

**Point 3. Users and uses of projections**

**OFFICIAL POPULATION FIGURES AND POPULATION PROJECTIONS**

Paper submitted by the National Statistical Institute of Spain<sup>1</sup>

**I. The Populations Censuses**

1. As it is well known, in most Western countries population projections by age and gender are made under the component method. That is, starting from population figures by gender and age provided by an exhaustive population count, usually a census, hypotheses are established about the future development of mortality, fertility and migration.
2. As new observed figures on births, deaths and migrations are available, they are compared with those we had previously projected. In the same way, the availability of a new population census figures shows the differences between projected and observed population data. Very often, however, it is difficult to explain whether such differences are due to errors in the projected components or to the census figures.
3. According to this, the errors in the initial and the latter census figures, if we added the natural increase and the net migration between both censuses to the first of these, we should obtain the second census population, a condition which is not usually fulfilled.
4. In Spain, the population projection based on 1981 Census provided a 1991 population exceeding the Census figures in that year by 400.000 people, that is an error of slightly over 1,0 % of said population. For geographical areas that are smaller than the national one, such as the autonomous communities (NUTS2), errors are more important. Table 1 shows the absolute and relative discrepancies. The evaluation surveys carried out at the same time as the population censuses do not make possible to distinguish the amount of census sub-registration or overcounting errors from those due to births, deaths and migration flows. The Spanish vital statistics are deemed rather reliable, as compared to the problems inherent in migration statistics.
5. The solution adopted by our statistical office to eliminate the above mentioned discrepancy was the use of standard procedures to calculate intercensus populations. That is, a linear distribution of the difference or error was made throughout time and generations.

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<sup>1</sup> Prepared by Margarita Cantalapiedra.

6. This was how intercensus populations were obtained by sex and age. Obviously, the annual population growth was below than the one obtained from adding the natural increase and net migration, with a difference of 40.000 people per year.

7. The discrepancies of populations by age are also important, especially on certain groups, often those under five years of age and the youngest active population (from 20 to 35 years). Table 2 shows the discrepancies for each age group, between the population calculated by *adding* to the censused 1981 population the adequately natural increase and net migration figures with the 1990 census population.

## **II. Municipal Population Registers ('Padrones')**

8. On the other hand, in Spain, besides the censuses carried out every ten years, the population registers of all the municipalities are updated every five years. This leads essentially to the *official* population figures by gender. In this context, the word *official* means that they are mainly used for administrative purposes (certification of the inhabitants' residence) or electoral ones (determination of the number of councillors and other elective posts). Moreover, a statistical treatment is carried out for the data obtained, which generally provides the population by gender and age. Even more this information may be helpful for checking the current projections or for setting up new ones.

9. At this stage, problems of census sub-registration or over-counting are reflected in the figures provided by municipal registers. The population figure inferred from the latter is still more liable to be artificially *inflated* as compared to the actual population.

10. The most recent renewal of municipal registers was referred to May 1996.

11. Summing to the 1991 census population the natural increase and net migration figures from March 1991 to April 1996, provided us a population of 400.000 less than in the 1996 Register.

12. The absolute and relative discrepancies by autonomous communities (NUTS2) appear in Table 3.

13. The error shown for the more or less five years is too big to be distributed over said period without distorting considerably the population growth, which would seem to high.

## **III. Final Approach**

14. Table 4 shows the discrepancies between the national and autonomous communities' population figures projected from the 1991 Census Population and those figures calculated after adding the observed vital and migratory statistics.

15. The problem is whether to choose figures for official purposes (number of members of parliament, distribution of funds,...) or population projections, bearing in mind their repercussions on the calculation of a series of indicators (demographic, economic,...)

16. At the national level, the effects of the above mentioned discrepancies on the surveys' expanding factors are not negligible, whereas they are not so important for some demographic indicators (birth, death and fertility rates,...) or economic indicators (percapita income, taxes,...) that are calculated on the basis of municipal registers.
17. However, as far as the autonomous communities are concerned, they should also be taken into account.
18. Currently use is being made of the projected figures until the new reasonably reliable continuous municipal register is introduced.
19. This leads to the following question: will it be necessary to assess or, as the case may be, correct the basic information. This particularly refers to census and municipal figures.
20. It would be desirable to know the experience and solutions (evaluation surveys) in countries where the same situation arises..

## 1. Comparison of populations on 31-12-1990

### Total population

Comunidades autónomas	31-12-1990 populations		Differences	
	1991 Census	C81+NI+NM	Total	Percentage
Total nacional	38,874,573	39,266,194	391,621	1.01
Andalucía	6,937,884	6,930,907	-6,977	-0.10
Aragón	1,189,497	1,204,018	14,521	1.22
Principado de Asturias	1,094,958	1,125,096	30,138	2.75
Islas Baleares	709,200	707,053	-2,147	-0.30
Canarias	1,492,943	1,526,958	34,015	2.28
Cantabria	527,558	525,047	-2,511	-0.48
Castilla y León	2,547,139	2,582,454	35,315	1.39
Castilla-La Mancha	1,658,573	1,686,172	27,599	1.66
Cataluña	6,060,217	6,084,404	24,187	0.40
Comunidad Valenciana	3,857,243	3,844,310	-12,933	-0.34
Extremadura	1,061,970	1,090,344	28,374	2.67
Galicia	2,733,854	2,840,993	107,139	3.92
Comunidad de Madrid	4,946,904	5,011,222	64,318	1.30
Región de Murcia	1,045,048	1,045,786	738	0.07
Comunidad Foral de Navarra	519,394	527,116	7,722	1.49
País Vasco	2,104,629	2,140,805	36,176	1.72
La Rioja	263,475	262,724	-751	-0.29
Ceuta y Melilla	124,087	130,785	6,698	5.40

