Labor Market Integration and Childbearing Behavior of Immigrants in the European Union

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PhD Thesis in Social Sciences, 2023

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Dr. Alberto del Rey and Dr. Mikolaj Stanek, professors at the University of Salamanca, certify that the PhD Thesis conducted under our supervision by Jesús García Gómez, entitled "Labor Market Integration and Childbearing Behavior of Immigrants in the European Union", meets the criteria of novelty required to apply for the PhD degree in the "Social Sciences" program of the University of Salamanca.

We hereby sign this certification in Salamanca on February 27, 2023.

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Acknowledgements

This thesis started in Fall 2018 and finished in Spring 2023. During this time, I have been fortunate enough to collaborate with several researchers and provided with opportunities to further my knowledge and skills of the methods of research. I am grateful that I have always been treated respectfully and as an equal alongside the professionals in this field.

I am most grateful to Dr. Alberto del Rey and Dr. Mikolaj Stanek. They have guided me in this journey, sharing their valuable advice and time with me. They believed this research project could be worthy. I hope in our time together I have not disappointed them.

I am thankful to Dr. Emilio Parrado, Dr. Natalie Nitsche and Dr. Silvia Loi. Dr. Emilio Parrado agreed to work with me in Spring 2021, I am beholden to for a very enriching time and his guidance with the second study of Chapter 3. Dr. Natalie Nitsche and Dr. Silvia Loi agreed to work with me in Fall 2022, I thank them for sharing their experience and expertise with me and for collaborating in writing an article that I hope will be published soon.

To live in a country that funds a certain number of PhD scholarships is something I do not take for granted, so I thank various institutions in Spain, and ultimately the Spanish society for funding this thesis.

I hope to give back to all the people who have helped me and to the Spanish society.

I am fully responsible for any deficiencies in this thesis, and I hope partially responsible for its virtues, should there be any.

Funding

This work was supported by the Spanish Ministry of Science, Innovation and Universities, [grants numbers: FPU17/05061 Ph.D. Scholarship (FPU); RTI2018-098455-A-C22 “Convergences and demographic divergences between natives and immigrants in Spain”; PID2021-123875NB-I00 “Analysis of lowest-low fertility through life transitions: emancipation, couple formation and labour trajectory”] and by Junta de Castilla & León [grant number: SA047G19 “Low fertility and infertility”].

Index

Abstract

As of 2020, immigrants accounted for 12.4% of the European Union (EU) population. This is due to large flows from outside the EU and increased intra-EU migration, the latter caused by the recent EU enlargement processes of 2004 and 2007. In this scenario, the labor integration of immigrants and their childbearing behavior are key to understanding the economic, social and demographic dynamics of the EU. We present two studies on the labor performance of intra-EU migrants in main EU labor markets (Chapter 2), and three studies on the fertility of immigrants from outside the EU and their descendants in Spain (Chapter 3).

In Chapter 2, we use annual data from the EU labor force survey between 2005 and 2016. We focus on the over-qualification experienced by intra-EU immigrants originating from new EU member states residing in old EU countries. We conclude that intra-EU immigrants originating from new member states have lower labor markets outcomes compared to host country nationals and immigrants originating from old member states. Interestingly, although the enlargement of the EU has meant the improvement of the legal status of immigrant workers originating from new member states, the transitional arrangements imposed by most old member states have been an obstacle to full European integration.

In Chapter 3, we use a new database that links Spain's 2011 Census with the Natural Movement of the Population records from 2011 to 2015. We study various aspects of the fertility of first, 1.5 and second generation Latin American and Maghrebi immigrants. Our results show that first-generation Maghrebi immigrants tend to maintain the typical childbearing behavior of their origin countries to a greater extent than first-generation Latin American immigrants. We also find that while the childbearing behavior of Latin American immigrant descendants is very close to that of native Spanish women, the fertility of Maghrebi immigrant descendants falls in between that of their parents and that of native women.

Resumen

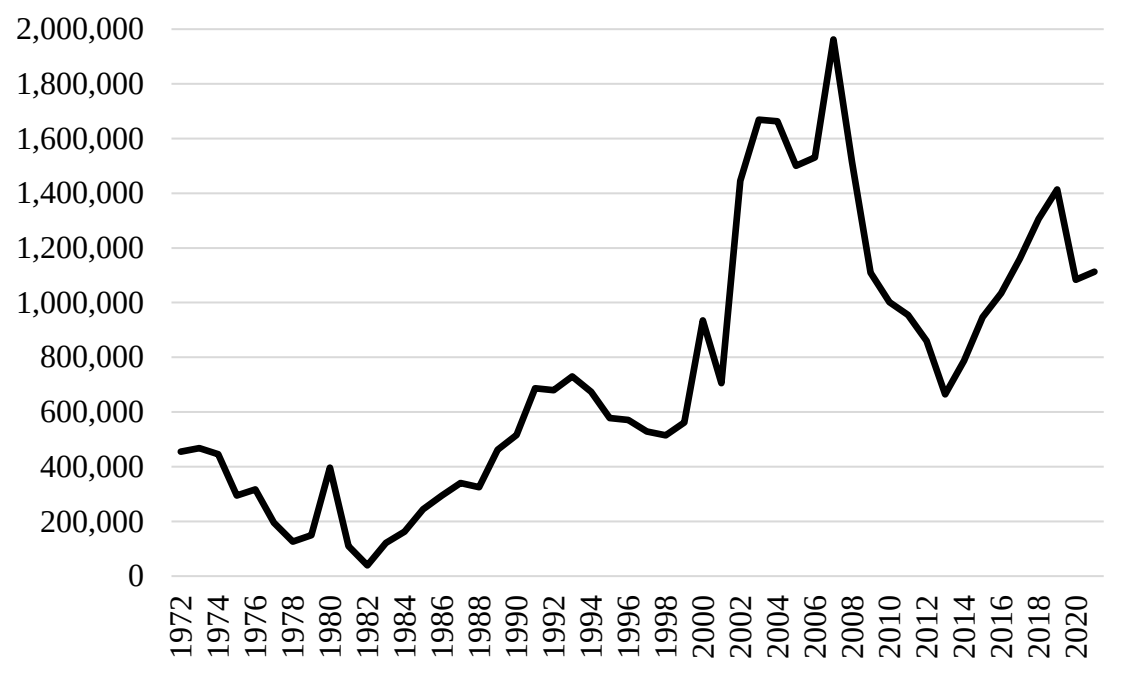
En 2020 los inmigrantes suponían el 12’4% de la población de la Unión Europea (UE). Esto se debe a los grandes flujos que han llegado desde fuera de la UE y a las crecientes migraciones intra-UE, causadas estas últimas por los recientes procesos de ampliación de la UE de los años 2004 y 2007. En este escenario, conocer la integración laboral y el comportamiento reproductivo de los inmigrantes son fundamentales para entender las dinámicas económicas, sociales y demográficas de la UE. Por ello, en esta tesis presentamos dos estudios sobre la integración laboral de los inmigrantes intra-UE en los principales mercados laborales de la UE (Capítulo 2), y tres estudios sobre el comportamiento reproductivo de los inmigrantes de fuera de la UE y de sus descendientes en España (Capítulo 3).

En el Capítulo 2 usamos datos de la encuesta de población activa de la UE entre 2005 y 2016. Nos centramos en analizar el nivel de sobre-educación de los inmigrantes intra-UE originarios de los países que accedieron a la UE en el Siglo XXI, en los países que formaban anteriormente parte de la UE. Concluimos que los inmigrantes intra-UE originarios de los países que accedieron a la UE en el Siglo XXI, se encuentran en una peor situación laboral que los inmigrantes intra-EU originarios de países tradicionalmente comunitarios y que la población nativa. A pesar de que la ampliación de la UE supuso la mejora del estatus legal de los trabajadores inmigrantes provenientes de los nuevos países miembros de la UE, la imposición de moratorias por parte de los países anteriormente miembros de la UE obstaculizó el desarrollo de la integración de la UE.

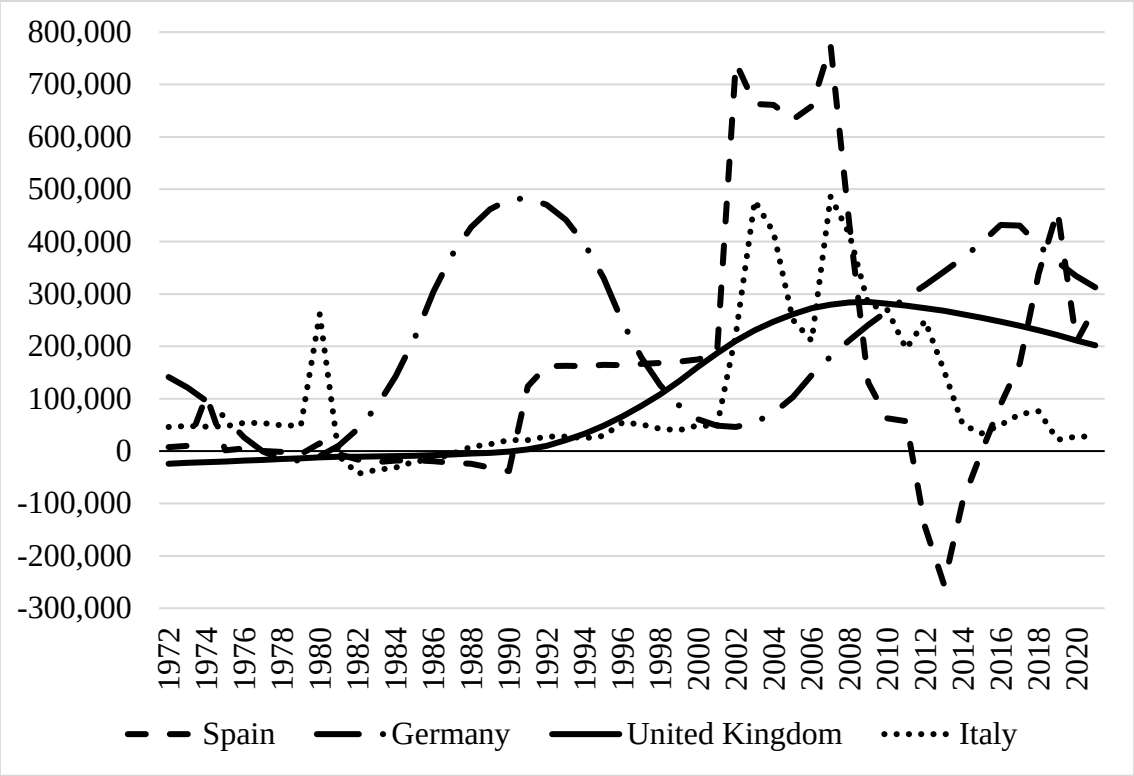
En el Capítulo 3 utilizamos una nueva base de datos consistente en la vinculación al Censo de España de 2011 de los registros del movimiento natural de la población entre 2011 y 2015. Analizamos diversos aspectos de la fecundidad de la primera, 1.5 y segunda generación de inmigrantes latinoamericanas y magrebíes en España. Los resultados muestran que las inmigrantes magrebíes de primera generación mantienen el comportamiento reproductivo característico de sus países de origen en mayor medida que las latinoamericanas de primera generación. Además, mientras que las descendientes de inmigrantes latinoamericanas tienen un comportamiento reproductivo muy similar a las nativas españolas, las magrebíes se encuentran a medio camino entre sus progenitores y las nativas españolas.

Chapter 1. Introduction.

During recent decades most European Union (EU) countries have received large flows of immigrants, causing their net migration to be positive and sizeable. Specifically, as Graph 1 shows, the 28 countries that formed the EU between 2014 and 2020 (EU-28) have had an aggregated annual net migration of over 500,000 people since 1990. Between 2002 and 2008 the flow of immigrants was at its peak, and the annual net migration averaged 1,612,345 people. Since 1995, four EU-28 countries have stood out, accounting for 81% of the aggregated net migration of the EU-28 countries between 1995 and 2021. Graph 2 depicts the evolution of the net migration in these four countries. Spain, once a country of emigration, is the country with the highest peak (774,489 for the year 2007), and its aggregated net migration between 2002 and 2007 was 4,131,446. (The World Bank, 2023).



Graph 1. Aggregated annual net migration between 1972 and 2021 in the EU-28 countries. Source: The World Bank, 2023.

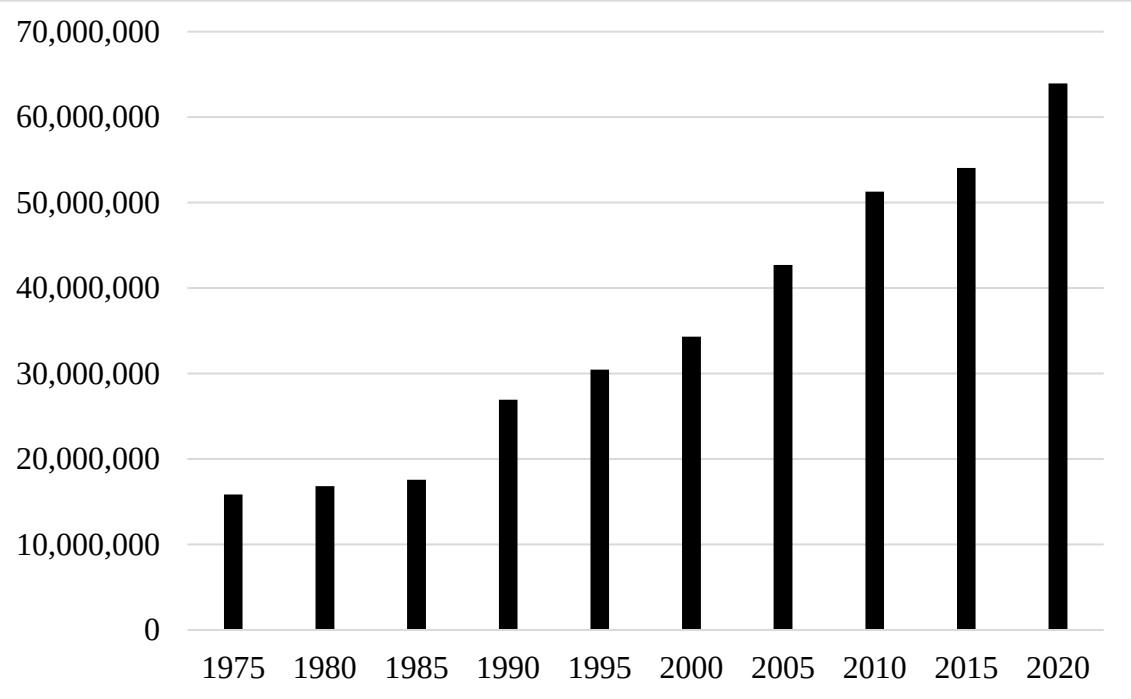


Graph 2. Annual net migration between 1972 and 2021 in the four EU-28 countries with the highest aggregated net migration between 1995 and 2021. Source: The World Bank, 2023.

As a consequence of these positive and large net migration figures, the number of people born in a country other than that in which they live doubled in the EU-28 countries between 1990 (26,957,449) and 2015 (54,070,726), and in 2020 it reached 63,925,733 (see Graph 3). For the latter year, immigrants represented 12.4% of the EU-28 population. Immigrant population is not evenly distributed in the EU-28 countries: as of 2020, while in most eastern EU-28 countries immigrants accounted for around 5% of the population (e.g., Hungary, 6.1%; Romania, 3.7%; Poland, 2.2%), in central and western EU-28 countries this figure was between 10 and 20% (e.g., Germany, 18.1%; Spain, 14.8%; France, 12.7%). (The World Bank, 2023).

The composition according to the origin of the immigrant population in the EU have been affected by the EU enlargements in the beginning of the 21st Century. First, in 2004, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland,

Slovakia and Slovenia joined the EU. Then, in 2007 Bulgaria and Romania became member states of the EU. Finally, Croatia entered the EU in 2013. These enlargements generated a new migration framework in the EU. Interior migrations exceeded exterior migrations, and the largest flow of migrants were from the new EU member states (EU-13[1]) to the old ones (EU-15[2]) (King & Okólski, 2018). Fassmann et al (2014) estimated that between 2004 and 2011 there was a 400% increase in the number of immigrants originating from EU-13 countries residing in EU-15 countries. As of 2020, immigrants from outside the EU-28 accounted for 8.1% of the EU-28 population, and those originating from an EU-28 country accounted for 3.7%. (Eurostat 2023).



Graph 3. Aggregated migrant stock between 1975 and 2020 in the EU-28 countries. Source: Eurostat, 2023; The World Bank, 2023.

In this scenario, numerous sociologists, demographers, and researchers in allied disciplines have studied the integration of immigrants in different EU-28 countries. We aim to contribute to two branches of this literature: the labor market performance and the fertility behavior of different groups of immigrants in the EU.

