m}_{h,s,x,i,j}$ are the acquisitions of Spanish nationality of residents) in region *r*, of persons of sex s, year of birth x, nationality *n* and country of birth *p* occurring throughout semester *sem*.

Note: sub-index *r* refers to the province, or island for island provinces.

Figures by age stem from the figures resulting of this process, under the hypothesis of uniform distribution of the effect of each phenomenon in each generation between the exact ages individuals of each generation will be at some point of the year.

In June 2017 a correction was applied to the Population Figures as at 1st January, 2016 for those aged 100 and above, based on improvements in census links with historical death records and various administrative registers. The Population Figures published from then onwards contain this correction which is performed in an integrated way with the calculation process and is applied to the population that will turn 100 years old in each period. This implies the need to introduce a small adjustment item to be able to explain the population increase as a sum of its components (births, deaths, immigration, emigration and adjustment).

Lastly, and as necessary, an adjustment is carried out regarding the beginning foreign migratory flows, for the purpose of guaranteeing total consistency between the population stocks and demographic flows occurring.

4 Dissemination of results

The dissemination of the Population Figures - and of information regarding births, deaths and migrations - takes place twice a year:

- In the month of **June each year** t, the **provisional Population Figures are published at 1 January** t, and **1 July** $t-1$ (the latter update provisional figures which, for the same date, were provided in the previous month of December).
- In the month of December each year t, the following is published:
    - The **final Population Figures at 1 January** t **and 1 July** $t-1$.
    - The **provisional Population Figures at 1 July** t.

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