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Use of longitudinal data for migration statistics

## Duration of migratory episodes in Spain: Procedure of calculation and results

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### *Abstract*

In many statistical, social or political recent events or meetings has been highlighted the importance of knowing the number and, especially, the detailed characteristics of the people entering the country (immigrants) and of the people who leave it (emigrants) as accurately as possible.

In Spain, Migration Statistics disseminated<sup>1</sup> by INE since 2013 (based on the Population Register), include information about the number of immigrants and emigrants disaggregated by age / generation, sex, nationality, country of birth and country of origin / country of destination.

A variable that until now has not been explicitly calculated (but it is feasible) and that would help to enrich and to know in greater depth the details of the emigrations is the duration of the stay in Spain for those who have already left the country. This document presents the steps that have to be taken to obtain this information, as well as some first results.

Keywords: Duration of migration, longitudinal data, population register.

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<sup>1</sup> But containing data since 2008. Previous data are obtained from Residential Variation Statistics.

## I. Introduction. Importance of accurate information about migrants

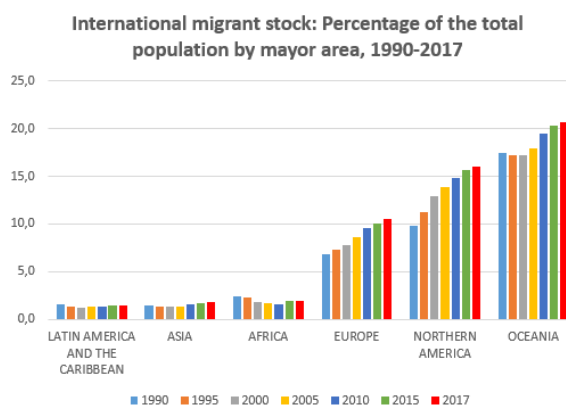
1. World is becoming more and more interconnected nowadays and international migration has become a reality that touches almost all corners of the globe. The influence of modern ways of transportation is very clear. It has made it easier, cheaper and faster for people to move to other parts of the world in search of jobs, opportunities, education and quality of life.

2. If we take a look to the information published by UN Population Division, data on the place of birth are the preferred source of information to estimate the international migrant stock from a homogenous perspective.

3. Figures published show that the number of international migrants<sup>2</sup> worldwide has continued to grow rapidly in recent years, reaching 258 million<sup>3</sup> in 2017, up from 220 million in 2010, 173 million in 2000 and 153 million in 1990.

4. These data show that the importance of international migrant stock is increasing in the latest years from an absolute point of view, but also in relative terms: international migrant stock represents 3.4% of total population in 2017, higher than the 3.2% in 2010 or the 2.8% in 2000. Therefore, the number of international migrants worldwide has grown faster than the world's population.

Figure 1



5. All this information brings to light that accurate, consistent, comparable and timely data on international migration are essential for assessing current and future trends and for setting policy priorities.

6. However, although the statistical situation has improved a lot in recent years, there are still great difficulties in meeting with this objective:

- a) In many countries, information about migrants is available only every 10 years from the Population Census.
- b) Measurement of emigration is extremely complex in most of the countries as people leave the country without any signal (for example deregistration).

<sup>2</sup> An international migrant is a person who is living in a country different than his or her country of birth.

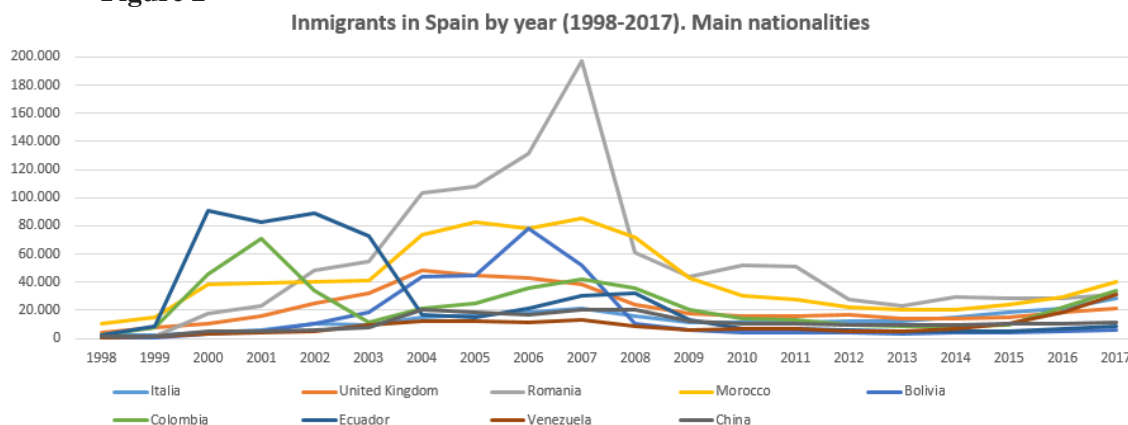
<sup>3</sup> The largest number of international migrants reside in the United States of America (50 million).

