Fluctuations in the Fertility of Immigrant Women in Spain Over Four Categories of Descendants. Is there an Intergenerational Convergence with the Fertility of Native Women?

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Abstract

During the 1990s fertility in Spain decreased notably, a situation that was reversed at the start of the 21st Century. At the same time migration flows to Spain from countries with high levels of fertility increased drastically. Ever since, the fertility of immigrant women has been an issue on the public and scientific agenda. However, due to the lack of adequate sources of information, little is known about the fertility of the female offspring of immigrants residing in Spain. This study overcomes this issue by using a new database which links Natural Movement of the Population records (from 2011 to 2016) to the 2011 Spanish Census to analyse how likely immigrant women from different countries of origin and four categories of their descendants had at least one child between 2011 and 2016 compared to native women. The analysis was carried out using a logistic regression model with various sociodemographic controls, and Average Marginal Effects are estimated. A convergence with female natives was noted in the second generation of African and European immigrants, but not among South American women. Regardless of the country of origin, immigrants who were between 9 and 16 years old when they came to Spain had greater probabilities of having at least one child in the period indicated than those who arrived at a younger or older age.

Introduction

During the last decade of the 20th Century the level of fertility in Spain dropped notably, falling well below the replacement level. This phenomenon was also observed in various nearby countries during the 1990s and was eventually dubbed "lowest-low fertility" (where total fertility rate is at or below 1.3) (Kohler, Billari, & Ortega, 2002). However, at the start of the 21st Century migration flows to Spain increased dramatically, the majority coming from countries with high levels of fertility and, at the same time, the national fertility level increased (Goldstein, Sobotka, & Jasilioniene, 2009). Since then, the importance that high levels of fertility among the immigrant population has and will have in the future for reversing the ageing trend in Spain is being closely watched in the public and political sphere, as well as in academic circles.

It is particularly important to analyse if the levels of fertility between women of different immigrants groups and native women are converging or diverging. In this sense, despite the interest the Spanish case raises, due to the absence of adequate databases and the fact that the immigrant population in Spain is a relatively young group that arrived during the first years of this century, little is currently known about fluctuations in fertility levels of the descendants of the different groups of immigrants in Spain.

This study employed a new database that links Natural Movement of the Population records from 2011 to 2016 with the 2011 Spanish Census. The main objective was to analyse the fertility of first generation immigrants and that of four types of their descendants, with special attention on the different countries of origin, as well as sociodemographic variables. Specifically, the immigrant populations from four different origins (Africa, Europe, South America and Other) were divided into first generation, 1.5 generation and second generation immigrants, with the last two categories further divided into two subgroups. This made it possible to check the adaptation hypothesis, with a new generational focus for the Spanish case. To do so a logistic regression model was implemented and Average Marginal Effects were estimated to obtain the probability

that women from 5 generations of the immigrant population had at least one child between 2011 and 2015, controlling the effect of various sociodemographic and origin variables.

Some results are in line with the literature: there are significant differences between the immigrant groups based on origin, with those from Africa showing the highest fertility level (Kulu et al., 2017; Roig Vila & Castro Martín, 2007); this group also shows a clear process of intergenerational convergence, in that the higher level of fertility of the first generation reduces drastically in the second. In addition, after controlling for sociodemographic characteristics, the rest of the immigrant groups present a lower level of fertility in the first generation than the native population. However, other results were unexpected: convergence is not observed in very large immigrant groups, such as South Americans. Regarding the fertility of their descendants, patterns can be observed in intergenerational fluctuations in all immigrants groups regardless of origin: immigrants who were between 9 and 16 years old when they arrived in Spain have higher fertility than that of first generation immigrants or those that arrived when they were younger than 9 years old.

Theoretical framework

At the start of this century immigrant arrivals to Spain and other nearby countries increased. However, the magnitude of this phenomenon was greater in Spain. Between 1996 and 2006 72% of the increase in Spain's population was caused by an increase in the foreign population (Trilla, Esteve, & Domingo, 2008). As a consequence, the immigrant population began to have an increasing influence on Spanish demographic dynamics, for example, on the birth rate (M. Delgado & Zamora, 2004). During this same period there was a change in the downward tendency in Spain's fertility level, which caused the country to move above the lowest-low fertility rate threshold in 2003 (Kohler et al., 2002): Spain had fallen to its lowest level in 1998 (1.16 children per woman), but after 1999 the Total Fertility Rate (TFR) began to increase until it reached 1.46 children per woman in 2008 (Castro Martín & Rosero-Bixby, 2011).