First, in Chapter 2, we include two studies on the labor market incorporation of intra-EU migrants. The extent and conditions under which intra-EU migrants are incorporated into the labor markets of their destination countries is key to the proper functioning of the EU and to its economic and social integration (Favell, 2008, 2014). We focus on EU-13 immigrants who reside in EU-15 countries. These immigrants have transitioned from being legally considered "third country nationals" to EU citizens (Morris, 2003). Their recently acquired legal status granted them access to employment under equal conditions as other host country nationals. This change had the potential to improve the labor integration of immigrants coming to traditional EU countries from old Soviet countries (Garapich, 2008; Soysal, 2012). However, the link between the removal of legal barriers and their *de facto* labor integration is still debated (Favell, 2018), and some studies have concluded that EU-13 immigrants living in EU-15 countries have lower labor market outcomes compared to native workers and EU-15 immigrants (Felbo-Kolding et al., 2018; Fries-Tersch et al., 2018; Kahanec & Zimmermann, 2016a; Landesmann et al., 2015; Luthra et al., 2016; Ritzen & Kahanec, 2017; Verwiebe et al., 2014; Visintin et al., 2015). Against this backdrop, we focus on the over-qualification (i.e., having a job that requires less qualification than that of the worker) that EU-13 immigrants residing in EU-15 countries have experienced between 2005 and 2016. We use annual data from the EU labor force survey between 2005 and 2016 in both studies. In the first study of Chapter 2, we divide EU-13 immigrants in two groups depending on the date of accession of their origin country into the EU (EU-10[3] and EU-3[4] immigrants). We pay special attention to the effect of the implementation of "transitional arrangements" (also referred to as "moratoria") by EU-15 countries on the free access for EU-13 immigrants to the labor markets of EU-15 countries. To do so, we further subdivide EU-10 and EU-3 immigrants into two groups depending on the existence or nonexistence

of moratoria in each specific year and each EU-15 country. We compare the labor market performance of these different categories of EU-13 immigrants to that of EU-15 immigrants and host country nationals in two labor market outcomes: being employed and if that employment matches the qualifications of the worker. In the second study of Chapter 2, we focus on the over-qualification that highly educated EU-13 immigrants have in EU-15 countries, compared to EU-15 immigrants and host country nationals. We interpret the results in light of the possible effects caused by the various labor market structures found in different EU-15 countries, by the dissimilar impacts of the economic crisis that started in 2008, and the change in the main destinations of EU-13 immigrants within EU-15 countries.

Second, in Chapter 3, we present three studies on the childbearing behavior in the EU of immigrants and immigrants' descendants originating from outside the EU. Due to the increasing size of the immigrant population and their descendants in the EU, their fertility has become a key determinant of European demographic dynamics and the long-term consequences of migration (de Valk & Milewski, 2011; Sobotka, 2008). Particularly in Southern Europe, immigrants have contributed to increase the TFRs (Total Fertility Rate) above the so-called lowest-low fertility threshold at the beginning of the 21st Century (del Rey & Grande, 2017; Goldstein et al., 2009; Kohler et al., 2002; Sobotka, 2008). Although researchers have investigated the fertility of immigrants and their descendants in EU countries that have traditionally received large migration flows (Andersson, 2004; Dubuc, 2012; Garssen & Nicolaas, 2008; Milewski, 2011; Pailhé, 2017), several scholars state the need for further studies on the fertility of immigrant descendants (Andersson et al., 2017; Kulu et al., 2017; Kulu & Hannemann, 2016; Scott & Stanfors, 2011), which are missing in countries that have only recently received sizeable migration flows. This is the case of Spain, a clear example of rapid population

growth due to immigration (Sobotka, 2008). Spain is a very interesting study case because it has recently become the EU country with the highest number of Latin American immigrants and the second-highest number of Maghrebi immigrants (Eurostat, 2011). Furthermore, Spain is the Organization for Economic Co-operation and Development (OECD) country with the second-highest average age at childbearing and with the third-lowest TFR (OECD 2018, 2019). Although some studies have analyzed the fertility behavior of first-generation immigrants in Spain (Castro Martín & Rosero-Bixby, 2011; del Rey & Grande, 2017; Roig Vila & Castro Martín, 2007), given the young age structure of immigrant descendants and the absence of adequate databases, little is known about the fertility of immigrant descendants in Spain (González Ferrer & Cebolla Boado, 2018; Liu et al., 2019). We aim to fill this gap in the literature investigating the childbearing behavior of Latin American and Maghrebi immigrant women and their descendants in Spain. To do so, we use a new database that links Spain's 2011 Census with the Natural Movement of the Population (MNP) records from 2011 to 2015. In the first study of Chapter 3, we focus on the effect that years of residency in Spain and being an immigrant descendant have on the fertility level of Latin American and Maghrebi women. We also look at the variations between different immigrant generations and native women regarding the effects of age, labor market participation and education level on fertility. In the second study of Chapter 3, we investigate the early childbearing (defined as the fertility between the ages of 18 and 25) of Latin American and Maghrebi immigrant women and their descendants. We look closely at the effect of the age of arrival to Spain, and we examine the differences between Latin American and Maghrebi immigrants. Finally, in the third study we investigate the completed fertility of Latin American immigrant women and their descendants. We analyze differences by immigrant generation and specific country of origin in Latin America, as well as we evaluate the

effect of the TFR of the country of origin in the year of birth on the completed fertility of Latin American women in Spain.

Endnotes

1 Group of 13 countries that joined the EU in 2004, 2007 and 2013.

2 Group of 15 countries that formed the EU between the 1995 enlargement and the 2004 enlargement: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden and the United Kingdom.

3 Group of 10 countries that joined the EU in 2004.

4 Group of three countries that joined the EU in 2007 and 2013.

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Chapter 2. The labor market incorporation of intra-EU migrants. Two studies on the over-qualification of EU-13 workers in EU-15 countries.

Chapter 2, Study 1.

New member state workers in Western European labour markets. Are they civically stratified?

Chapter 2, Study 2.

Patterns of over-qualification among highly educated mobile intra-EU workers, 2005-2016.

Chapter 2, Study 1. New member state workers in Western European labour markets. Are they civically stratified?

This study has been published in the journal European Societies:

García-Gómez, J., Stanek, M., & del Rey, A. (2021). New member state workers in Western European labour markets. Are they civically stratified? European Societies, 23(3), 360–378. https://doi.org/10.1080/14616696.2020.1817521

New Member State Workers in Western European Labour Markets. Are They Civically Stratified?

This study applies the theory of civic stratification to analyse how the integration of EU-10 and EU-3 immigrants into the labour markets of six European countries – France, Germany, Italy, Spain, Sweden and the United Kingdom – has evolved between 2005 and 2016. Special attention is paid to the effect of the moratoria on the free movement of workers, which lasted between 0 and 7 years. Data from the EU-LFS is used in two mixed effects logistic regression models for each country, using the following dependent variables: having employment and if that employment matches the qualifications of the worker. The interaction between nationality (own-country, EU-10, EU-3 and EU-15) and whether or not a moratoria exists is used to compare the level of labour integration of the EU-10 and EU-3 groups with that of national populations and EU-15 immigrants. Our results show that during the moratoria EU-10 and EU-3 immigrants have had a much lower labour market performance than people with full European citizenship. This gap has decreased drastically, without disappearing in many cases, after the moratoria ended.

Keywords: civic stratification; EU enlargements; transitional arrangements; new member state workers; labour market integration; over-qualification.

Introduction

The enlargements of the European Union (EU) in 2004, 2007 and 2013 have drastically changed internal migrations in the EU (King & Okólski, 2018). As a consequence of the enlargements, a large group of migrants from these new member states (EU-13) already residing in older member states (EU-15) have gone from being third country nationals (TCNs) to EU citizens (Morris, 2003). At the same time, the enlargements have activated the enormous migration potential of the populations of the new member states and the

flow of migrants coming from these countries has undergone an unprecedented increase. It has been calculated that between 2004 and 2011 the number of EU-13 immigrants residing in EU-15 countries has increased by 400%, reaching 4.8 million (Fassmann et al., 2014).

Although some analysists believe that these EU expansions have provided an opportunity for immigrants from the old Soviet Bloc countries to improve their socioeconomic situation (Garapich, 2008; Soysal, 2012), numerous studies carried out since 2004 have pointed out disparities in labour market attainment. Compared to native populations and EU-15 immigrants, EU-13 immigrants have greater difficulty in finding employment (Fries-Tersch et al., 2018). They are over-represented in sectors characterized by temporary work, low salaries and low-skills (Felbo-Kolding et al., 2018; Luthra et al., 2016; Verwiebe et al., 2014). Lower salaries persist even when controlling for factors such as age and education (Kahanec & Zimmermann, 2016b; Ritzen & Kahanec, 2017). Another indicator of this phenomenon is over-qualification among EU-13 immigrants, due to the fact that their qualifications are less valued than those of EU-15 immigrants and native populations (Landesmann et al., 2015; Visintin et al., 2015).

Various approaches have been used to describe the differences in labour situations of mobile EU citizens, although the human capital perspective and the theory of segmentation are most often employed (Felbo-Kolding et al., 2018; Johnston et al., 2015). Relatively little interest has been shown in the impact that civic stratification could have on how well the various categories of workers in the EU are integrated into its labour markets. Civic stratification refers to a hierarchy in which citizens are divided into classes with different access to certain labour and social rights. This perspective can be particularly useful to analyse labour mobility within the EU, given that its complex and dynamic architecture has generated clear differences in access to the rights associated

with European citizenship (Morris, 2009; Zanfrini, 2019). Various authors have pointed out that EU-13 immigrants in particular have had their rights and opportunities significantly curtailed – especially compared to EU-15 citizens (Gsir et al., 2016; Juverdeanu, 2019). One of the direct causes of this differentiation has been the moratoria (lasting up to 7 years) imposed by many of the old member states on the free movement of workers from countries that entered the EU in 2004, 2007 and 2013. These represented an 'artificial separation between "old" and "new" Europeans' (Traser, 2006): although EU-13 immigrants could travel freely within the territory of the EU, their access to labour markets was limited. For this reason, although citizens from new member states could exercise many of the rights linked to European citizenship since the enlargements of 2004, 2007 and 2013, it was not until the progressive fall of the moratoria that EU-13 immigrants gained access to European labour markets being entitled with the same rights as EU-15 nationals (Carmel & Paul, 2013).

Against this backdrop, this work aims to explore the degree to which the hierarchical class system generated by the moratoria on the free movement of workers after the EU expansions to the East has influenced employment among EU-13 immigrants. To do so, EU-13 immigrants are divided into two groups, EU-10 and EU-3, because they come from countries that entered the EU in different years (2004 and 2007, respectively) and were subject to moratoria in the EU-15 countries with different timetables. Our analysis focuses on comparing the labour market performance of these two groups during and after the moratoria in terms of access to employment and that the employment matched the worker's qualifications. We have chosen these two indicators because previous studies show that for these groups finding a job does not necessarily mean that they have fully integrated into the labour market, because they are often forced

to accept employment that is below their qualifications to a greater degree than native populations (Landesmann et al., 2015; Visintin et al., 2015).

In our research we use the European Union Labour Force Survey (hereafter EU-LFS) to carry out a comparative analysis of the evolution of these two aspects of labour integration among EU-10 and EU-3 immigrants in six old member states – France, Germany, Italy, Spain, Sweden and the United Kingdom – between 2005 and 2016. These countries were chosen because, first of all, the type (work permit, quota and registration scheme) and duration of the moratoria (from the maximum permitted to their total absence) they imposed were very different. Second, they represent different European migration experiences, with traditional receiving countries like Germany or the United Kingdom and countries that have become migration destinations more recently, such as Spain and Italy (Ballarino & Panichella, 2015; Reyneri & Fullin, 2011). Third, they represent different types of labour markets and welfare states (Kogan, 2006)

Theoretical framework and hypotheses

There are various theoretical frameworks used to explain the processes involved in how immigrants integrate into labour markets. One of the predominant approaches is the neo-classical perspective in which differences in labour market integration between immigrant groups, and with the native population, are caused by different levels of human capital (Todaro, 1976). According to this perspective, immigrants are penalized due to a lack of human capital specific to the receiving country, such as speaking the language or understanding how the labour market works, a situation mostly due to the imperfect transferability of human capital (Borjas, 1994; Chiswick & Miller, 2009). Therefore, immigrants from less-developed countries or countries that have less in common with the receiving country will find it more difficult to integrate into its labour market (Chiswick & Miller, 2009; Pichler, 2011).

Another predominant approach is based on the theory of labour market segmentation, whose main premise is that obtaining a position in the labour market not only depends on individual resources but also on a set of social processes. More specifically, this theory proposes that there are two segments within labour markets, with barely any mobility between them (Piore, 1979). Occupations in the primary sector are characterized by high salaries, opportunities for promotion and stability; those in the secondary sector have low salaries, a lack of opportunities for promotion and instability (Piore, 1979). Among the factors that determine which segment each worker can access are those related to belonging to certain vulnerable groups (Dickens & Lang, 1985). In this sense, depending on their administrative status, certain categories of workers are more exposed to unemployment or to working in jobs below their qualifications (Felbo-Kolding et al., 2018; Johnston et al., 2015).

The idea that the performance of certain categories of workers in the labour market is at least partially conditioned by processes not related to the forces of supply and demand has led some researchers to analyse the impact of legal status, more precisely, citizenship, in the incorporation of immigrants into the labour market (Bauder, 2008; Liebig & Von Haaren, 2011). The civic stratification theory proposes the existence of a hierarchical system based on different legal statuses, which limits access to opportunities to some depending on the rights the state attributes to each status (Lockwood, 1996; Morris, 2003, 2009). Civic stratification within the EU is especially complex given the heterogeneous, multilevel and dynamic architecture of rights and entitlements (Kofman, 2002; Lendaro, 2015). The first major division is established between the legal status of European citizens and TCNs (Morris, 2003); in addition, the moratoria imposed on EU-13 immigrants, created a 'new layer of disadvantaged migrants' (Currie, 2009). Thus, although the civic stratification theory originally focused on immigrant groups in a problematic administrative situation, such as undocumented migrants, and TCNs, it has also been applied to analyse the effect the moratoria have had on EU-13 immigrants in EU-15 countries (Snel et al., 2015).

Due to the enlargements of the EU in 2004, 2007 and 2014, EU-10 and EU-3 immigrants went from being TCNs to European citizens. As such, in virtue of Article 39 EC (Regulation 1612/68/EEC), they were guaranteed access to employment under equal conditions as other EU citizens and could not be discriminated against due to their nationality in the EU. Nevertheless, these immigrant groups did not acquire full European citizenship automatically, the imposition of moratoria in the majority of countries made this a gradual process (Currie, 2007; Lang, 2007; Shimmel, 2006) that relegated these groups to an intermediate stratum between full European citizens and TCNs (Carrera, 2005; Currie, 2007; Lang, 2007). The moratoria were put in place by EU-15 countries to

control the entrance of EU-13 immigrants into their labour markets and benefits systems (Kapural, 2005; Kureková, 2013; Lang, 2007; Shimmel, 2006). The accession treaties for each of the enlargements specified that the countries already in the EU could temporarily suspend the exercise of the rights conferred to EU-13 immigrants by Article 39 EC (Currie, 2007). Initially, the moratoria had a duration of two years, which could be extended for extra periods of three and two years (for further discussion on how the moratoria worked, see Adinolfi 2005). In this way, as shown in Table 1, different countries imposed moratoria of different lengths.

Table 1. Finalization dates of moratoria, by enlargement and receiving country.

	Finalization dates of the moratoria		
EU-15 Countries	2004 EU enlargement	2007 EU enlargement	2013 EU enlargement
Germany	2011, May	2014, January	2015, July
Spain	2006, May	2009, January	2015, July
France	2008, July	2014, January	2015, July
Italy	2006, July	2012, January	2015, July
United Kingdom	No moratoria	2014, January	2018, July
Sweden	No moratoria	No moratoria	No moratoria

The characteristics of these moratoria were also different in each EU-15 country. After the 2004 enlargement, France, Germany and Spain were highly restrictive and made it a requirement for these new citizens to obtain a work permit to access their labour markets. In addition to a work permit, Italy imposed a quota system. During that same enlargement, the United Kingdom granted open access to its labour market from the start, with the requirement of registering in the Worker's Registration Scheme. Sweden was the only country that allowed access under equal conditions to their labour market and social benefits, without implementing moratoria. In the following enlargements similar

moratoria were put in place; in these enlargements, the United Kingdom did establish a quota system and require a work permit (Kraleva, 2013; Traser, 2006; Wright, 2010).