## II. The migration in recent years in Spain. What do the data say?

7. The cross-sectional information on entries and exits of population in Spain is quite rich. Thus, we know not only general information, but also its distribution by other variables (sex, age, nationality ...). Thanks to the information available, we can observe how cycles are present in both immigration and emigration.

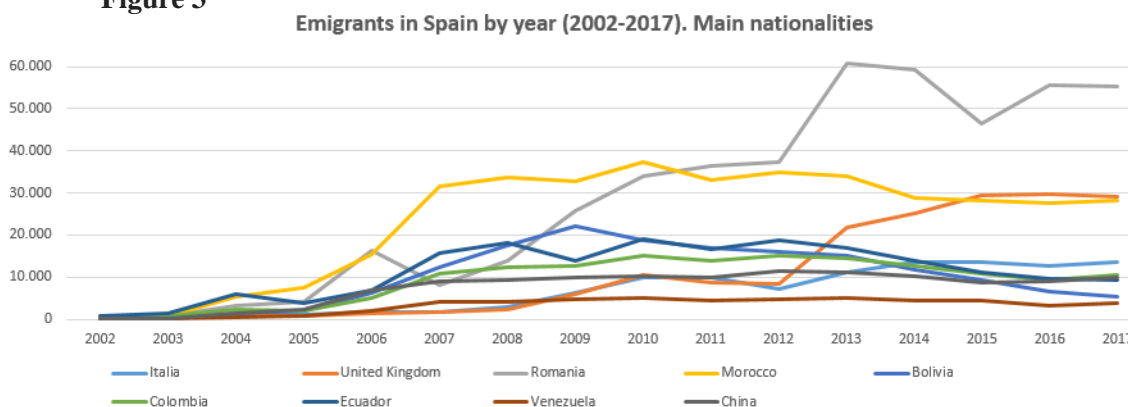
8. For example, we can see that Spain has experienced an “immigration boom” in the past decade (2000-2009), the first years led by population of Latin American countries such as Ecuador and Colombia and the following years by Romania and Morocco. The situation has calmed down in this new decade.

**Figure 2**



9. On the other hand, the emigration that has hardly been testimonial until the year 2005, has been gaining strength since then: the first years headed by the country of Morocco and from the year 2011 by Romania.

**Figure 3**



10. The information available is very valuable but we do not have detailed information on the dynamics behind it. For example, how many of those who arrive in a year leave the following year? How many of them return to Spain later? The answers to these questions could be obtained through a longitudinal analysis.

11. For now, a first step is the one that focuses this article: the duration of the stay in Spain for the people who emigrated last year (2017). It should also be borne in mind that only the variables sex, age and nationality of the people are taken into account in the study.

### III. The variable duration of the migratory episodes

#### A. Definition

12. Duration of the migratory episodes can be defined as the period of time that has elapsed since a person entered in a country until he/she has left it. Therefore, the person should be considered at first as an immigrant and later as an emigrant.

13. The variable duration of the migratory episodes will not be calculated in the case of people who are born in the country and then emigrate from it, since they have not carried out any type of immigration first. Thus, from the total amount of emigrants that a country has, only for a subset of them (those who previously had the role of immigrants) the variable duration of the migratory episodes will be calculated.

14. It is expected that in those countries with more favorable conditions the value of the variable duration of the migratory episodes will be greater than in those ones where the conditions are less favorable.