In this context, various studies have examined the impact of the immigrant population on this change in tendency, in many cases turning to traditional hypotheses regarding the fertility of the immigrant population that have been applied in other countries (e.g., the socialization, adaptation, selection and disruption hypotheses) (Kulu, 2005). Thus, the National Immigrant Survey carried out by the Spanish National Statistics Institute in 2007 was used to analyse childbearing behaviour in the immigrant population, leading to the general conclusion that while immigrant women have significantly contributed to the total number of births and to slowing the delay in childbearing and population ageing processes, their impact on the TFR is not as strong because they represent a relatively small amount of reproductive age women and their fertility is not very high (Castro Martín & Rosero-Bixby, 2011). Therefore, the increase in TFR experienced by Spain between 1998 and 2006 was mainly due to the fact that fertility among native women increased from 1.12 to 1.30 (84%) (Goldstein et al., 2009). Other data sources report similar results and the general consensus is that the contribution of immigrant women to fertility is more significant in absolute rather than relative terms (Margarita Delgado, Meil, & Zamora López, 2008). Marta Roig and Teresa Castro (2007), using data from the 2001 Spanish Census, concluded that despite the fact

that the TFR of immigrant women is higher than that of Spanish women, the difference is not large enough to reverse the situation of low fertility.

Elsewhere, the factors that generate heterogeneity in the immigrant population's fertility have been studied. These studies have found that better job status increases the probability of having a first child, regardless of the origin of the woman (Andersson & Scott, 2005). In general, fertility decreases as the number of years residing in Spain increases (Roig Vila & Castro Martín, 2007). High education levels also appear to be associated with lower fertility in the immigrant population (Margarita Delgado et al., 2008). A widespread finding is that there is a great deal of variability among immigrants of different origins (Castro Martín & Rosero-Bixby, 2011; Del Rey Poveda, Cebrián-Villar, Grande Martín, Antón Pérez, & Fernández-Macías, 2015; Roig Vila & Castro Martín, 2007; Sobotka, 2008). Specifically, female European immigrants normally have TFRs similar to those of native women (Sobotka, 2008). Only female African immigrants were observed to adapt to the native population; the other women emigrate from countries with similar birth rates and /or are highly selected (Castro Martín & Rosero-Bixby, 2011). After controlling for factors such as age, education, marital status and the number of children living at home, only women from North Africa have a greater probability of having had in the year prior to the 2001 Spanish Census (Roig Vila & Castro Martín, 2007).

Various researchers point out that the European immigrant population is not only increasing because of new arrivals, but also indirectly, due to increases in the second generation (Sobotka, 2008). This means that it is vital to study the fertility of the descendants of first generation immigrants, because despite the fact that their demographic weight is growing, it is still a relatively new phenomenon in various European countries (De Valk & Milewski, 2011). Along these lines, research has been done that deals with the fertility of the descendants of immigrants in various European countries, reaching the conclusion that the first births rates of second generation immigrants are the same or lower than that of native women and less than their respective first generations (Kulu et al., 2017).

However, Spain is an exception, because in the various studies on this issue the fertility of the second generation was not studied, only that of the 1.5 generation. For example, in the article, "Fertility by Birth Order among the Descendants of Immigrants in Selected European Countries" (Kulu et al., 2017), the authors "investigate parity-specific fertility rates among the descendants of immigrants in Europe from a comparative perspective". In this study the second generations of immigrants in the United Kingdom, France, Germany, Belgium and Sweden are examined; however, they use the Fertility and Values Survey (conducted in 2006 by the Centre for Sociological Research) for Spain, which only allows the 1.5 generation to be analysed. Another work, "Country-specific case studies on fertility among the descendants of immigrants" (Kulu et al., 2015), contains studies for six European countries and, again, in the case of Spain only the 1.5 generation is analysed.

Hypotheses

This study aims to shed some light on the fertility of descendants of immigrants by subdividing 1.5 generation immigrants and second generation immigrants into two groups. To do so, the following hypotheses were tested:

1. The fertility of female immigrants is gradually converging with that of native women over the intermediate generations between the first and second generation.
2. The fertility of mixed second generation (with one native parent and one immigrant parent), female immigrants will be similar to that of native women.
3. The fertility of 1.5 generation immigrants who arrived in Spain when they were 8 years old or younger will be closer to that of native women than those who arrived when they were between 9 and 16 years old.
4. There will be significant differences in the fertility of immigrants depending on their origin:
    a. The fertility of European immigrants will be similar to that of native women.
    b. The fertility of South American immigrants will be greater than that of native women.