Configured in this way, the moratoria represented the following de facto barriers for EU-13 labour migrants in EU-15 countries. Mainly, the restrictive work permit systems made it difficult for many EU-13 immigrants to find paid employment. The EU-15 countries that implemented these moratoria acknowledged that, due to these restrictions, there was 'an exceptionally high influx of posted workers or workers claiming to be self-employed' (European Commission, 2006). Meanwhile, the 'social partners' consulted by the Commission of the European Communities (European Commission, 2006) stated that they generated a 'proliferation of undocumented work, bogus "self-employed" work, and fictitious service provision and sub-contracting'. Each period of posting is limited to 2 years and during that time it was not permitted to change employers (Gajewska, 2006), so that upward job mobility was highly compromised for EU-13 immigrants who joined the EU-15 labour markets as posted workers. Along this line, Snel et al. (2015) claim that Romanian and Bulgarian workers who immigrated to the Netherlands without a work permit achieved lower occupational levels and lower incomes than those who did have a work permit. In addition, during the moratoria the 'community preference principle' facilitated access to certain jobs to EU-13 immigrants, sometimes low-skilled positions (Currie, 2009), by giving them preference over TCNs (Adinolfi, 2005; Currie, 2009; Kraleva, 2013; Traser, 2006). However, at the same time, it meant that EU-15 workers had 'top priority for any employment in the Union, followed by nationals from new Member States that are subject to a transitional regime' (Lang, 2007). Finally, the complex system of citizen status that resulted from imposing the different kinds of moratoria (Farkas & Rymkevitch, 2004; Kvist, 2004; Wright, 2010),

created a situation of confusion and uncertainty in which EU-13 immigrants found it difficult to exercise their rights (Shimmel, 2006).

Building on the civic stratification approach and previous empirical findings, our main argument in this study is that the differentiation of rights through moratoria is one of the determinants of persistent differences in patterns of labour market integration between EU-13 and EU-15 immigrants and natives. More specifically, according to our first hypothesis, as the moratoria finalize the labour market performance of EU-10 and EU-3 immigrants in the EU-15 countries, measured in terms of access to employment and that the employment matches the qualifications of workers, will improve notably. Our second hypothesis proposes that due to this improvement, the labour market performance of EU-10 and EU-3 immigrants in EU-15 countries will be similar to that of natives and EU-15 immigrants.

Data, variables and methods

Our research is based on annual data provided by the EU-LFS, which has often been used to analyse the labour market performance of the immigrant population (Ballarino & Panichella, 2015; Landesmann et al., 2015). The years studied spanned from 2005 to 2016, with one observation per year. It has been possible to differentiate immigrants originating from EU-15, EU-10 and EU-3[1] countries. Data from the 12 years studied have been aggregated into a single dataset for each receiving country. Within each dataset, to analyse the effect of the end of the moratoria, the EU-10 and EU-3 groups have been subdivided into two categories depending on whether or not moratoria existed in each year (EU-3-Mor and EU-3-NoMor; EU-10-Mor and EU-10-NoMor)[2]. The analysis was restricted to people from 20 to 64 years old. Table 1 of the appendix contains a detailed description of the sample.

To measure labour market attainments, two mixed effects logistic regression (MELR) models for each receiving country were estimated (Agresti, 2013; Vermunt, 2005), each of them has grouped the data for the 12 years studied. This type of model is appropriate when there are both mixed and fixed effects and when data are clustered. The explicative variable is nationality, which differentiates between own-country nationals and 5 immigrant groups: EU-15, EU-3-Mor, EU-3-NoMor, EU-10-Mor and EU-10-NoMor. In the first model, the dependent variable distinguishes between employed and unemployed people. In the second model, the dependent variable differentiates between people employed in an occupation that matches their level of education and those that are in an occupation that requires lower qualifications.

There are various approaches to measure over-qualification (Muñoz de Bustillo et al., 2018). In this work we have opted to use the 'objective' method proposed by Verdugo and Verdugo (1989), which has been implemented in much research (Aleksynska &

Tritah, 2013; Nielsen, 2011). The method consists in first grouping workers in the two-digit ISCO-08 (International Standard Classification of Occupations) occupations (ILO, 2012). Next, the average years of schooling are calculated for workers in each occupation; those whose education is one standard deviation or more above the average education level of their occupation are considered over-qualified.

Because the data are grouped by year, to control the effect caused by changes in the economic situation and in the labour market of each country, both Growth of Gross Domestic Product (GDPG) and Unemployment Rate (UR) for each year have been introduced as control variables (these data were consulted from the Eurostat web site). Both models also include the following individual level control variables: sex; five age categories; education, with a dichotomous variable that divides the sample in a group with 15 or less years of schooling and another with more than 15[3], in practical terms the distinction is established according to whether or not they have completed an intermediate level of tertiary education; and the time residing in the host country, distinguishing between native born and four other categories reflecting the number of years of residency.

Due to the length of the tables, the results section presents a summary of them. First of all, descriptive data for each country is presented, with the complete data found in Table 1 of the appendix. Next, the results of the MELR models are presented with the help of a graph for each model and country. These show the coefficients on the logit scale for each immigrant group in comparison with own-country nationals accompanied by their 95% Confidence Intervals (CI). Tables 2 and 3 of the appendix include the complete results of each model for every country in form of Odds Ratio (exponentiated logits)[4].

Results

Table 2 shows the percentage of employment and that of employment matching the worker's qualifications, for each of the six groups, depending on their nationality, in the six countries that form part of the sample. Looking at own-country nationals we can observe large differences between the labour markets of these countries in both of the labour performance indicators. These differences are in accordance with what is presented in the literature (Davia et al., 2017; Flisi et al., 2014; Seamus et al., 2018): Sweden and Germany have the highest percentages in both indicators, the United Kingdom and France are close behind and Italy and Spain have the highest levels of unemployment and over-qualification, respectively.

The labour market performance of EU-15 immigrants tends to be similar to that of own-country nationals (Fleischmann & Dronkers, 2007), especially in Germany and France and, in terms of employment, also in Spain and the United Kingdom. However, in Italy, Spain, Sweden and the United Kingdom they are more likely to be over-qualified. In the four countries that imposed moratoria on the EU-10 collective, these immigrants performed worse than own-country nationals and EU-15 immigrants. Once the moratoria were lifted that gap diminished in all four countries, without disappearing entirely. The EU-3 group had worse labour market performance than own-country nationals and EU-15 immigrants in four of the five countries that imposed moratoria on them; the exception was the United Kingdom, where their performance was comparable to that of EU-15 immigrants. After the moratoria, the percentage of employment in Germany and the United Kingdom increased and over-qualification decreased in Italy and Spain. Meanwhile employment decreased in Spain and France. Table 1 of the appendix shows some serious differences in the composition of these groups in issues related to labour market performance which could be responsible for these results. For example, own-

country nationals and EU-15 immigrants have, in general, a more advanced age structure; EU-15 immigrants usually have a higher level of education and spend more time residing in the receiving countries than EU-10 and EU-3 immigrants.

Table 2. Percentage of employment and of employment in an occupation matching the worker's qualifications by country and nationality.

Country and labor market situation		Nationality					
		Own-country	EU-15	EU-10-Mor	EU-10-NoMor	EU-3-Mor	EU-3-NoMor
Germany	Employed	77.3	75.6	60.5	75.7	70	76.5
	Matched	88.7	88	82.3	80.8	87.7	89.9
France	Employed	69	68.1	54	68.3	60.1	58.1
	Matched	89.8	90.6	65.5	73.8	75.1	75.2
Italy	Employed	59.4	64.3	63.2	67	65	65.5
	Matched	85.9	71.8	64.5	81.4	63.8	77.4
Spain	Employed	63	61.7	63.9	62.3	73.3	58.6
	Matched	82	73.5	39	57.3	47.2	70.5
Sweden	Employed	81.5	77.2	-	75.9	-	76.6
	Matched	88.9	79.6	-	77.2	-	85.1
U. King.	Employed	75.4	74.5	-	82.3	73.7	79.2
	Matched	83.8	78.8	-	86.4	81.4	80.3

Graph 1 shows the results of the MELR model of employment. In France, there is a significant difference in access to employment compared to own-country nationals, both for EU-10-Mor and EU-3-Mor (Algan et al., 2010). When the moratoria ended both groups notably improved in this indicator, however, significant differences with own-country nationals persist. The situation is similar in Germany, both EU-10 and EU-3 immigrants had significantly lower participation in the labour market during the moratoria. When they ended, their access to employment improved significantly and the differences compared to own-country nationals and EU-15 immigrants disappeared.

During the moratoria in Italy, EU-10 and EU-3 immigrants had a significantly smaller presence in the labour market, a situation that improved slightly when they ended. In Spain, all immigrant groups have been employed to the same degree as own-country nationals, during and after the moratoria. Sweden is a special case because they had no moratoria, even so, EU-10 and EU-3 immigrants have shown significant differences in access to employment compared to own-country nationals, although it is also true that these difficulties extend to EU-15 immigrants. In the United Kingdom all European citizens were occupied to a similar degree, with EU-10 immigrants standing out positively, a group that never had to deal with restrictive moratoria.

Graph 2 shows the results of the MELR model on employment in an occupation that matches the worker's qualifications. In this case the differences between groups tends to be higher, so the scales of the graphs are different. During the moratoria the results are homogenous in the sample: all the EU-3-Mor and EU-10-Mor groups have significantly lower access to employment matching their qualifications. As various studies have shown, the penalization is greater in Italy and Spain (Bernardi et al., 2011; de la Rica, 2010; Reyneri & Fullin, 2011; Sanromá et al., 2015), but the greatest improvements are seen in these countries when the moratoria ended, with EU-10 and EU-3 immigrants approaching similar levels as EU-15 immigrants, although the differences with own-country nationals remain significant in the majority of cases. In France, Germany and the United Kingdom the changes observed are less relevant. In Sweden the EU-10-NoMor group has performed worse and the EU-3-NoMor better than own-country nationals, although these differences are significant, they are small in comparison to those observed in other countries.

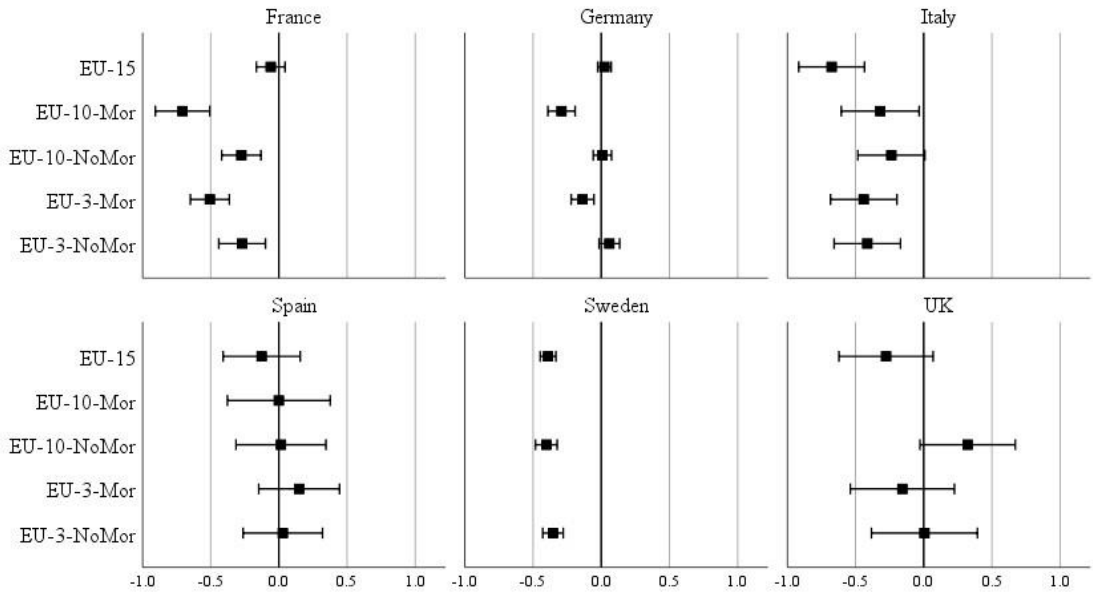

Figure 1. Results of the MELR model on access to employment. Coefficients on the logit scale.

Considering the two labour integration indicators together provides a more precise evaluation of the current state of integration of the EU-10 and EU-3 groups. During the moratoria the labour market performance of these immigrant groups was inferior to that of the national populations and of EU-15 immigrants in every country analysed (Luthra et al., 2016; Verwiebe et al., 2014; Visintin et al., 2015). Once the moratoria ended there was a relevant improvement, in different ways, for both of these groups in every country except the United Kingdom. In France and Germany the differences diminished compared to own-country nationals, mainly due to increased access to employment among EU-10 and EU-3 immigrants. In Italy and Spain this convergence occurred thanks to significant increases in the ability of these groups to be occupied in jobs that matched their skills and qualifications. In the United Kingdom EU-10 immigrants enjoy a high level of integration in the labour market, with greater facility to have employment, but with greater difficulties in avoiding situations of over-qualification. These differences are not significant compared to own-country nationals. EU-3 immigrants do not have trouble maintaining employment, but they do have difficulties finding jobs that match their skills

and qualifications (Currie, 2009; Johnston et al., 2015). Finally, although EU-10 and EU-3 immigrants have had a very similar labour market performance in Sweden as EU-15 immigrants, they have greater levels of unemployment than own-country nationals.

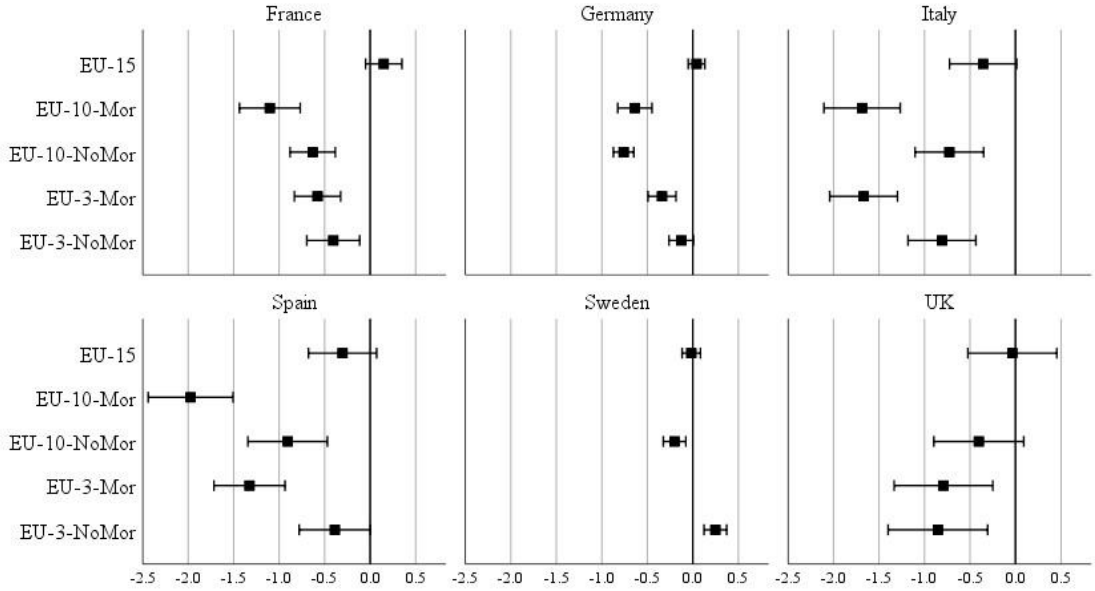

Figure 2. Results of the MELR model on access to employment matching the worker's skills and qualifications. Coefficients on the logit scale.

Discussion and conclusions

The EU enlargements in 2004, 2007 and 2013 led to the emergence of a new migration framework in the European community. Interior migrations surpassed exterior migrations, with the main flow of immigrants coming from new member states to old member states (King & Okólski, 2018). In this scenario, integrating EU-13 immigrants into labour markets is a crucial aspect of the economic and social impact of this intra-EU migration. The civic stratification theory can provide an explanation of this situation. According to this theory, the rights acquired by EU-13 immigrants who have transitioned from TCN citizenship status to that of European citizens means that they should no longer be penalized in the labour markets of old member states. However, the connection between the disappearance of legal and institutional barriers and full integration should not be taken for granted and is still being debated (Favell, 2018).

This study has analysed the level of integration of EU-10 and EU-3 immigrants into six of the main European labour markets during the years they transitioned to full European citizenship. Two labour market integration indicators were employed, with special attention paid to how well this group matches skills with jobs, due to the implications this has in the macroeconomic effects of intra-European migrations (Kahanec & Zimmermann, 2008). The results obtained verify the first hypothesis in four of the five countries that imposed moratoria. As proposed by the civic stratification theory, during the moratoria years the labour market performance of EU-10 and EU-3 immigrants was worse than that of own-country nationals and of EU-15 immigrants. When the moratoria ended and these groups received full European citizenship, they improved their labour market performance through increased access to employment – France and Germany – and through increased access to employment that matched their skills and qualifications – Italy and Spain. These processes dynamically reflect the trade-off

between employment rates and quality of employment that several studies have observed among the immigrant population in the EU (Khattab & Fox, 2016; Kogan, 2006; Reyneri & Fullin, 2011). Moreover, the countries in the sample with similar types of welfare states and labour markets reproduce the same pattern of change (Ballarino & Panichella, 2015; Fleischmann & Dronkers, 2007; Kogan, 2006; Pichler, 2011). The exception are EU-3 immigrants in the United Kingdom, whose labour market performance did not improve relevantly when the moratoria ended.