15. So, in order to analyze migrations more thoroughly, it is essential to have information on the variable duration of migratory episodes and crossing this information by other variables (for example, age, sex, nationality ...).

#### B. The particular case of Spain

##### 1. The population register: Padrón

16. The main source as regards both population stocks and migration statistics in Spain is the population register, named Padrón in Spanish. Padrón is the official list of residents in each one of the 8,124 municipalities<sup>4</sup> in Spain.

17. In Spain there are as many registers as municipalities. But there is a law, in force since 1996, integrating all these municipal lists into a single national database. There are also legal procedures to keep this database and the municipal files interconnected and updated on a monthly basis.

18. This is made through the statistical office of Spain, INE. So, unlike other countries where the police or other administrative bodies are in charge of population registers, in the case of Spain, INE is the national institution that coordinates this single national population register.

19. Every month INE receives all changes produced in every municipality, performs validations and forwards these results to all the municipalities, to avoid duplications and also to include deaths, births or acquisition of Spanish citizenship that INE receives on a monthly basis from the Civil Register.

20. Furthermore, all consular offices of Spain throughout the world (around 250) are also connected to Padrón like the municipalities. Any Spanish national leaving a municipality within

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<sup>4</sup> As of 1st January 2018.

Spain to live abroad should declare his/her new residence at the closest consular office. Consular offices send this information to INE and INE forwards these data to the municipalities into the monthly coordination files.

21. According to the law, there is no restriction for registering in Spain in terms of legal situation. All people living or willing to live in Spain, regardless of their legal situation, have the right to be registered (this is actually an obligation) and they normally are, since being registered brings many advantages and no drawbacks. The benefits of being registered may comprise free access to public health system, public schools, services and rights granted by the municipalities, as well as cheaper transport and many others.

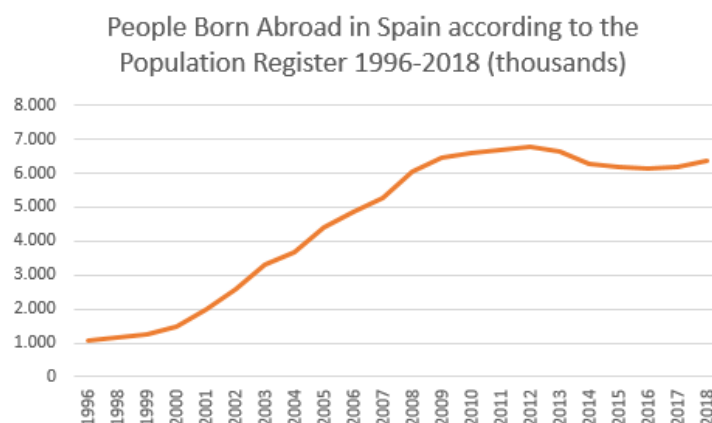
22. For each person, the register contains the following variables: gender, date of birth, place of birth (country, in the case of foreigners), nationality, educational attainment and the national identity number. Foreigners in legal situation have the number of residence permit. For people in irregular situation the passport number is stored.

23. Padrón is also a longitudinal database (46.7M people living in Spain<sup>6</sup> and more than 265M records with longitudinal information for all the people who have passed through Spain since 1996): all previous places of residence (within Spain) are also stored, thus allowing longitudinal analysis and a very close and precise monitoring of internal migration. Although the potential of Padrón for longitudinal analysis is great, INE is still in an experimental phase at this point.

## 2. Limitations and difficulties

24. The amount of people born abroad and living in Spain has changed a lot since the creation of Padrón. In 1996 only 1,067,000 people (2.7% of the total population of Spain) were born abroad. Only 10 years later, this number increased up to 4,868,000 people (10.8% of the population) and according to the latest figures of 2018 in Spain there are 6,373,000 people (13.6% of the population) that were born out of the Spanish boundaries.

**Figure 4**



25. This great change in the structure of the population, since the beginning of the current management system of the Padrón is available, was a huge challenge because the system was not originally designed to deregister the people who left the country and did not declare this action.