The fertility of African immigrants will be greater than that of native women and women from other immigrants groups.

Methodology

We were able to test our hypotheses for the Spanish case thanks to a new database, created by linking Natural Movement of the Population records from January, 2011 to December, 2015, with the 2011 Spanish Census, and provided by the Spanish National Statistics Institute. More specifically, a sample of 10% of the 2011 Census was linked to records of the Natural Movement of the Population. The resulting database allowed us to carry out an in-depth study of the fertility of the immigrant population.

This study divided the immigrant population into a total of 20 categories based on both generation and origin. In addition to the First Generation, other generations of immigrants were analysed, including 1.5 Generation immigrants (those who arrived in Spain when they were between 9 and 16 years old), 1.75 Generation immigrants (those who arrived when they were younger than 9), Second Generation immigrants (born in Spain, but both parents were born in a foreign country) and Mixed Second Generation immigrants (born in Spain, with one parent born in a foreign country). Within each of these categories the four largest origin groups were identified (Europe, South America, Africa and Others), in order to observe possible differences or patterns based on the origin of the immigrants.

In practical terms, a logistic regression model was implemented to estimate the probability that female immigrants who were between 15 and 49 years old in 2011 had a child in the following five years, compared to native women. As an interesting addition, a variable containing the 20 categories of immigrants defined above was introduced and a model with no controls was carried out along with another that used various controls: age, number of children prior to 2011, education level, labour status and marital status. The sample included a total 871,674 women, among which 112,190 were immigrants or descended from immigrants.

Results

Table 1 contains the results, in terms of Average Marginal Effects, of the two models implemented. Model 1 is the basic model and Model 2 includes the set of controls. To better interpret the likelihood of having at least one child between 2011 and 2015 for each of the 20 categories of the differentiated immigrant population, compared to the native population, the Average Marginal Effects of both models are displayed on two graphs.

Graph 1 shows the results of Model 1. If we look at the Immigrant category (First Generation), we can see that only the African group has a (much) greater probability of having a child in the specified time period, while immigrants from other origins have almost the same likelihood as the native group. Continuing on to the 1.5G and 1.75G categories we can observe that the African immigrants underwent a strong convergence with the natives and other immigrant groups, as well as diverse variations in the other three groups. Finally, the 2G and Mixed 2G categories reported lower probabilities for every group, with the exception of the Africans. However, the results of this model may be affected by different compositions in the categories of immigrants analysed and in the natives; therefore, the results of Model 2 are more interesting, presented in Graph 2.

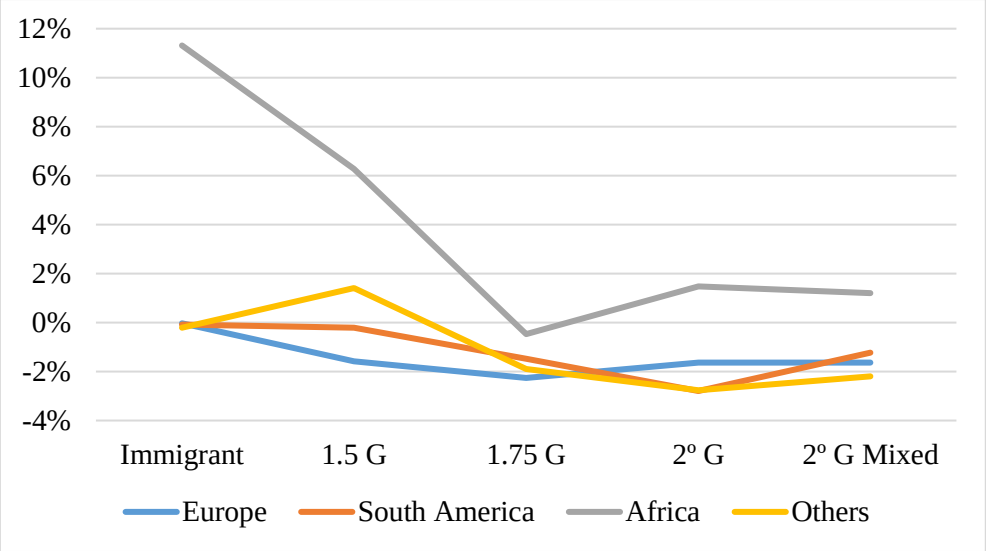
In general terms, Graph 2 shows a clear difference between the African group and the other three: the Africans have a greater likelihood of having at least one child than the other three origins in every immigrant population category considered; in fact, it is the only group that shows a greater probability of having at least one child than the native women across every immigrant category and in the four categories of descendants. Observing each category individually, we see that in the Immigrant category the African group has 7.1% more possibilities of having at least one child than native women, while the other groups all show highly similar probabilities as the natives, around -2%. Regarding the 1.5 generation group of immigrants we see that in the four origins examined there is an increase in the probabilities of having at least one child; in fact, it is the category of descendants with the greatest probability regardless of origin.