However, the results do not support the second hypothesis: the gap between own-country nationals and EU-15 immigrants decreased notably, in the majority of cases significantly, but tend to persist even in the absence of moratoria. EU-3 immigrants in Germany and Spain do not show significant differences in any indicator compared to own-country nationals. These are, however, exceptions. In the other countries, EU-3 and EU-10 immigrants do not match the national population and are particularly penalized in terms of a greater frequency of over-qualification. Upon comparing these groups with EU-15 immigrants, the conclusion is similar, although convergence in labour market performance has been common after the moratoria, access to employment that matched worker qualifications continues to be superior for EU-15 immigrants. Finally, when the EU-10 and EU-3 immigrants did not have to face moratoria (in Sweden and, in the case of the EU-10 immigrants, in the United Kingdom) they had similar labour market performance as EU-15 immigrants – in Sweden – and to own-country nationals – in the United Kingdom –.

These conclusions contribute to the existing literature showing the complementarity of the civic stratification theory with the human capital perspective and the theory of segmentation (Felbo-Kolding et al., 2018; Johnston et al., 2015) in comparative studies on integration of immigrant groups in labour markets. As shown by

various studies, after their inclusion in the EU immigrants from EU-10 and EU-3 countries have performed worse in the labour markets than EU-15 citizens. Our results support this finding, indicating that their limited European citizenship is one of the factors that explains this gap. This restricted European citizenship can make it more difficult to access the primary segments of European labour markets and for workers to invest in human capital in the receiving country. It has been shown that the moratoria are an obstacle to full European integration; when the EU-10 and EU-3 immigrants were granted full European citizenship their performance in the labour market improved, and where there were no moratoria they had access to work and occupations that match their qualifications at similar levels as EU-15 immigrants.

Although the results of this study are clarifying, they should be considered in light of certain limitations. First, despite using two indicators related to labour integration, there are others, such as income level indicators, which have not been evaluated and, according to Tubergen (2004), it is impossible to assume that different indicators will report the same results. Second, the EU-LFS does not specifically target migrants and, in particular, has difficulties in covering recently arrived migrants and those engaged in circular migration (Eurostat, 2011; Fajth et al., 2017). This limitation should be considered in the interpretation of findings because these categories of immigrants can have specific behaviours in EU-15 labour markets. For example, workers who embark on a temporary migration project could choose to accept jobs that are below their qualifications, instead of investing in human capital in the receiving country, because they expect to return soon to their country of origin (Luthra et al., 2016). Third, the conclusions reached in this work suggest the need for a disaggregated study of the EU-10 and EU-3 groups, dividing these categories in order to carry out a more detailed analysis of the transition to full European citizenship and capturing the particularities of each immigrant

group. In addition, studies of specific receiving countries could help to better understand the recent evolution and current situation of the EU-10 and EU-3 groups. Cases such as France, where EU-10 and EU-3 immigrants still have significantly less probability of being employed and of being employed in a job that matches their qualifications compared to the national population, or Italy and Spain, which have seen notable improvements in skills matching for EU-10 and EU-3 immigrants, require deeper examination.

Endnotes

1 For reasons related to confidentiality, the EU-LFS only provides one category for individuals from a country that entered the EU in 2007 or 2013. Although Croatian immigrants are included in the EU-3 group, this study leaves them out due to their small volume. Croatia's average emigration between 2004 and 2016 is just 14,199 (Croatian Bureau of Statistics, 2019).

2 The results presented ignore the use of the safeguard clause by Spain because it did not affect Romanian citizens already employed or registered as jobseekers in Spain (for further discussion, see Kraleva 2013). The results of the models that consider this reintroduction are very similar and they reach the same conclusions.

3 The International Standard Classification of Education (ISCED) was used to estimate the years of education completed by each person (OECD, 1999; UIS, 2012). It was not possible to introduce a more disaggregated measure for education because the EU-LFS contains ISCED 1997 until 2014 and ISCED 2011 thereafter, making it necessary to harmonize them. In addition, the sample size is small for some countries and years.

4 The logit scale is convenient for the graphs because it is linearized. The tables present the odds ratio because its interpretation is more intuitive.

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Appendix

Table 1. Descriptive statistics of variables (%). Germany.

Nationality	Own country	EU-15	EU-10-Mor	EU-10-NoMor	EU-3-Mor	EU-3-NoMor
Year						
2005	15	12.8	55.8			
2006	1.6	1.4	5.4			
2007	1.5	1.4	5.9		3.5	
2008	1.5	1.4	8		3.5	
2009	1.6	1.5	7.4		3.8	
2010	1.5	1.5	8.6		2.8	
2011	1.5	1.5	8.9		3.2	
2012	15.1	15.2		16.2	40.1	
2013	14.9	15.1		16.7	43.1	
2014	14.9	15.4		19.4		27
2015	14.9	15.8		21.7		32.5
2016	16.1	17		26		40.5
Employment status						
Employed	77.3	75.6	60.5	75.7	70	76.5
Not emplo.	22.7	24.4	39.5	24.3	30	23.5
Matched						
Matched	88.7	88	82.3	80.8	87.7	89.9
Overeduca.	11.3	12	17.7	19.2	12.3	10.1
Sex						
Men	49.8	53.8	33.4	41.8	43.4	47.9
Women	50.2	46.2	66.6	58.2	56.6	52.1
Age						
20-24	9.3	7.5	9.6	8.2	7.6	8.9
25-34	18.7	20.1	35.6	30.7	30.6	31.8
35-44	21.0	24.5	25.6	30.9	27.3	30.4
45-54	27.7	25.8	18.7	18	14.3	16.8
55-64	23.4	22.1	10.4	12.1	20.1	12
> 15 years education						
Yes	20.4	21.3	15.9	23.2	13.2	17.3
Years since arrival						
Native-born	91.2	3.2	2.2	0	0.7	0
0-2	0.03	21.1	15.5	6	17.3	14.6
3 to 5	0.1	10.8	16.1	28.6	17.2	32.1
6 to 10	0.4	9	21.1	23.5	14.2	19.3
11 +	8.3	55.9	45.2	41.9	50.5	34
N	1738120	41237	2503	15367	4346	7719

Table 1. Descriptive statistics of variables (%). Italy.

Nationality	Own country	EU-15	EU-10-Mor	EU-10-NoMor	EU-3-Mor	EU-3-NoMor
Year						
2005	10	7	40.9			
2006	9.5	6.8	59.1			
2007	9.2	8.2		6.5	10.1	
2008	9.0	8.9		8.4	15.7	
2009	8.7	8.6		8.6	18.8	
2010	8.6	10		11.2	24.7	
2011	8.3	10.4		13.2	30.8	
2012	7.6	9.5		11.8		21.4
2013	7.4	3.1		5.3		13.4
2014	7.4	9.6		11.8		21.1
2015	7.3	8.8		12.2		21.7
2016	7	9		11.2		22.4
Employment status						
Employed	59.4	64.3	63.2	67	65	65.5
Not emplo.	40.6	35.7	36.8	33	35	34.5
Matched						
Matched	85.9	71.8	64.5	81.4	63.8	77.4
Overeduca.	14.1	28.2	35.5	18.6	36.2	22.6
Sex						
Men	48.8	34.4	19.7	26.2	43.6	39.8
Women	51.2	65.6	80.3	73.8	56.4	60.2
Age						
20-24	8.3	2.5	7	4.8	10.1	7.5
25-34	17.1	15.7	49.6	32.6	37.2	30
35-44	24.3	31.4	24.8	32.4	33.2	32.7
45-54	25.7	31.4	14	19.9	15.5	21.8
55-64	24.6	18.9	4.5	10.4	4	8
> 15 years education						
Yes	13.4	40.2	10.9	12.9	6.8	7.4
Years since arrival						
Native-born	97.1	2.2	0.1	0.3	0.3	0.05
0-2	0.02	3.1	9.1	2.7	5.4	1.8
3 to 5	0.1	12.5	34.8	15.3	29.5	12.7
6 to 10	0.2	21.9	31.7	38.0	46.2	45.9
11 +	2.6	60.3	24.2	43.7	18.6	39.6
N	4077016	10535	798	9371	25224	36888

Table 1. Descriptive statistics of variables (%). France.

Nationality	Own country	EU-15	EU-10-Mor	EU-10-NoMor	EU-3-Mor	EU-3-NoMor
Year						
2005	6.5	6.7	26			
2006	6.5	6.7	22.2			
2007	6.7	7.1	26.6		7.3	
2008	6.6	7.0	25.2		10.2	
2009	7.9	8.4		10.5	11	
2010	9.4	10		14.7	16.2	
2011	9.7	10.3		14.7	19.2	
2012	9.6	10		13.8	22.7	
2013	8.8	8.5		11	13.3	
2014	9.5	8.5		10.4		28.4
2015	9.4	8.3		10.8		34.2
2016	9.4	8.6		14		37.4
Employment status						
Employed	69	68.1	54	68.3	60.1	58.1
Not employ.	31	31.9	46	31.7	39.9	41.9
Matched						
Matched	89.8	90.6	65.5	73.8	75.1	75.2
Overeduca.	10.2	9.4	34.5	26.2	24.9	24.7
Sex						
Men	48.3	51.1	31.3	37.7	44	43.5
Women	51.7	48.9	68.7	62.3	56	56.5
Age						
20-24	10.2	4.2	12.8	4.5	10.7	7.8
25-34	18.5	13.1	41.1	39.8	42	42.4
35-44	22.7	24.4	21.9	33.7	27.9	33.2
45-54	24.9	30	14.3	12.2	14.5	11
55-64	23.8	28.2	10	9.8	5	5.6
> 15 years education						
Yes	16.6	17.2	31.1	31.5	25.4	29.4
Years since arrival						
Native-born	93	0.7	0	0	0	0
0-2	0.01	5.1	8.4	3.0	5.6	3.1
3 to 5	0.1	9.1	22.9	16.2	28.6	22.1
6 to 10	0.3	12.8	21.6	29.9	33.4	37.4
11 +	6.7	72.3	47.1	50.9	32.4	37.4
N	2838344	59000	643	2191	2121	1135

Table 1. Descriptive statistics of variables (%). Spain.

Nationality	Own country	EU-15	EU-10-Mor	EU-10-NoMor	EU-3-Mor	EU-3-NoMor
Year						
2005	34.0	28.1	82.9			
2006	5.8	5.4	17.1			
2007	6	5.7		6.6	43.8	
2008	6	6.6		8.9	56.2	
2009	6.2	5.9		9.6		12.2
2010	6.2	6.9		9.8		12.8
2011	6	7.1		11.3		12.6
2012	6.2	7		9		12.7
2013	6	6.8		11.3		12.4
2014	6	7		11.5		12.2
2015	6	6.6		8.3		12.8
2016	5.6	6.9		13.6		12.2
Employment status						
Employed	63	61.7	63.9	62.3	73.3	58.6
Not emplo.	37	38.3	36.1	37.7	26.7	41.4
Matched						
Matched	82	73.5	39	57.3	47.2	70.5
Overeduca.	18	26.5	61	42.7	52.8	29.5
Sex						
Men	49.1	49.3	46.8	39.8	49.4	46.1
Women	50.9	50.7	53.2	60.2	50.6	53.9
Age						
20-24	9.7	4.8	12.6	7	15	9.9
25-34	19.4	18.9	57.4	36.6	40.9	33.6
35-44	24.6	29.4	16.5	36	29.4	34.7
45-54	25	26.2	12.3	14.1	12.5	16.7
55-64	21.3	20.6	1.3	6.3	2.1	5.1
> 15 years education						
Yes	20.3	34.3	14.2	22.1	8.5	8.6
Years since arrival						
Native-born	98	0.8	0.6	0	0.2	0
0-2	0.01	6.2	10	1.4	9.9	1.2
3 to 5	0.03	13.7	33.2	11.8	39	9.2
6 to 10	0.2	22.1	36.8	31.4	47.5	45.9
11 +	1.8	57.1	19.4	55.4	3.3	43.8
N	1031620	7313	310	653	1325	5963

Table 1. Descriptive statistics of variables (%). Sweden.

Nationality	Own country	EU-15	EU-10-NoMor	EU-3-NoMor
Year				
2005	5.7	6.7	3.5	
2006	8.2	9.2	4.6	
2007	8.2	8.8	4.7	10.1
2008	8.0	8.5	5.8	9.4
2009	7.7	8.4	6.5	10
2010	10.2	10.6	9.1	13.0
2011	9.7	9.3	10.2	12.1
2012	9.4	8.6	11.4	10.6
2013	9.1	8.5	13.1	10
2014	8.3	7.9	11.5	8.8
2015	7.8	6.8	9.5	7.8
2016	7.6	6.8	10	8.2
Employment status				
Employed	81.5	77.2	75.9	76.6
Not emplo.	18.5	22.8	24.1	23.4
Matched				
Matched	88.9	79.6	77.2	85.1
Overeduca.	11.1	20.4	22.8	14.9
Sex				
Men	49.7	50.6	40.7	46.9
Women	50.3	49.4	59.3	53.1
Age				
20-24	10	4.5	6.8	6.2
25-34	19.8	18.5	36.4	16.8
35-44	22.9	26.2	28.9	23.6
45-54	23	24	17.5	27.3
55-64	24.3	26.7	10.5	26.2
> 15 years education				
Yes	22.8	33.3	32.1	27.6
Years since arrival				
Native-born	89.4	3.7	0.2	1.3
0-2	0.03	13.5	5	15.5
3 to 5	0.2	13.2	34.6	10.4
6 to 10	1.3	15.5	36.7	15.3
11 +	9	54.1	23.4	57.4
N	2097442	38762	10601	7801

Table 1. Descriptive statistics of variables (%). United Kingdom.

Nationality	Own country	EU-15	EU-10-NoMor	EU-3-Mor	EU-3-NoMor
Year					
2005	10	8.7	2.3		
2006	9.8	8.1	4.3		
2007	9.6	9	7.4	5.7	
2008	15.9	14.6	13.5	17	
2009	7.8	6.7	6.7	10.1	
2010	7.5	6.7	7.7	15.2	
2011	7.1	7.2	8.7	15.2	
2012	6.7	7.3	8.1	17.9	
2013	6.6	6.9	9	18.9	
2014	6.7	8	10.3		24.5
2015	6.3	8.1	10.6		31.4
2016	6.2	8.8	11.4		44.1
Employment status					
Employed	75.4	74.5	82.3	73.7	79.2
Not emplo.	24.6	25.5	17.7	26.3	20.8
Matched					
Matched	83.8	78.8	86.4	81.4	80.3
Overeduca.	16.2	21.2	13.6	18.6	19.7
Sex					
Men	48.1	44.4	46.2	49.7	48.8
Women	51.9	55.6	53.8	50.3	51.2
Age					
20-24	9.1	7.7	14.7	17.4	9.8
25-34	19.1	26.7	51.8	47.9	51.2
35-44	24.6	28.9	21	22.5	27.7
45-54	24.9	20.2	9.0	9.4	8.4
55-64	22.3	16.6	3.5	2.8	2.9
> 15 years education					
Yes	22	26.6	8.2	10.5	9.4
Years since arrival					
Native-born	93.7	0.2	0.1	0	0
0-2	0.03	9.8	15	13.4	15.3
3 to 5	0.1	18.0	34.2	46.4	38.2
6 to 10	0.6	18.6	35.6	30.2	37.5
11 +	5.5	53.5	15.1	10	9
N	637110	13226	11750	858	819

Table 2. Results of the MELR model on access to employment. France.