26. Therefore, for some years emigration was not measured in a completely accurate way until a new legal procedure was approved in 2006 and not fully applied until 2017. Since 2006, foreigners

are required to renew their inscriptions in Padrón every two or five years depending on the group they belong<sup>5</sup>. Every city council must send notifications to all foreigners whose inscriptions are about to expire. If they do not renew their registration, after an administrative process that may take some months, they are de-registered from the municipal records.

27. Finally, Padrón was not initially conceived as a longitudinal record but to measure the stock of population at a certain time. Consequently, in many cases the search for all the variations of a person is direct, but in some of them there are some difficulties (the search is not accurate) and probabilistic links have to be made using the existing information.

28. Taking into account all the aspects mentioned above and also that there are no precedents in the exploitation of the Padron from the longitudinal point of view to obtain the variable duration of migratory episodes, the results of this exercise (more details in the following section) should be characterized as experimental and they need further analysis before being officially published for the first time.

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<sup>5</sup> Non-EU citizens that hold a non-permanent residence permit or do not hold a residence permit (2 years)  
(EU citizens) or (Non-EU but having a permanent residence permit) not enrolled in the Central Foreign Register (2 years)  
(EU citizens) or (Non-EU but having a permanent residence permit) enrolled in the Central Foreign Register (5 years)

## IV. Some results

29. Because the variable duration of the migratory episodes only makes sense in the event of an initial immigration in the country and later an emigration, the first test will consist in the analysis of the 367,877 emigrations (provisional figure) produced in Spain in the year 2017 according to the Migration Statistics.

30. Obviously the emigrations associated with previous immigration vary depending on the profile of the people. Thus, people born in Spain and with Spanish nationality have a previous immigration in a percentage of cases much lower than people born abroad and with foreign nationality:

Type of emigration	Emigrants	With a previous immigration	%
<b>Nationality = Spanish</b>	<b>87,685</b>	<b>25,999</b>	<b>30</b>
Born in Spain	54,853	4,838	9
Born abroad	32,832	21,161	64
<b>Nationality &lt; &gt; Spanish</b>	<b>280,193</b>	<b>241,513</b>	<b>86</b>
Born in Spain	12,928	1,768	14
Born abroad	267,265	239,745	90
<b>TOTAL</b>	<b>367,878</b>	<b>267,512</b>	<b>73</b>

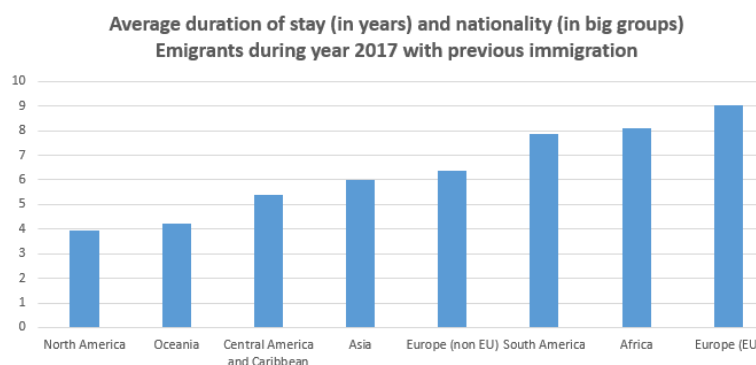
31. Nevertheless, the variable duration of migrations has no sense for all the emigrations. In theory it should be possible to obtain it for all the people born abroad, but due to the difficulties mentioned in the section “3.2.2” this percentage is somewhat lower.

32. However, the information is analyzed for those people whom a prior immigration was found, a subset that is equal to 267,512 people. This group of people has an average duration of stay in Spain of **8.2 years** that evidently varies according to different variables. This paper presents the evolution of the variable duration of the stay in Spain according to the variables nationality, place of residence, sex and age.

### A. Nationality

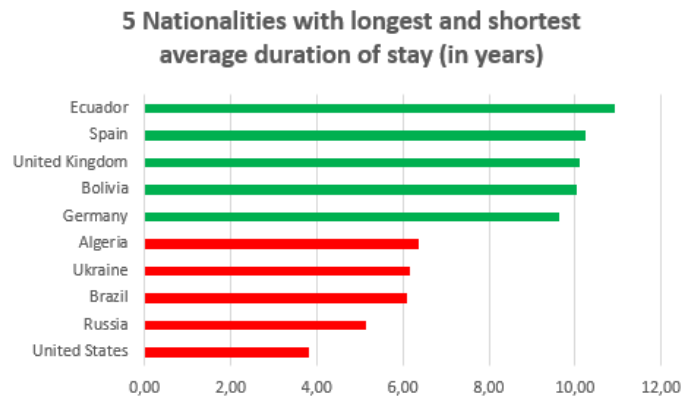
33. People of North American nationality have an average duration of stay that does not reach 4 years, while in the case of people from the EU their average duration of stay is very close to 9 years.