Table 1. Average Marginal Effects. Probabilities of having at least one child.

	Model 1		**Model 2**	
	dy/dx	P>z	dy/dx	P>z
Ref. Natives				
Europe 2G Mixed	-0,016	0,000	-0,003	0,255
Europe 2G	-0,016	0,026	-0,014	0,067
Europe 1.75G	-0,023	0,000	-0,010	0,000
Europe 1.5G	-0,016	0,000	0,008	0,078
Europe	0,000	0,867	-0,025	0,000
South America 2G Mixed	-0,012	0,003	-0,012	0,005
South America 2G	-0,028	0,000	-0,024	0,002
South America 1.75G	-0,015	0,000	0,007	0,138
South America 1.5G	-0,002	0,567	0,026	0,000
South America	-0,001	0,6	-0,018	0,000
Africa 2G Mixed	0,012	0,02	0,006	0,183
Africa 2G	0,015	0,122	0,031	0,002
Africa 1.75G	-0,005	0,523	0,026	0,006
Africa 1.5G	0,063	0,000	0,076	0,000
Africa	0,113	0,000	0,071	0,000
Others 2G Mixed	-0,022	0,000	-0,016	0,002
Others 2G	-0,028	0,005	-0,022	0,044
Others 1.75G	-0,019	0,003	-0,010	0,171
Others 1.5G	0,014	0,083	0,029	0,001
Others	-0,002	0,462	-0,021	0,000
Ref. 15-21				
22-28			0,087	0,000
29-35			0,134	0,000
36-42			-0,002	0,075
43-49			-0,050	0,000
Ref. Childless				
1 Child			0,055	0,000
2 Children or more			-0,023	0,000
Ref. Primary education				
Secondary			0,002	0,013
Tertiary			0,025	0,000
Ref. Unemployed				
Employed, part time			0,007	0,000
Employed, full time			0,027	0,000
Ref. Not married				
Married			0,064	0,000

Source: Census (2011) and Registers of the Natural Population Movement (2011-2015), National Institute of Statistics.

Graph 1. Average Marginal Effects. Model 1.



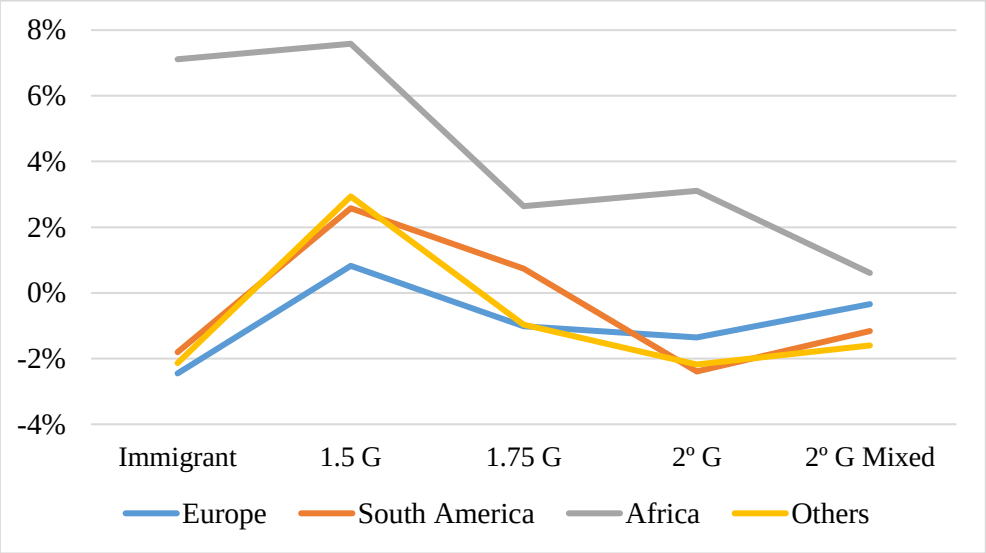
Source: Spanish Census (2011) and Natural Population Movement Records (2011-2015), National Institute of Statistics.