	Odds Ratio	P > |z|	95% Conf. Interval	
Nationality (Own country Ref)				
EU-15	0.942	0.266	0.848	1.046
EU-10-TA	0.493	0	0.404	0.602
EU-10-NoTA	0.759	0	0.657	0.876
EU-3-TA	0.602	0	0.522	0.695
EU-3-NoTA	0.763	0.002	0.643	0.906
Gender (Men Ref)				
Women	0.632	0	0.628	0.637
Age (20-24 Ref)				
25-34	3.854	0	3.801	3.908
35-44	5.652	0	5.574	5.73
45-54	5.302	0	5.232	5.374
55-64	0.843	0	0.8333	0.8544
Years of education (< 16 Ref)				
> 15	1.91	0	1.888	1.932
Years in host country (Own country Ref)				
0-2	0.427	0	0.375	0.486
3 to 5	0.609	0	0.541	0.685
6 to 10	0.791	0	0.704	0.888
> 10	1.113	0.049	1	1.24
UR	1.016	0.182	0.992	1.042
GDPG	0.996	0.4	0.987	1.005
Cons	0.897	0.373	0.706	1.139
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.032	0.006	0.021	0.049
Log Likelihood	-799494.8			
Wald Chi-Square (17)	213674.46			
Prob > Chi-Square	0			

Table 2. Results of the MELR model on access to employment. Geramany.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	1.023	0.362	0.973	1.075
EU-10-TA	0.746	0	0.675	0.825
EU-10-NoTA	1.008	0.814	0.942	1.078
EU-3-TA	0.871	0.001	0.801	0.947
EU-3-NoTA	1.06	0.126	0.983	1.144
Gender (Men Ref)				
Women	0.602	0	0.597	0.606
Age (20-24 Ref)				
25-34	2.197	0	2.168	2.227
35-44	3.283	0	3.238	3.329
45-54	2.963	0	2.925	3.001
55-64	0.842	0	0.832	0.852
Years of education (< 16 Ref)				
> 15	2.364	0	2.338	2.391
Years in host country (Own country Ref)				
0-2	0.518	0	0.48	0.558
3 to 5	0.681	0	0.634	0.731
6 to 10	0.621	0	0.576	0.668
> 10	0.85	0	0.803	0.899
UR	0.928	0	0.923	0.933
GDPG	1.001	0.619	0.995	1.006
Cons	3.479	0	3.329	3.637
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.017	0.004	0.01	0.028
Log Likelihood	-889719.8			
Wald Chi-Square (17)	138375.83			
Prob > Chi-Square	0			

Table 2. Results of the MELR model on access to employment. Italy.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.509	0	0.4	0.648
EU-10-TA	0.727	0.029	0.546	0.967
EU-10-NoTA	0.788	0.059	0.616	1.008
EU-3-TA	0.644	0	0.504	0.821
EU-3-NoTA	0.661	0.001	0.518	0.843
Gender (Men Ref)				
Women	0.331	0	0.328	0.335
Age (20-24 Ref)				
25-34	3.321	0	3.258	3.385
35-44	5.5	0	5.398	5.603
45-54	5.162	0	5.067	5.258
55-64	1.147	0	1.126	1.168
Years of education (< 16 Ref)				
> 15	2.521	0	2.483	2.56
Years in host country (Own country Ref)				
0-2	1.4	0.01	1.084	1.807
3 to 5	1.847	0	1.446	2.359
6 to 10	1.885	0	1.478	2.404
> 10	1.986	0	1.558	2.532
UR	0.993	0.104	0.985	1.001
GDPG	1.005	0.188	0.997	1.014
Cons	0.872	0.001	0.805	0.946
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.03	0.006	0.019	0.046
Log Likelihood	-525269.1			
Wald Chi-Square (17)	128567.74			
Prob > Chi-Square	0			

Table 2. Results of the MELR model on access to employment. Spain.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.881	0.381	0.664	1.169
EU-10-TA	0.999	0.999	0.685	1.457
EU-10-NoTA	1.015	0.927	0.73	1.412
EU-3-TA	1.16	0.326	0.862	1.56
EU-3-NoTA	1.029	0.846	0.769	1.377
Gender (Men Ref)				
Women	0.373	0	0.37	0.376
Age (20-24 Ref)				
25-34	3.231	0	3.178	3.284
35-44	3.923	0	3.862	3.986
45-54	3.185	0	3.135	3.235
55-64	1.089	0	1.072	1.106
Years of education (< 16 Ref)				
> 15	2.652	0	2.621	2.684
Years in host country (Own country Ref)				
0-2	0.696	0.026	0.506	0.957
3 to 5	0.863	0.331	0.641	1.161
6 to 10	0.83	0.211	0.621	1.11
> 10	0.914	0.541	0.685	1.218
UR	0.974	0	0.97	0.979
GDPG	0.996	0.354	0.989	1.003
Cons	1.597	0	1.458	1.75
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.03	0.005	0.02	0.044
Log Likelihood	-614272			
Wald Chi-Square (17)	124906.94			
Prob > Chi-Square	0			

Table 2. Results of the MELR model on access to employment. Sweden.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.676	0	0.638	0.716
EU-10-NoTA	0.668	0	0.617	0.723
EU-3-NoTA	0.701	0	0.65	0.756
Gender (Men Ref)				
Women	0.736	0	0.731	0.741
Age (20-24 Ref)				
25-34	2.673	0	2.64	2.706
35-44	4.58	0	4.521	4.639
45-54	3.836	0	3.789	3.883
55-64	1.54	0	1.523	1.557
Years of education (< 16 Ref)				
> 15	2.313	0	2.288	2.337
Years in host country (Own country Ref)				
0-2	0.559	0	0.507	0.616
3 to 5	0.853	0	0.788	0.923
6 to 10	0.961	0.329	0.887	1.04
> 10	1.024	0.465	0.96	1.091
UR	0.935	0	0.9165	0.954
GDPG	0.997	0.125	0.995	1
Cons	3.142	0	2.703	3.653
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.03	0.005	0.02	0.044
Log Likelihood	-965475.2			
Wald Chi-Square (17)	125150.24			
Prob > Chi-Square	0			

Table 2. Results of the MELR model on access to employment. United Kingdom.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.759	0.117	0.537	1.071
EU-10-TA				
EU-10-NoTA	1.38	0.71	0.972	1.957
EU-3-TA	0.855	0.422	0.583	1.252
EU-3-NoTA	1.005	0.977	0.681	1.483
Gender (Men Ref)				
Women	0.534	0	0.528	0.541
Age (20-24 Ref)				
25-34	1.93	0	1.888	1.973
35-44	2.255	0	2.207	2.304
45-54	2.254	0	2.207	2.303
55-64	0.757	0	0.742	0.772
Years of education (< 16 Ref)				
> 15	2.374	0	2.334	2.414
Years in host country (Own country Ref)				
0-2	0.918	0.637	0.646	1.305
3 to 5	1.195	0.32	0.84	1.7
6 to 10	1.218	0.27	0.857	1.733
> 10	1.214	0.274	0.856	1.722
UR	0.93	0	0.914	0.946
GDPG	1.002	0.03	1	1.005
Cons	3.831	0	3.419	4.293
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.037	0.008	0.024	0.057
Log Likelihood	-343849.2			
Wald Chi-Square (17)	45519.39			
Prob > Chi-Square	0			

Table 3. Results of the MELR model on access to employment matching the worker's skills and qualifications. France.

	Odds Ratio	P > |z|	95% Conf. Interval	
Nationality (Own country Ref)				
EU-15	1.161	0.142	0.951	1.417
EU-10-TA	0.332	0	0.237	0.463
EU-10-NoTA	0.531	0	0.414	0.681
EU-3-TA	0.561	0	0.435	0.723
EU-3-NoTA	0.666	0.006	0.498	0.891
Gender (Men Ref)				
Women	0.803	0	0.795	0.811
Age (20-24 Ref)				
25-34	1.531	0	1.503	1.56
35-44	2.315	0	2.272	2.359
45-54	3.911	0	3.833	3.99
55-64	4.445	0	4.342	4.55
Years of education (< 16 Ref)				
> 15	0.084	0	0.083	0.085
Years in host country (Own country Ref)				
0-2	0.695	0.003	0.545	0.887
3 to 5	0.898	0.341	0.721	1.119
6 to 10	0.747	0.008	0.603	0.926
> 10	0.831	0.078	0.677	1.02
UR	0.981	0.211	0.953	1.01
GDPG	1.004	0.403	0.993	1.015
Cons	12.628	0	9.533	16.727
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.038	0.008	0.025	0.058
Log Likelihood	-510973.7			
Wald Chi-Square (17)	244348.41			
Prob > Chi-Square	0			

Table 3. Results of the MELR model on access to employment matching the worker's skills and qualifications. Germany.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	1.041	0.382	0.95	1.142
EU-10-TA	0.528	0	0.438	0.638
EU-10-NoTA	0.467	0	0.417	0.523
EU-3-TA	0.712	0	0.611	0.831
EU-3-NoTA	0.88	0.063	0.77	1.006
Gender (Men Ref)				
Women	1.004	0.485	0.992	1.016
Age (20-24 Ref)				
25-34	0.768	0	0.739	0.798
35-44	0.644	0	0.62	0.669
45-54	0.585	0	0.563	0.607
55-64	0.576	0	0.555	0.599
Years of education (< 16 Ref)				
> 15	0.049	0	0.0487	0.05
Years in host country (Own country Ref)				
0-2	0.679	0	0.598	0.77
3 to 5	0.689	0	0.614	0.773
6 to 10	0.81	0.001	0.718	0.913
> 10	0.974	0.627	0.879	1.08
UR	0.932	0	0.898	0.967
GDPG	1.034	0.05	0.999	1.07
Cons	68.939	0	50.894	93.381
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.139	0.028738	0.0930375	0.2087836
Log Likelihood	-362034			
Wald Chi-Square (17)	199603.15			
Prob > Chi-Square	0			

Table 3. Results of the MELR model on access to employment matching the worker's skills and qualifications. Italy.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.679	0.038	0.471	0.979
EU-10-TA	0.178	0	0.117	0.27
EU-10-NoTA	0.467	0	0.321	0.678
EU-3-TA	0.181	0	0.125	0.262
EU-3-NoTA	0.395	0	0.273	0.572
Gender (Men Ref)				
Women	1.852	0	1.837	1.868
Age (20-24 Ref)				
25-34	1.362	0	1.339	1.386
35-44	2.206	0	2.169	2.244
45-54	3.506	0	3.445	3.568
55-64	5.371	0	5.264	5.481
Years of education (< 16 Ref)				
> 15	0.086	0	0.086	0.087
Years in host country (Own country Ref)				
0-2	1.373	0.107	0.933	2.021
3 to 5	1.526	0.025	1.054	2.211
6 to 10	1.154	0.445	0.798	1.669
> 10	0.993	0.971	0.687	1.435
UR	1.071	0	1.051	1.091
GDPG	1.003	0.738	0.098	1.023
Cons	2.252	0	1.874	2.708
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.072	0.015	0.048	0.109
Log Likelihood	-819194.7			
Wald Chi-Square (17)	331016			
Prob > Chi-Square	0			

Table 3. Results of the MELR model on access to employment matching the worker's skills and qualifications. Spain.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.738	0.112	0.507	1.073
EU-10-TA	0.139	0	0.087	0.221
EU-10-NoTA	0.403	0	0.26	0.625
EU-3-TA	0.265	0	0.179	0.392
EU-3-NoTA	0.678	0.052	0.458	1.003
Gender (Men Ref)				
Women	1.305	0	1.287	1.323
Age (20-24 Ref)				
25-34	0.925	0	0.899	0.951
35-44	1.127	0	1.097	1.159
45-54	1.724	0	1.676	1.774
55-64	2.689	0	2.6	2.78
Years of education (< 16 Ref)				
> 15	0.222	0	0.219	0.225
Years in host country (Own country Ref)				
0-2	1.042	0.846	0.682	1.592
3 to 5	1.023	0.906	0.691	1.517
6 to 10	0.908	0.628	0.617	1.337
> 10	1.038	0.846	0.708	1.523
UR	1.032	0	1.019	1.045
GDPG	1.029	0.006	1.007	1.05
Cons	2.91	0	2.235	3.788
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.098	0.02	0.065	0.147
Log Likelihood	-281033.2			
Wald Chi-Square (17)	55782.28			
Prob > Chi-Square	0			

Table 3. Results of the MELR model on access to employment matching the worker's skills and qualifications. Sweden.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.983	0.741	0.888	1.087
EU-10-TA				
EU-10-NoTA	0.818	0.001	0.722	0.925
EU-3-TA				
EU-3-NoTA	1.281	0	1.131	1.45
Gender (Men Ref)				
Women	1.316	0	1.302	1.33
Age (20-24 Ref)				
25-34	1.282	0	1.25	1.315
35-44	1.534	0	1.495	1.573
45-54	1.622	0	1.581	1.664
55-64	1.885	0	1.837	1.935
Years of education (< 16 Ref)				
> 15	0.059	0	0.058	0.06
Years in host country (Own country Ref)				
0-2	0.542	0	0.471	0.625
3 to 5	0.586	0	0.521	0.658
6 to 10	0.539	0	0.48	0.606
> 10	0.677	0	0.607	0.755
UR	0.975	0.175	0.94	1.011
GDPG	0.998	0.661	0.993	1.003
Cons	21.995	0	16.787	28.818
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.055	0.011	0.036	0.083
Log Likelihood	-471200.1			
Wald Chi-Square (17)	224902.06			
Prob > Chi-Square	0			

Table 3. Results of the MELR model on access to employment matching the worker's skills and qualifications. United Kingdom.

	Odds Ratio	**P > |z|**	**95% Conf. Interval**	
Nationality (Own country Ref)				
EU-15	0.965	0.888	0.592	1.573
EU-10-TA				
EU-10-NoTA	0.668	0.11	0.407	1.095
EU-3-TA	0.453	0.004	0.263	0.779
EU-3-NoTA	0.426	0.002	0.246	0.736
Gender (Men Ref)				
Women	1.005	0.579	0.987	1.023
Age (20-24 Ref)				
25-34	1.37	0	1.321	1.42
35-44	1.484	0	1.432	1.538
45-54	1.701	0	1.64	1.764
55-64	1.821	0	1.75	1.895
Years of education (< 16 Ref)				
> 15	0.044	0	0.043	0.045
Years in host country (Own country Ref)				
0-2	0.914	0.727	0.554	1.508
3 to 5	0.875	0.602	0.532	1.441
6 to 10	0.6	0.044	0.365	0.987
> 10	0.845	0.507	0.515	1.386
UR	1.058	0.175	0.974	1.149
GDPG	1.002	0.733	0.989	1.014
Cons	10.407	0	6.086	17.793
Random-effects Parameters	**Estimate**	**SE**	**95% Conf. Interval**	
Year	0.184	0.038	0.123	0.276
Log Likelihood	-155162.1			
Wald Chi-Square (17)	101544.1			
Prob > Chi-Square	0			

Chapter 2, Study 2. Patterns of over-qualification among highly educated mobile intra-EU workers, 2005-2016.

This study is in the second round of review for publication.

Patterns of over-qualification among highly educated mobile intra-EU workers, 2005-2016.

This study analyses the working conditions of highly educated mobile workers in five major EU markets. The study uses the over-qualification indicator, analysing its transformation over the period 2005-2016. Using annual data from the European Union Labour Force Survey, the results show very different conditions between home country nationals and mobile workers from newer (enlargement) -EU-13- and older -EU-15- member states from the perspective of successful economic and social integration. The EU enlargement process has not removed the penalty for educated workers from EU-13 countries, but it has been significantly reduced, as has the premium received by mobile workers from other EU-15 countries.

Keywords: migration; highly educated workers; EU enlargement, economic crisis; over-qualification.

Introduction

The free movement of workers within the European Union (EU) is one of its founding principles, as laid down in the 1957 Treaty of Rome. The way workers are incorporated into other EU labour markets is an indicator of how these are performing, being the key to successful economic and social integration (Favell 2008, 2014). The study of mobility and the incorporation of highly educated workers is particularly relevant for those agents that have adopted specific measures and policies to promote their movement within the EU (Assirelli et al., 2019). Over-qualification in the labour market (i.e., the existence of a mismatch between an individual's education and the position occupied) leads to a lack of efficiency, and it is also a significant cost for the worker involved in terms of wages and job satisfaction (Lindley, 2009). This mismatch also has a cost for society, as no

efficient use is made of the human capital available (Kalfa and Piracha, 2017). Currently, over-qualification in the EU varies both across countries and within regions of a single country (Carella & Léger, 2022).

The main research question is "What have been the principal effects of the EU enlargement and the economic crisis on the employment status of highly educated workers in certain major host countries?" This study compares patterns of over-qualification among highly educated host-country nationals (HCNs), and mobile workers from both newer member states (EU-13) and older ones (EU-15) in five EU countries before, during and after the last economic crisis, a period that overlaps the EU enlargement. This initial goal also constitutes a major indicator of the EU's performance and its scope for the incorporation/integration of new citizens; the second goal involves understanding the factors underpinning those situations, thereby providing a major tool for adopting measures that favour a similar treatment for all EU workers and greater efficiency in the use of their human capital. The decision to migrate made by workers with a high level of human capital usually involves their greater understanding of the target market. Strictly economic reasons may be less important than others, such as a better quality of life, career opportunities, or gaining experience (Bartolini et al., 2017; Landolt and Thieme, 2018).

The movement of workers within the EU constitutes a particular aspect because crossing borders makes this an international migration, while the recognition of similar labour rights to HCNs grants them internal migratory status. From the perspective of European integration, it is therefore essential to track the jobs they hold compared to HCNs, as well as to all other workers.

Workers' mobility within the EU and their integration have gained considerable interest because this movement has intensified due to the enlargement process (Barrell,

Fitzgerald, and Riley, 2010), but also following the economic crisis (Castro-Martín and Cortina, 2015). Significant gaps still remain in our knowledge on the specific aspects of the status of EU mobile workers.