Figure 5



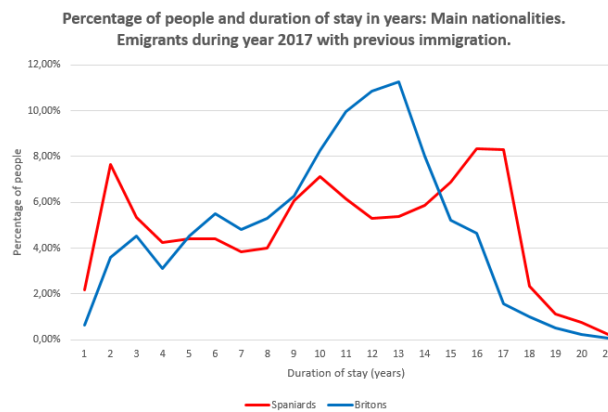
34. In the following graph the five nationalities<sup>6</sup> with longer and shorter duration of stay in Spain can be seen:

Figure 6



35. It is important to note that although two or more nationalities may have a similar average duration of stay, its distribution may follow different patterns, such as occurs in the case of Spaniards (10,3 years) and Britons (10,1 years):

Figure 7



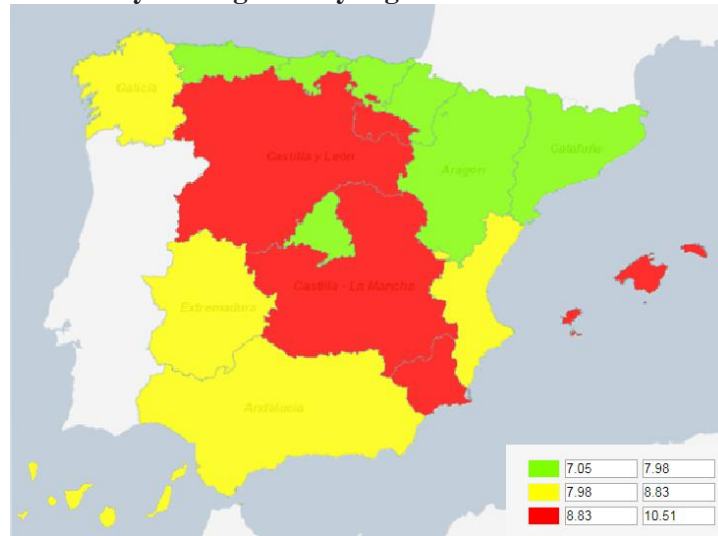
## B. Region of residence

36. If we take into account the region of last residence in Spain of the emigrants, it can be observed how the duration of the stay in Spain varies (though not much) from one region to another. Thus, the region with a longer duration of the stay is Murcia, above 10 years, and the region where the value is lower is País Vasco, slightly above 7 years.

<sup>6</sup> Only those nationalities with 3,000 or more occurrences have been considered



Figure 8: Duration of stay of emigrants by region of last residence



### C. Sex

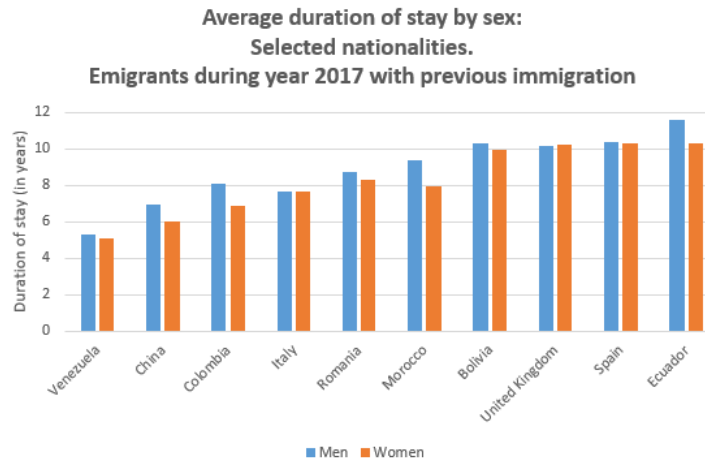
37. If we analyze the average length of stay in Spain by sex, we see that the duration for men (8.5 years) is a little longer than for women (7.9) and their curves are very similar. It has been observed that in the most important nationalities there are no big differences when doing an analysis by sex.