If we consider the 1.75 category, the same pattern emerges in all of the origins: the probability of having at least one child decreases. Second generation immigrants (2G) reveal a substantial process of convergence with the native population in the case of the African group and, to a lesser degree, the European group. However, no convergence can be observed among the South American and Others groups: women born in Spain whose parents were both born in South America and the Others group have less probabilities of having a child between 2011 and 2015, the same as the Immigrant categories of those origins. Finally, the Mixed 2G category for all four origins differ less from native women, although South American women or women from the Others group still show significant differences, both groups are less likely to have at least one child than native women.

Finally, the five control variables introduced in Model 2 produced significant differences, although not always as expected. Regarding age, women who were between 22 and 35 years old in 2011 were more likely to have at least one child than those who were between 15 and 21; while those who were between 43 and 49 were less likely. Taking as a reference not having children, having had one child before 2011 increased the likelihood of having another in the following five years, but having had two or more decreased the probabilities. Having a higher level or education

increased the likelihood of having at least one child between 2011 and 2015, which seems to contradict some earlier results (Margarita Delgado et al., 2008). In line with the literature, greater involvement in the labour market increased the likelihood of having at least one child (Andersson & Scott, 2005). Finally, married women were 6.4% more likely to have at least one child than single women.

Graph 2. Average Marginal Effects. Model 2.



Source: Spanish Census (2011) and Natural Population Movement Records (2011-2015), National Institute of Statistics.

Conclusions

Given the results, and in line with what was proposed by prior research (Castro Martín & Rosero-Bixby, 2011), the first hypothesis is only confirmed for immigrants from Africa or their descendants. First generation immigrants of this group are very likely to have at least one child and although this remains true among women who arrived in Spain when they were between 9 and 16 years old, those who were younger than 9 and second generation immigrants show a substantial process of convergence with native women. First generation European immigrants are less likely to have at least one child than native women and, although it is true that both categories of second generation immigrants largely converge with the native women, the process is not gradual, but rather fluctuates, with a peak in the 1.5G category. No convergence is observed among female immigrants from South America or their descendants, or among the Others group; a slight movement toward native women can only be detected among second generation women with one native parent (Mixed 2G category).

The second hypothesis was also not confirmed for all the origins. While women with one native parent and one born in Africa or Europe do show a similar likelihood of having at least one child as native women, those who have one parent born in South America or from the Others group are less likely to have at least one child than native women.

The third hypothesis was confirmed for every group except the European. The probabilities that immigrant women who arrived in Spain when they were younger than 9 years old from Africa, South America or the Others group had at least one child between 2011 and 2015 was closer to that of native women than immigrants from those same origins who were between 9 and 16 years old when they arrived in Spain. This result was expected because girls who arrive in Spain when they are younger are socialized to a greater degree in a context that is more similar to that of natives than those who arrive when they are older.

The fourth hypothesis was partially confirmed, in that it was observed that origin does generate differences between female immigrants and their descendants (Castro Martín & Rosero-Bixby, 2011; Del Rey Poveda et al., 2015; Roig Vila & Castro Martín, 2007; Sobotka, 2008), but those

differences are not always the expected ones. In contrast to what has been proposed in some studies (Sobotka, 2008), the first sub-hypothesis (a) was not confirmed: first generation immigrant women from Europe were 2.5% less likely to have a child between 2011 and 2015 than native women; the only convergence observed was among women with one native parent and the other from a different European country. Sub-hypothesis b was also not true: among immigrant women born in South America and their descendants, only those who arrived in Spain when they were younger than 16 years old had a greater likelihood of having at least one child. The final sub-hypothesis (c) was confirmed: women born in Africa and their descendants had a much higher likelihood of having at least one child than immigrant women from other countries of origin and native women (Roig Vila & Castro Martín, 2007).

The analysis of a large sample provided by a highly detailed and very current database has allowed us to make a significant contribution to the understanding of fertility among descendants of the immigrant population in Spain. We have shown that there are significant differences between the first generation and the 1.5 generation and that it is vital to take into consideration the country of origin because whether or not there is a process of convergence with native women depends on this factor. Moreover, patterns were found regardless of the country of origin of the immigrant women: those who arrived in Spain when they were between 9 and 16 years old were significantly more likely to have a child between 2011 and 2015 than those who arrived at a younger or older age. Therefore, when studying the 1.5 generation it is important to make at least one distinction between immigrants who arrive as children and those who arrive as adolescents.

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