Firstly, studies on labour integration/participation patterns have focused mainly on workers' position in employment, unemployment, and segmentation (i.e., Kogan, 2006; Favell, 2008; Reyneri and Fullin, 2011; Ballarino and Panichella, 2015; Fellini, 2018). Workers from new member states are more exposed to the risk of unemployment than HCNs, and workers from older EU member states (Fries-Tersch et al., 2018). A significant part of this segment of workers remains over-represented in economic sectors with worse conditions characterised by relatively low-paid, low-skilled, and often temporary jobs (Felbo-Kolding et al., 2019). Less interest has been shown in over-qualification, although some analyses have revealed how the qualifications of workers from new member states are downgraded and even undergo "de-qualification" or "devaluation of skills" when they enter the labour market of specific member states (particularly the UK) (see Drinkwater et al., 2009; Voitchovsky, 2014; Johnston et al., 2015; Khattab and Fox, 2016).

Secondly, few studies have analysed the possible effects of the economic crisis from 2008 to 2013 on the integration process of migrant workers, and particularly highly educated ones (Mooi-Reci and Muñoz-Comet, 2016; Finotelli and Ponzo, 2018; Fellini, 2018). Although highly educated migrants are generally more protected from the employment crisis and deteriorating working conditions than other categories of migrants, the downturn in several member states has also affected them (Mooi-Reci and Muñoz-Comet, 2016; Guetto, 2018). The crisis has reduced both job opportunities and working conditions through a lower demand for labour and more restrictive policies (Cerna, 2014; Czaika and Parsons, 2016; Khattab et al., 2016).

Thirdly, the recent enlargement and the scarcity of data mean there is a lack of research on the possible effects that the change in legal status has had on working conditions. The freedom of movement of EU workers stratifies migrants' rights, differentiating between EU and non-EU citizens (Morris, 2003; Snel et al., 2015). Less attention has been paid, nonetheless, to the fact that workers from new member states do not usually acquire full labour rights throughout the EU as soon as their country joins, as existing member states are allowed to restrict access during the so-called transition periods (Holland et al., 2011). The recent incorporation of Central and Eastern European countries (EU-13) has created an interesting scenario for analysing how their citizens have joined the markets of EU-15 member states compared to both HCNs and citizens from existing member states. Only certain studies have reported on the increase in the migratory flow following the EU enlargement and on national differences based on legal status (Snel et al., 2015). Yet neither the impact on working conditions nor the differences between countries have been studied. Few studies have analysed how the progressive opening of EU labour markets to new member states is reflected in the occupation-education mismatch.

Based on human capital theory, there is a need to know whether there is a "penalty" or a "premium" in the labour market depending on the position of highly educated EU migrant workers regarding their HCN counterparts. The penalty refers to a greater likelihood of being overeducated, while the premium means the opposite. Labour market status is closely linked to working conditions (e.g., wages, type of contract, and employment rights).We have selected Germany, France, UK, Italy, and Spain, as the five largest labour markets in the EU, thereby providing enough cases for studying the employment status of highly educated HCNs compared to their mobile counterparts. Moreover, these countries have different regulations and labour market structures and

regulations (i.e., a liberal welfare regimen in the UK, conservative and social democratic welfare systems in France and Germany, and southern or family welfare regimen), and very different migration experiences, in older member states (France, the UK, and Germany) and new recovering economies (Spain and Italy) (Esping-Andersen, 1990; Kogan, 2006; Reyneri and Fullin, 2011; Aleksynska and Tritah, 2013; Ballarino and Panichella, 2015). The economic crisis has also affected them in different ways in recent years (Aleksynska and Tritah, 2013; Finotelli and Ponzo, 2018; Landolt and Thieme, 2018) and they have adopted different regulations on the free movement of EU workers.

This study makes a significant contribution to the literature on the over-qualification of highly educated workers, focusing both on the analysis of differences across countries and on those within the countries themselves based on the economic and legal changes recorded in the EU.

EU labour context: enlargement, market regulation, unemployment, and intra-European mobility

The enlargement, market regulation, unemployment rate, and the number of foreign nationals living in each one of these five countries are important parameters for analysing the labour situation of highly educated EU national and mobile workers.

An initial aspect to be considered in the analysis of the employment status of highly educated workers in the EU involves the application of legislation, both in the recognition of the full European citizenship of workers from new member states and in the regulation of the labour market in each host country, which are crucial for access and mobility to this market.

On the one hand, the EU has a raft of rules regulating the labour market and the protection of employment (Cutuli and Guetto, 2013; Barbieri and Cutuli, 2016). The countries in the South, such as Italy and Spain, have extensive informal economies, strict regulation of the formal market, and far-reaching workers' rights, all of which hinder labour mobility; by contrast, countries in Central and Northern Europe have very small informal economies, and their policies on deregulating the labour market have favoured worker mobility toward more stable jobs (Barbieri and Cutuli, 2016).

On the other hand, the EU enlargement processes involving Eastern European countries in 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Cyprus, and Malta), in 2007 (Romania and Bulgaria), and in 2013 (Croatia), have prompted a sea change in the pattern of migration and mobility of workers in Europe (Favell, 2008; García-Gómez et al., 2021), although the full recognition of employment and mobility rights in the older EU member states has not been automatic.

The UK was one of the three countries, together with Sweden and Ireland, that immediately opened their borders to incoming labour from the new member states, with

instant recognition of workers' rights. Spain and Italy introduced a brief moratorium on the mobility of workers from new member states that lasted until the middle of 2006, which became minimal for Romanian and Bulgarian nationals in 2007 (Del Boca and Venturini, 2016; Rodríguez-Plana and Farré, 2016). In turn, France maintained its restrictions on labour mobility until mid-2008. Finally, Germany imposed restrictions on the mobility of workers from Eastern European countries until the end of 2011.

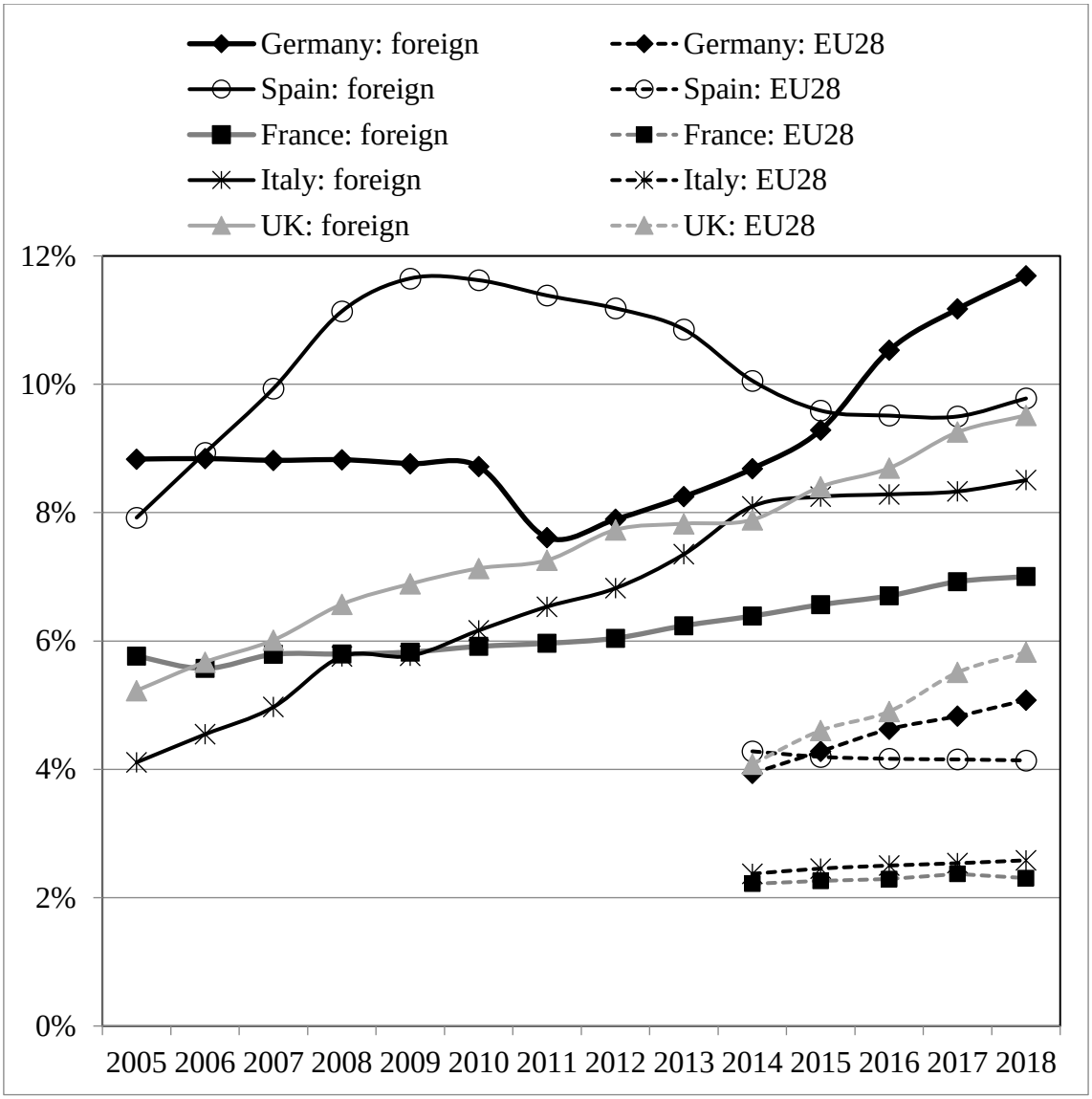


Figure 1. Percentage of immigrant population and EU28 population in selected EU countries between 2005 and 2015. Source: OECD.

A second aspect involves the volume and flows of EU migrants in these five cases. There is a lack of accurate data over the course of the study period for identifying the

number of people in each market, and particularly workers by origin or nationality, and even less so their level of education, so we have to rely on estimates reported by other scholars (Barrell et al., 2010).

Using Eurostat and their own estimations, Fassmann et al. (2014) report that the mobility of EU-13 citizens in Western countries rose from 1.5 million in 2004 to 2.9 million in 2007, and to 4.8 million in 2011. In 2007, Spain, the UK, Germany, and Italy were the main destinations (no data available for France). Until 2011, Germany recorded low growth in migration from EU-13 countries because of the moratorium on labour mobility, so despite the economic crisis, Spain (1.15 million) and Italy (1.15 million) accounted for almost half of these migrants.

OECD data (figure 1) on the percentage of foreign nationals in each country, and in particular those from EU-28), record an upward trend with certain variations. Since 2013 -the most turbulent years of the crisis- Spain has recorded a slight drop in the number of foreign workers, while since 2011 Germany has recorded sharp growth. The UK and Italy have recorded constant growth throughout the entire period, and France has been the one least affected by the influx.

Bartolini et al. (2017, p. 3) estimate that a significant part of the outflux of migrants from the countries most affected by the crisis, Spain and Italy, corresponds to EU migrants returning home or re-emigrating to Northern Europe, thus explaining the migratory flow from Spain and Italy to Germany, for example.

Figure 2 shows that the unemployment rates for highly educated workers were very similar at the beginning of the observation period. Nevertheless, the crisis radically transformed this situation: countries such as Spain recorded a sharp increase in this rate, peaking at 15%, while others, such as Germany and the UK, recorded the inverse process,

with the rate falling as low as 2%. In turn, France and Italy recorded intermediate rates, albeit with a slight increase during the recession.

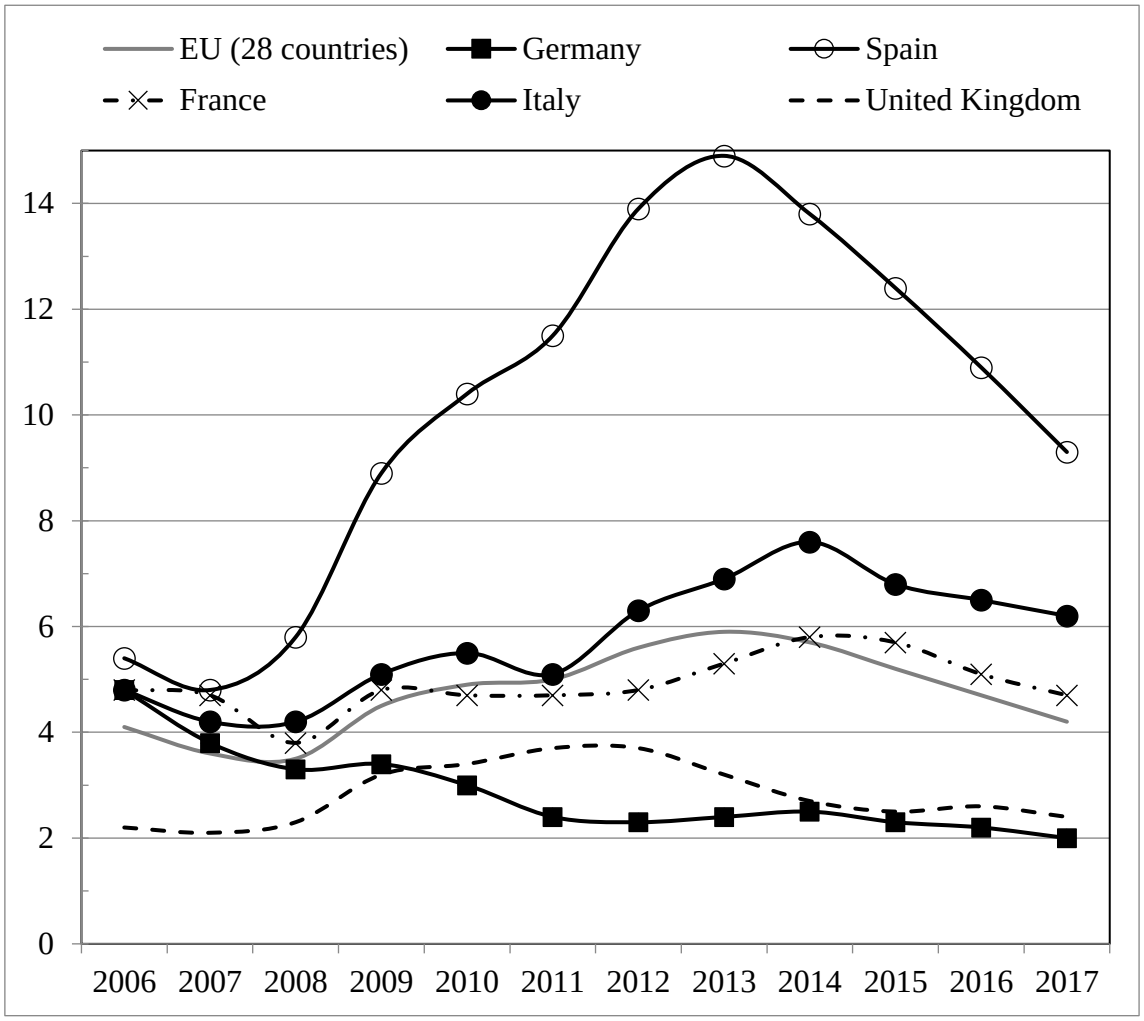


Figure 2. Percentage of unemployment for highly educated workers in selected EU countries between 2005 and 2015. Source: OECD.

Theoretical framework and hypotheses

One of the more widely accepted factors for explaining the rate of over-qualification indicates the existence of a mismatch in the labour market between labour supply and demand (Verhaest and van der Velden, 2013). The differences across countries according to this paradigm are due either to the make-up of the labour supply or to the very structure of the labour market, or to both at the same time. Some studies, nonetheless, include structural factors to explain the imbalance between supply and demand and, in turn, the differences across countries, such as the rate of labour force growth (Groot and van den Brink 2000), the sharp expansion of education (Hartog, 2000), the investment in research and development (Di Pietro, 2002), or the shortcomings in the transition between the education system and the labour market (Di Pietro, 2002; Verhaest and van der Velden, 2013). Other studies have included factors of an institutional nature, such as labour market uncertainty, the type of regulation involved, the level of segmentation, education funding mechanisms, and migration (Ghignoni and Verashchagina, 2014). The following are some of the highlights among these variables:

Firstly, and although there is no consensus on their effects regarding policies on labour protection, most studies find that less regulation prompts greater mobility and facilitates the balance between educational level and employment (Verhaest and Van der Velden, 2013; Gangl, 2004; Stanek et al., 2021).

Secondly, it is worth mentioning the specific circumstances brought about by the economic crises, whereby qualified workers have been forced to accept jobs below their educational level because of the prevailing risk and uncertainty (Croce and Ghignoni 2012). Although, generally speaking, there is a higher rate of over-qualification in countries with weaker economies (Borgna et al., 2019), during times of economic crisis these rates of over-qualification undergo major changes, as there may be an increase in

the numbers leaving the labour market to become inactive or unemployed and, in turn, there is a change in mobility within the labour market (Borgna et al., 2019).

Thirdly, several studies have reported the important effect of labour market segmentation on levels of over-qualification, and particularly in the case of the migrant population, on its integration and labour mobility (Piore, 1979; Portes, 1998; Kogan, 2003, 2006). This approach considers two segments in the labour market in the most developed countries: a formal, well-regulated primary one and an informal, secondary one. Most migrants enter the latter segment, finding it difficult to move between the primary and secondary segments (Piore, 1979).