## 2. Comparison of populations on 31-12-1990

### Total population

Ages	31-12-1990 populations		Differences	
	1991 Census	C81+NI+NM	Total	Percentage
Total nacional	38,874,573	39,266,194	391,621	1.01
0-4	2,020,804	2,078,097	57,293	2.84
5-9	2,462,839	2,439,773	-23,066	-0.94
10-14	3,089,715	3,070,337	-19,378	-0.63
15-19	3,326,014	3,300,154	-25,860	-0.78
20-24	3,241,652	3,301,255	59,603	1.84
25-29	3,102,923	3,245,437	142,514	4.59
30-34	2,840,574	2,914,313	73,739	2.60
35-39	2,512,269	2,542,083	29,814	1.19
40-44	2,421,888	2,453,946	32,058	1.32
45-49	2,188,802	2,216,557	27,755	1.27
50-54	1,974,117	2,003,357	29,240	1.48
55-59	2,238,059	2,259,560	21,501	0.96
60-64	2,095,009	2,098,128	3,119	0.15
65-69	1,814,596	1,802,189	-12,407	-0.68
70-74	1,346,365	1,342,900	-3,465	-0.26
75-79	1,047,102	1,049,599	2,497	0.24
80-84	695,017	697,019	2,002	0.29
85+	456,828	451,490	-5,338	-1.17

NI = Natural increase

NM = Net migration

### 3. Comparison of populations on 1-5-1996

Comunidades autónomas	1-5-1996 populations		Differences	
	C91+NI+NM	1996 Padrón	Total	Percentage
Total nacional	39,285,675	39,669,394	-383,719	-0.97
Andalucía	7,116,765	7,234,873	-118,108	-1.63
Aragón	1,181,066	1,187,546	-6,480	-0.55
Principado de Asturias	1,072,330	1,087,885	-15,555	-1.43
Islas Baleares	731,822	760,379	-28,557	-3.76
Canarias	1,563,452	1,606,534	-43,082	-2.68
Cantabria	526,826	527,437	-611	-0.12
Castilla y León	2,507,736	2,508,496	-760	-0.03
Castilla-La Mancha	1,691,879	1,712,529	-20,650	-1.21
Cataluña	6,079,601	6,090,040	-10,439	-0.17
Comunidad Valenciana	3,920,325	4,009,329	-89,004	-2.22
Extremadura	1,071,694	1,070,244	1,450	0.14
Galicia	2,722,875	2,742,622	-19,747	-0.72
Comunidad de Madrid	5,019,401	5,022,289	-2,888	-0.06
Región de Murcia	1,083,538	1,097,249	-13,711	-1.25
Comunidad Foral de Navarra	529,294	520,574	8,720	1.68
País Vasco	2,072,535	2,098,055	-25,520	-1.22
La Rioja	262,020	264,941	-2,921	-1.10
Ceuta y Melilla	132,516	128,372	4,144	3.23

### 4. Comparison of populations on 1-5-1996

Comunidades autónomas	1-5-1996 populations		Differences	
	C91+NI+NM	Population Based 1991	Total	Percentage
Total nacional	39,285,675	39,260,852	24,823	0.06
Andalucía	7,116,765	7,123,051	-6,286	-0.09
Aragón	1,181,066	1,180,541	525	0.04
Principado de Asturias	1,072,330	1,072,173	157	0.01
Islas Baleares	731,822	728,821	3,001	0.41
Canarias	1,563,452	1,560,885	2,567	0.16
Cantabria	526,826	526,626	200	0.04
Castilla y León	2,507,736	2,510,830	-3,094	-0.12
Castilla-La Mancha	1,691,879	1,692,875	-996	-0.06
Cataluña	6,079,601	6,065,937	13,664	0.23
Comunidad Valenciana	3,920,325	3,911,588	8,737	0.22
Extremadura	1,071,694	1,074,799	-3,105	-0.29
Galicia	2,722,875	2,724,298	-1,423	-0.05
Comunidad de Madrid	5,019,401	5,014,830	4,571	0.09
Región de Murcia	1,083,538	1,083,277	261	0.02
Comunidad Foral de Navarra	529,294	526,426	2,868	0.54
País Vasco	2,072,535	2,070,434	2,101	0.10
La Rioja	262,020	260,527	1,493	0.57
Ceuta y Melilla	132,516	132,934	-418	-0.31

NI = Natural increase  
NM = Net migration