Figure 9



38. The following graph shows the average length of stay in Spain for the main nationalities by sex.

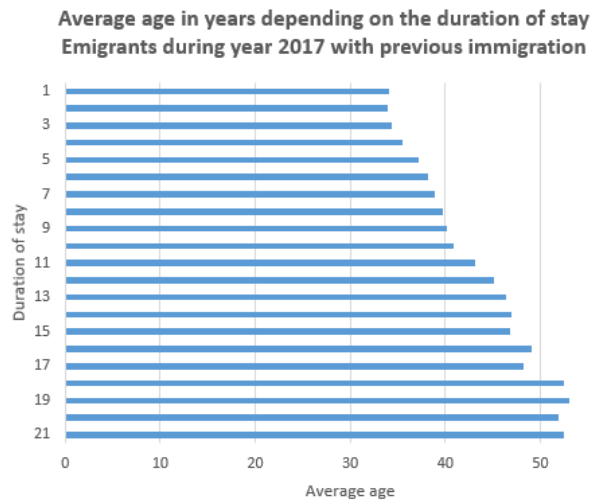
Figure 10



**D. Age**

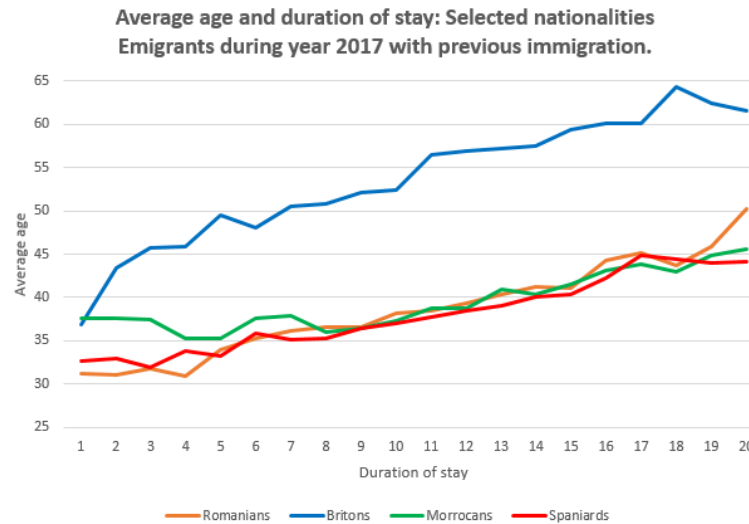
39. On the other hand, it is also interesting to analyze the average age of the emigrants according to the duration of the stay in Spain. The average age of the 267,512 emigrants is 39.7 years. However, if we observe the average age according to the duration of the stay in Spain we see that, as we would expect, the average age increases as the duration of stay is longer.

Figure 11



40. If we analyze the average age according to the duration of the stay and the 4 most frequent nationalities, we observe that the lines of the graph in 3 of the countries can be considered parallel (and in some cases coincidental).

Figure 12



## V. Conclusions and future work

41. The Spanish population registry (PADRON) makes it possible to carry out longitudinal analysis of the people recorded in it. In this paper, a first attempt has been made, consisting on a study of the duration variable of the stay in Spain from the emigrations of the year 2017.

42. Evidently the same analysis could also be completed comparing the information of this study with the emigrations of other previous years (2016, 2015...) or in the same way, taking as starting point the immigration information on a concrete year and follow its evolution over time.

43. Obviously, the wealth of this information would increase considerably if we were able to add data related to the current activity status, date when a person lost his/her job or the highest educational attainment of the people just to mention some examples. The work of the next years should try to exploit the possibility of obtaining this information.