Considering the structural situation and the institutional factor, we formulate several hypotheses regarding the rate of over-qualification across countries:

H1. *Structure effect*: we expect to find a higher rate of over-qualification in Southern European countries – Spain and Italy – because their labour markets are more strictly regulated, more segmented, and have greater labour uncertainty.

H2. *Enlargement effect*: considering the trend in migratory flows from enlargement countries, we expect the start of the observation period to have a higher rate of over-qualification in the main host countries, the UK, Spain and Italy. As the flows have shifted toward Central and Northern Europe following the end of the moratoria, we expect a higher rate in France, and especially so in Germany.

H3: *Economic crisis effect*: in view of the greater impact the crisis has had on Southern European countries and the higher rates of unemployment recorded, we expect a greater incidence of over-qualification in Spain and Italy. Nevertheless, there is a possibility of certain variations and alterations in the indicator due to the possible exit of workers into unemployment and inactivity or migration to other countries less affected by the crisis.

This initial approach helps us to explain the possible differences in over-qualification across countries, but not the differences that may exist within each country between HCNs and foreign workers and between different kinds of foreigners.

From a micro perspective, there are numerous theories that seek to explain the state of over-qualification among workers. Several theories maintain that over-qualification is a transitory phenomenon due to a lack of information or because of a worker's strategic behaviour, and disassociate it from the labour market's structural factors: the Matching Theories of Job Search (Jovanovic, 1979) indicate that over-qualification is due to a lack of information, although once a worker has become aware of their situation they seek a job that matches their level of education; the Theory of Career Mobility (Sicherman and Galor, 1990) indicates that the imbalance between a worker's qualifications and their job requirements may arise from a strategic decision to acquire training and instruction and subsequently climb up the employment ladder, particularly among highly educated workers and migrants; the Human Capital Theory (Becker, 1964) does not consider over-qualification to be a permanent state either, as a worker in a balanced situation will seek to adjust their educational level through a suitable job; Job Competition Theory (Thurow, 1975) emphasises the importance of job characteristics and argues that workers invest in education to keep their place in the job queue. Finally, Assignment Theory (Sattinger, 1993) finds that the importance of maximising utility by workers in their jobs does not necessarily involve maximising their income, but instead the utility may lie in other aspects not directly related to their position, which is significant among highly educated workers and migrants.

H4. Based on these considerations, we expect to find a higher level of over-qualification among migrants due to their lack of knowledge and information in the labour

market. Nevertheless, we also expect the situation to improve in step with the time spent living in the host countries.

A final aspect to consider involves the potential differences in labour market access among highly educated migrants. In this regard, human capital theory (Becker, 1964; Harris and Todaro, 1970) assumes the perfect mobility of labour, whereby workers migrate looking for the best employment opportunities and higher wages. However, according to Chiswick and Miller (2008), migrants' occupation-education mismatch could be explained by the misaligned exchange of human capital between countries due to issues of language, culture, the specific skills needed, or discrimination. The difficulties in recognising the accumulation of human capital in the country of origin explain the existence of a "U" pattern in the move from a job in the home country to one in the host country (Chiswick, 1978; Chiswick et al., 2005). Migrant workers initially drop down the career ladder, although over time, this "penalty" is removed, facilitating upward mobility in the host labour market (Chiswick, 1978).

A number of studies, nevertheless, contend that migrant workers' incorporation and their work trajectories differ between countries due to each labour market's structural characteristics (Chiswick et al., 2005; Kogan, 2006; Fellini and Guetto, 2019): the closer the similarity between home and host countries, the better the exchange of human capital and, consequently, the better workers' integration and professional careers will be. A further key aspect in migrants' access to the labour market involves their legal status (Peck, 1996). A lack of legal status restricts the transferability and recognition of migrant workers' human capital, forcing them into the informal market and blocking their subsequent labour mobility (Bauder, 2008).

The importance of migrants' legal status, and their participation in the labour market in particular, invokes the concept of "civic stratification" (Morris, 2003; Snel et

al., 2015). Morris (2003) contends that the categories of legal status recognised by the EU, such as member state and third-country citizenship, are the most transparent formal markers of inclusion and exclusion regarding fundamental rights, such as job access. Bauder (2008) notes that EU citizens benefit from similar formal access to most occupations across the EU. However, a lack of status denies access to employment in the formal economy, and many migrants are pushed into the informal one. The gradual elimination of labour market restrictions for EU-13 workers is positively related to their mobility (Castro-Martín and Cortina, 2015; Snel et al., 2015; Fellini and Guetto, 2020).

We therefore formulate the following hypotheses regarding the characteristics of qualified migrant workers:

H5. Highly educated workers from an EU-13 country face a major penalty in the labour market compared to HCNs and citizens from other EU-15 countries due to their different legal status at the beginning of the period under study. However, once the process is under way, and in particular when they have gained full EU citizenship, we expect the penalty to diminish or even disappear.

H6. As far as highly educated mobile EU-15 workers are concerned, we expect to see a similar situation among HCNs, or even a premium that encourages such mobility. However, each one of the five host markets is expected to reflect different migration situations. In countries with more recent immigration (Italy and Spain), with lower salaries according to Eurostat, we expect EU-15 workers to have a better employment position than HCNs to compensate for the potential opportunity cost of their emigration. By contrast, in countries with a tradition of immigration (UK, Germany, and France), as well as higher wages, the mobility of educated EU-15 workers will involve a similar treatment to HCNs, or only a slight penalty that is offset by the potential gains.

H7. Finally, we expect the situation of migrants from both EU-13 and EU-15 in those countries most affected by the crisis to be worse than that of HCNs. By contrast, the conditions of EU workers in countries with a better economic situation will tend to improve.

Data, variables, and methods

The data source used here involves the annual records from 2005 to 2016 of the European Union Labour Force Survey (EU-LFS) provided by Eurostat for Germany, France, Italy, the UK, and Spain (table 1). These yearly records are constructed from the quarterly datasets based on the panel survey approach.

We have selected only the population with tertiary education, under the age of 55, and with a maximum of 10 years' residence in the country (except for those actually born there). Within each of the five countries, we have selected only the nationals of EU-28 countries, establishing the following categories according to the level of separation that the data source allows us: HCNs (reference group); EU-15 citizens, excluding those from each country of reference (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the UK), and the nationals of EU-13 countries (Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Slovakia, Slovenia, Malta, Cyprus, Croatia, Romania, and Bulgaria). Finally, we have excluded self-employed workers due to their specific characteristics (Flisi et al., 2017).

Given the small number of cases for some years and for certain countries, we have merged the records into three-year periods that are also timeframes with some similarity regarding the legal status of EU-13 workers and the different stages of the recent economic crisis (table 1). Nevertheless, there is a certain degree of heterogeneity within EU-13, with some countries joining in 2004, others in 2007, and Croatia in 2013, as well as the various processes of transition adopted by the five host countries, and which need to be considered. During the period 2005-2007, there was a different legal status for access to the labour market between EU-15 and EU-13 citizens (except in the UK); the period 2008-2010 involves EU accession, and coincides with the onset of the economic

crisis; 2011-2013 is the worst stage of the economic crisis and the end of the transition period for EU-13 workers in Germany; and finally, 2014-2016 is the period of full and equal rights between EU-15 and EU-13 citizens, and the beginning of the economic recovery.

Our dependent variable is over-qualification, which can be measured in several ways by objective or subjective indicators. According to Barone and Ortiz (2011:330) "the most accurate objective indicators are compiled by job analysts who report the different types of skills required to optimally perform each occupation and thus declare the level of education optimally required for it", but these are not available in our case. The temporal and geographical scopes, as well as the availability of the appropriate statistical sources, have required using the Realised Matches method proposed by Verdugo and Verdugo (1989), which has also been successfully applied by other researchers (Chiswick and Miller, 2010; Aleksynska and Tritah, 2013; García-Gómez et al., 2021; Stanek et al., 2021). As regards other indicators, such as Job Analysis or Worker Self-Assessment, Capsada-Munsech (2019) reports that Realised Matches is useful for exploring an individual's position relative to all the other workers in an occupation/job, as it caters for easy comparisons across cohorts, time points, or countries, and it can be calculated using the standard indicators of education and occupation contained in most national labour force surveys. According to this methodology, the dependent variable -mismatch or occupation-education mismatch- measures the relationship between a worker's educational level (xi) and the average level of schooling ($\bar{x}$) required by their job profile. A possible variation of the standard deviation has been considered (σ); that is, we have calculated a worker's average educational level for each job and the standard deviation.

Table 1. Table 1. Descriptive data: highly educated EU workers in five selected countries, 2005-2016. Source: EU-LFS.

		2005-2007		2008-2010		2011-2013		2014-2016	
Nationality	HCN	309002	99.0%	263544	98.7%	349917	98.4%	392273	98.0%
	EU-15	1907	0.6%	1953	0.7%	3130	0.9%	4147	1.0%
	EU-13	1305	0.4%	1533	0.6%	2680	0.8%	3815	1.0%
	Total	*312214*		*267030*		*355727*		*400235*	
Years of residence	Native Born	307685	98.5%	262031	98.1%	348582	98.0%	391129	97.7%
	< 2 years	779	0.2%	602	0.2%	1059	0.3%	1510	0.4%
	2-5 years	1519	0.5%	1364	0.5%	2063	0.6%	3108	0.8%
	> 5 years	2231	0.7%	3033	1.1%	4023	1.1%	4488	1.1%
	Total	*312214*		*267030*		*355727*		*400235*	
Age	< 30	71526	22.9%	58149	21.8%	66625	18.7%	71288	17.8%
	30-45	111455	35.7%	96996	36.3%	124740	35.1%	133024	33.2%
	45-55	129233	41.4%	111885	41.9%	164362	46.2%	195923	49.0%
	Total	*312214*		*267030*		*355727*		*400235*	
Sex	Male	146259	46.8%	117476	44.0%	162104	45.6%	186006	46.5%
	Female	165955	53.2%	149554	56.0%	193623	54.4%	214229	53.5%
	Total	*312214*		*267030*		*355727*		*400235*	
Country	Germany	41594	13.3%	11229	4.2%	85557	24.1%	122038	30.5%
	Spain	81842	26.2%	34817	13.0%	34085	9.6%	33928	8.5%
	France	88777	28.4%	115752	43.3%	144982	40.8%	152100	38.0%
	Italy	63976	20.5%	67071	25.1%	63549	17.9%	64291	16.1%
	UK	36025	11.5%	38161	14.3%	27554	7.7%	27878	7.0%
	Total	*312214*		*267030*		*355727*		*400235*	

If a worker's educational level is above average plus a standard deviation (If $xi > \bar{x} + \sigma$, Yi = 1), a value of 1 is assigned, and we rate the worker as overeducated.

For all other cases, the value of the dependent variable is 0 (If $xi \leq \bar{x} + \sigma$, Yi = 0). There are two main explanatory variables in this study. The first is nationality, which is separated into three categories: HCNs (reference category), other EU-15 citizens, and EU-13 citizens. EU-LFS does not allow any further disaggregation of EU-15 and EU-13, which is a major limitation of the study. The second variable refers to the five host countries or labour markets: Germany, Spain, France, Italy, and the UK.

At individual level, we include control variables for age, sex, and period of residence. In addition, given that our data are grouped by year and country, and that workers have faced changing economic conditions, we control for the yearly Gross Domestic Product Growth (GDPG) at national level. Special attention will be paid here to period of residence due to its relevance in human capital transferability theories. The HCN population is the reference category (value 0). The following residence times have been established for nationals born outside the country and for EU-15 and EU-13 citizens: less than two years, 3-5 years, and 6-10 years, respectively.

We have used mixed effects logistic regression models because our models include both fixed and random effects and data are clustered by country and year (Agresti, 2013; Vermunt, 2005). We have estimated the models for the four time periods and the five EU host countries collectively (four models), as well as for each one of the countries individually (20 models).

The effect estimates are stated as Average Marginal Effects (AMEs) that express the average of the variation induced in the probability of interest by a marginal change in an independent variable for each individual in the sample. Its main advantage over other measures is that it can be compared for similar models across different groups, samples,

and years (Mood, 2010). Additionally, we have calculated the Average Adjusted Predictions (AAPs) for representing marginal probabilities of the incidence of over-qualification for all population categories (including the reference category: HCNs) and the differences between them (Bornmann, and Williams, 2013). As our hypotheses consider the presence of possible nationality-related effects with respect to the labour market, a model has been created with interactions between nationality and the labour market in the five countries studied.

Results

When we consider the five countries collectively, two models have been created for each period of time identified. The first model includes the set of explanatory variables, and the second ones includes an interaction between nationality and country of residence.

First of all, highly educated EU-13 workers are at a much greater risk of experiencing over-qualification than the HCN population throughout the observation period. By contrast, highly educated EU-15 workers experience the opposite effect (i.e., they have a minor risk of over-qualification). In other words, the mobility of highly educated workers from EU-15 countries to Germany, Spain, France, Italy, and the UK involves a premium with respect to their HCN peers, whereas for EU-13 workers it involves a penalty.

There is no clear relationship between the economic crisis and the employment of highly educated workers. During the onset of the crisis in 2008-2010, there was a reduction in EU-15 labour premiums (-6.6 to -3.4 percentage points) and also a slight decrease in the penalty for EU-13 workers (23.4 to 19.3 percentage points). Yet at the height of the crisis, there was a sharp reduction in this penalty and a reduction in the premium, whereby EU-13 workers experienced the greater benefits of the effect of progressive legal integration.

Secondly, GDPG has only a minimally positive effect of 0.2% on levels of over-qualification over the 2005-2007 period, a major negative effect during the crisis of 3% in 2008-2010 and 5.5% in 2011-2013, and then returning to a positive relationship in 2014-2016 of 0.6%. In other words, the lower GDPG during the economic crisis led to an increase in over-qualification among highly educated workers. These results confirm H3, whereby the countries most affected by the crisis, with lower GDPG, recorded the biggest increase in the rate of over-qualification, and vice versa.

Table 2. Table 2. Model 1: AMEs of over-qualification among highly educated EU workers in the five host countries (multilevel logistic regression model). AMEs calculated with margins, dxdy (), Stata v.13.1. Multilevel logistic regression model built with the country variable.

		2005-2007			2008-2010			2011-2013			2014-2016		
		AME	Std. Err.	Sig.	AME	Std. Err.	Sig.	AME	Std. Err.	Sig.	AME	Std. Err.	Sig.
Nationality: Ref. Cat.:	HCN												
	EU-15	-0.066	0.0063	***	-0.034	0.0072	***	-0.009	0.0055		-0.025	0.0046	***
	EU-13	0.234	0.0056	***	0.193	0.0064	***	0.139	0.0063	***	0.129	0.0058	***
Years of residence: Ref. Cat.: Native born	< 2 years	0.092	0.0113	***	0.063	0.0129	***	0.027	0.0087	**	0.075	0.0078	***
	2-5 years	0.111	0.0081	***	0.034	0.0094	***	0.026	0.007	***	0.041	0.0062	***
	> 5 years	0.113	0.0059	***	0.076	0.0055	***	0.047	0.005	***	0.072	0.0049	***
Age: Ref. Cat.: < 30	30-45	-0.029	0.0011	***	-0.027	0.0012	***	-0.041	0.0011	***	-0.044	0.001	***
	45-55	-0.072	0.0011	***	-0.071	0.0012	***	-0.064	0.001	***	-0.06	0.001	***
Sex: Ref. Cat.: Male	Female	-0.004	0.0008	***	0.007	0.0009	***	0.003	0.001	***	-0.006	0.0007	***
GDPG		0.002	0.001		-0.031	0.001	***	-0.055	0.001	***	0.006	0.001	***
Constant		0.017	0.013		-0.042	0.01	***	0.016	0.01		-0.233	0.01	***

Group variable	Coef	Std. Err.	Coef	Std. Err.	Coef	Std. Err.	Coef	Std. Err.
Country	294176.5	25870.56	14519	14974.17	333016.1	25872.22	514987.5	37918.01

Regarding the impact of our control variables, there is no relationship between time of residence and the risk of over-qualification, as conversely to the theory of human capital transferability there is no correlation between this time and qualification level and occupation.

In the second model (table 3), there is interaction between the workers' nationality and their host country. The reference categories of Germany and HCN reveal that highly educated EU-15 workers in Germany, Spain, and France have a lower risk of over-qualification during the four periods (except 2011-2013 in Spain and Germany), and in the case of the UK, the same situation has been observed since 2011. In other words, highly educated mobile EU-15 workers receive a premium in Germany, Spain, France and, more recently, the UK compared to the situation of highly educated HCN workers in Germany. In Italy, during the 2008-2013 crisis, workers from EU-15 countries were penalised in terms of over-qualification just like all their other highly educated counterparts (HCN and EU-13 workers), with no significant differences in the first and last period.

Highly educated EU-13 workers in France and Germany do not face a penalty until 2010, but they do as from 2011; while there is a significant one in Spain, Italy, and the UK throughout the entire period. The penalty in Spain has fallen over the observation period from 49.6 to 26.1 percentage points, and in Italy from 55.0 to 32.7. In the UK, it was 10% in the first and last period, although there was a significant increase (27.8%) over the period 2008-2010. These results reveal an effect linked to the EU enlargement process and the recognition of the rights of these new workers in the main host countries, Italy and Spain, as there is a reduction in the penalty for over-qualification among highly educated EU-13 workers despite them being the countries most affected by the economic crisis. In France, and particularly in Germany, the opposite seems to be the case, as the

end of the moratorium on the mobility of EU-13 workers led to the appearance of the penalty. The UK does not record any clear pattern between the situation of highly educated EU-13 workers in relation to the enlargement process.

Finally, logistic regression models have been estimated for each one of the five countries and the four periods considered. The AAPs have been calculated with the results of the logistic regression models for the nationality variable to summarise the results and allow comparing countries and the different periods. An AAP shows the risk percentage of over-qualification among highly educated HCNs, and EU-15 and EU-13 workers.

Figure 3 shows the AAPs obtained from Model 1 for the five countries both collectively and individually (excluding the country variable). Considering first the value of the AAPs for HCNs, there are varying levels of over-qualification across countries, with Italy and Spain recording the highest levels, and France and Germany the lowest, with the UK in an intermediate situation. Except for a slight increase in Germany, all the countries record a slight reduction in the over-qualification of HCNs, being more pronounced in the UK.

When considering the calculated rate of over-qualification among HCNs compared to EU-13 and EU-15 workers, the collective results show a decrease in the penalty for workers from EU-13 countries and a decline in the premium for EU-15 workers over time. Albeit with some delay, we can link access to full citizenship for educated workers from EU-13 to the decline in over-qualification in the five host markets, even if the penalty appears to hold steady from 2011 onwards. This decrease in the penalty is accompanied by a reduction in the premium for mobile EU-15 workers because of the possible increase in the flow of educated workers from EU-13 countries (Castro-Martín and Cortina, 2015; Bartolini et al., 2017).

Table 3. Table 3. Model 2: AMEs of over-qualification among highly educated EU workers in the five host countries. Interference between nationality and labour market-country (logit model). AMEs calculated with margins, dxdy (), Stata v.13.1. *Controlled for years of residence, age, and sex.

Nationality & Country	2005-2007			2008-2010			2011-2013			2014-2016		
	AME	Std. Err.	Sig.	AME	Std. Err.	Sig.	AME	Std. Err.	Sig.	AME	Std. Err.	Sig.
HCN & Germany												
EU-15 & Germany	-0.11	0.023	***	-0.102	0.036	*	-0.019	0.015		-0.033	0.012	**
EU-13 & Germany	0.024	0.042		0.028	0.054		0.135	0.021	***	0.183	0.016	***
HCN & Spain	0.052	0.003	***	0.036	0.005	***	0.042	0.003	***	-0.048	0.003	***
EU-15 & Spain	-0.092	0.026	***	-0.082	0.033	**	-0.031	0.037		-0.16	0.03	***
EU-13 & Spain	0.496	0.023	***	0.453	0.033	***	0.427	0.039	***	0.261	0.054	***
HCN & France	-0.083	0.003	***	-0.053	0.005	***	-0.061	0.002	***	-0.1	0.002	***
EU-15 & France	-0.225	0.014	***	-0.112	0.018	***	-0.04	0.017	*	-0.077	0.016	***
EU-13 & France	0.076	0.058		0.049	0.042		0.078	0.031	*	0.077	0.031	*
HCN & Italy	0.171	0.003	***	0.214	0.005	***	0.166	0.003	***	0.092	0.002	***
EU-15 & Italy	0.043	0.035		0.099	0.03	**	0.073	0.031	*	0.006	0.035	
EU-13 & Italy	0.55	0.024	***	0.501	0.019	***	0.439	0.019	***	0.327	0.022	***
HCN & UK	0.143	0.004	***	0.144	0.005	***	0.003	0.003		-0.018	0.003	***
EU-15 & UK	-0.044	0.026		0.026	0.025		-0.168	0.015	***	-0.122	0.017	***
EU-13 & UK	0.102	0.05	*	0.278	0.033	***	0.08	0.022	***	0.104	0.02	***

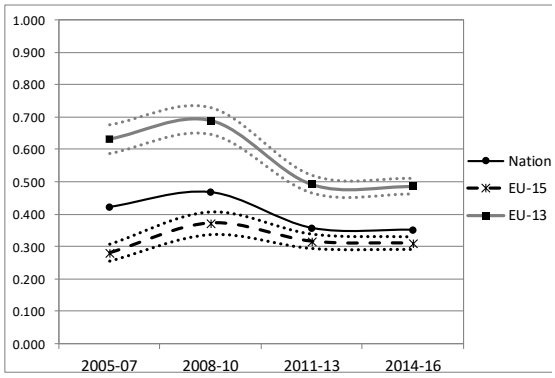
Sig.: *p < 0.05; **p < 0.01; ***p < 0.001.

There are significant differences between the individual markets. Germany has undergone a major transformation in the working conditions of highly educated migrant workers; in the 2005-2007 period, and together with France, highly educated EU-13 workers were not subject to a penalty, while EU-15 workers received a slight premium. However, in 2008-2010 the premium for EU-15 workers disappeared, and EU-13 migrants were exposed to a penalty, with a growing trend that would eventually mean that Germany imposed the highest penalty on highly educated workers from EU-13 countries. These transformations are not directly related to changes in the status of EU-13 workers, nor are they related to developments in the labour market in Germany, although they could be related to the significant increase in arrivals as of 2011, both by EU-15 and by EU-13 workers (Elsner and Zimmermann, 2016; Zaiceva and Zimmermann, 2016). According to Kogan (2011), before the enlargement highly educated migrants from Eastern Europe faced serious problems for integrating within the labour market in Germany, and tended to concentrate in the lowest levels, while highly educated migrants from other EU-15 countries received preferential legal treatment and found it easier to have their qualifications recognised.

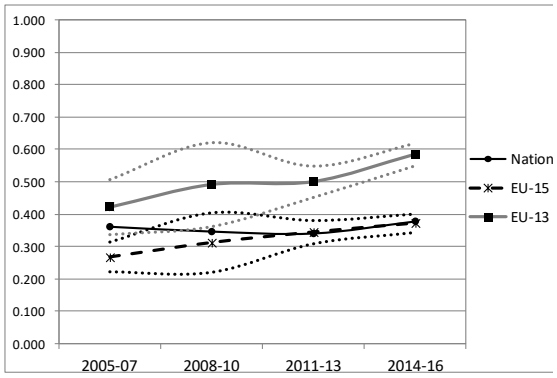
Over the period 2005-2007, highly educated EU-13 workers in Italy and Spain received a stiff penalty, which has been sharply reduced. In Spain, EU-15 workers initially received a premium that was maintained during the crisis, although it has recently disappeared. The premium for highly educated EU-15 workers in Italy has remained almost unchanged, and access to full citizenship among EU-13 migrants may have allowed for their better positioning in both countries; the crisis does not seem to have directly affected the situation of highly educated workers in either case.

Figure 3. Figure 3. AAPs for HCNs, EU-15 and EU-13 workers in the five host countries both collectively and individually, 2005-2016 (logit model). Controlled for years of residence, sex, and age. AAPs calculated with margins command, Stata v.13.1. Note: The difference between the AAP value of the reference category (HCN) and the categories EU-15 and EU-13 is the same as the AME value for the categories EU-13 and EU-15.

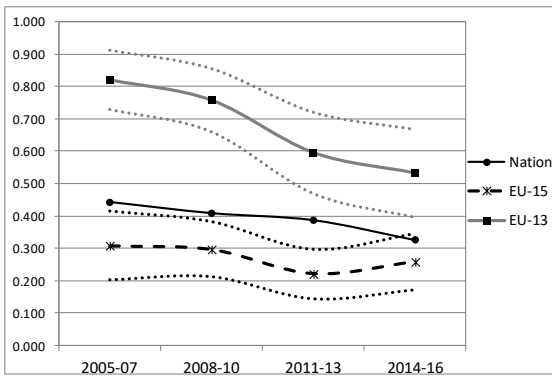
OVERALL



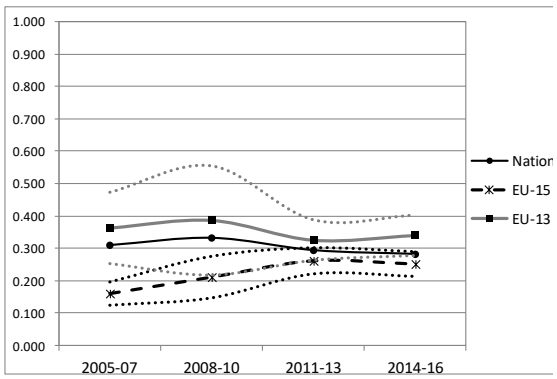
GERMANY



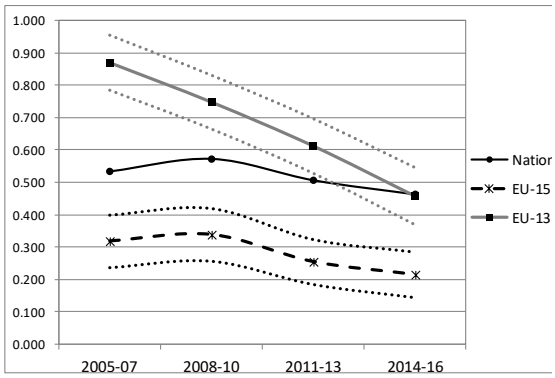
SPAIN



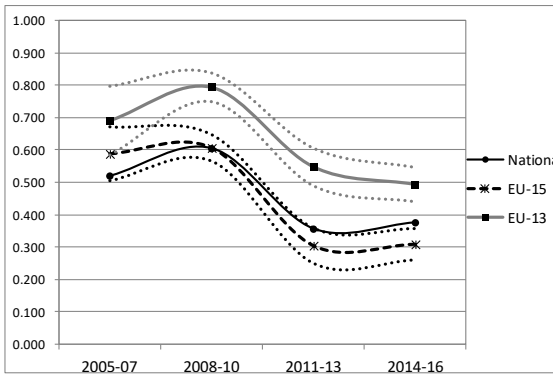
FRANCE



ITALY



UNITED KINGDOM



A more detailed study explains the causes of this transformation, combining both the effects of access to full citizenship by EU-13 workers and the different impact the crisis has had on Southern and Northern Europe. The enlargement meant that Italy and Spain received a large number of migrants from Eastern Europe, particularly from Romania and Bulgaria, and many with a high educational level, who mostly found low-skilled jobs due to the prevalence of this kind of employment (Del Boca and Venturini, 2016; Mooi-Reci and Muñoz-Comet, 2016; Fellini, 2018). This type of employment was the one most seriously affected by the crisis, which led to their redundancy and reduced the levels of over-qualification. In turn, the confluence of the crisis in Southern Europe and the end of the restrictions on mobility in those countries hardly affected by the recession favoured the migration to other countries, especially to Germany, with few EU-13 workers returning home (Elsner and Zimmermann, 2016; Zaiceva and Zimmermann, 2016). This new migration reduced over-qualification in Southern Europe, while increasing it in the North.

France is the only country where highly educated workers from EU-13 countries are not exposed to a penalty with respect to HCN workers, and this situation has not changed over time. However, EU-15 workers have ceased to receive a premium of more than 10% compared to HCNs. As far as over-qualification is concerned, France is now the only country that does not differentiate between highly educated workers from EU-13 and EU-15. This particular situation affecting EU-13 workers may be because France has above all attracted migrants with a high educational level and in a much smaller number than Spain, Italy, Germany, and the UK (Fic et al., 2016), meaning better integration in the labour market, yet in turn it has led to the removal of the premium for EU-15 workers.

Finally, the penalty for EU-13 workers in the UK has decreased over time. EU-15 workers have gone from a similar position to HCNs to receiving a slight labour premium in the last period. In 2004, the UK did not impose any restrictions on the mobility of workers from accession countries, thereby favouring a mass influx, particularly from Poland. The crisis between 2008 and 2009 reduced the number of arrivals (Barrell et al., 2010; Clark et al., 2016), although it recorded an increase in workers from Southern Europe and the first arrivals of Romanian and Bulgarian nationals when these countries joined the EU in 2007. This uninterrupted flow throughout the entire period therefore explains the persistence of the penalty among EU-13 workers, as they mostly found work in low-skilled jobs (Clark et al., 2016). The particular nature of the UK market (H1) and its high level of specialisation explain the emergence of a premium for highly educated EU-15 workers despite the increase in the numbers of their EU-13 counterparts.

Discussion and conclusions

An analysis of the five countries over the period 2005-2016 provides an interesting framework for studying the situation of highly educated workers in the EU, but at the same time it poses a serious challenge, as the transformation of the legal status of workers from EU-13 countries coincided with the economic crisis. The results answer the questions raised at the start; yet at the same time, new questions arise about the effects of the transformations described. Firstly, there are major differences across countries in the levels of over-qualification among highly educated workers. Those countries with a lower segmentation of the labour market, less regulation, fewer migrant workers, and less affected by the crisis are the ones recording lower levels of over-qualification, as reflected in our hypotheses.

Secondly, we observe different situations between highly educated workers from EU-13 countries and EU-15 nationals, confirming H5 and H6. The five countries both collectively and individually recorded, and still do, a different employment situation for EU-13 workers compared to EU-15 nationals.

Thirdly, access to full citizenship for EU-13 workers did not mean the immediate removal of their labour penalty. There is a general tendency to reduce the risk of over-qualification in the later periods, except in Germany, which has been the last country to lift the restrictions on free movement for EU-13 workers.

Fourth, there are different transformations in each one of the five major markets. The tendency to progressively reduce the penalty for highly educated workers from EU-13 countries is accompanied by a decline in the favourable treatment of highly educated EU-15 workers. We cannot rule out the premise that the penalty reduction for EU-13 workers is related to the decrease in the premium for educated EU-15 workers, as seen

from the perspective of the increase in educated labour moving from Eastern to Western Europe (Favell, 2008; Bartolini et al., 2017).

Although the relationship between GDPG and the level of over-qualification confirms our hypotheses on the effect of the crisis, it nonetheless appears that the countries most affected by the recession are the ones that have most reduced the penalty for new EU citizens. The explanation for this apparent contradiction lies in the transfer of skilled EU-13 workers from the South to the lesser affected economies in the North (Elsner and Zimmermann, 2016; Zaiceva and Zimmermann, 2016; Bartolini et al., 2017). This could explain the decrease in the penalty in Spain and Italy and, by contrast, the increase in countries such as Germany, as the results show. France is the country with the highest equality in the labour market for EU citizens, as was the case before the enlargement. According to Eurostat, France records the lowest influx of migrants from EU-13 countries. The UK is also a very particular case, combining the reduction in the penalty for EU-13 workers with a tendency to reward educated EU-15 workers, reflecting the specific nature of its liberal-type labour market.These results are consistent with Johnston et al. (2015).

These results highlight the importance of the restriction on free movement after the enlargement as a crucial factor in the direction and intensity of migratory flows. This study shows how important the workers' legal status is for joining the labour market and, in turn, how the effects of the economic crisis in certain markets have major impacts on other markets thanks to the mobility possibilities provided by full access to European citizenship. Moreover, the different situations observed in the incorporation of highly educated workers from accession countries reflects a certain inefficiency in the employment of human capital, revealing the need for coordination within the EU and across countries to favour mobility according to the needs and opportunities of countries

and their citizens. This situation calls for policies that favour job mobility and the ongoing match between educational level and occupation for better integrating both workers and countries.

A highly significant finding here is the zero impact that the time of residence has on job integration in several countries (Reyneri and Fullin, 2011; Del Boca and Venturini, 2016), whereby the penalty for certain EU workers does not disappear over time, as is to be expected according to human capital and other theories. Yet at the same time, these results refer back to the postulates of Assignment Theory (Sattinger, 1993), according to which certain highly educated migrants will seek the maximum utility outside their jobs, which explains why they are not interested in the removal of their employment penalty.

We cannot rule out the possibility of discriminatory practices and a very different appreciation of human capital depending on the country of origin. Neither can we discard the role of workers in accepting different occupations in the labour market due to the possible pay compensation they receive when they access EU-15 markets, nor even the existence of other objectives outside of work, such as quality of life or experience (Landolt and Thieme, 2018). Furthermore, relevant predictors of over-qualification such as the field of study (Ortiz and Kucel, 2008) or having work experience during higher education (Passaretta and Triventi, 2015) should be considered in future studies to address the causes of the differences observed.

We contribute to the comparative literature on job mobility and its determinants by examining the extent to which they confound or possibly mediate the effect of labour market dynamics on over-qualification among highly educated workers in a context that is evolving due to the legal and economic changes taking place in the EU. The article's second contribution to the state-of-the-art is to shed light on the importance of legal status for favouring the labour mobility of highly educated migrant workers, yet at the same

time it is insufficient to set migrant workers on an equal footing with HCNs. The third relevant contribution involves revealing the diversity of circumstances both across countries and among workers within each country, based on the transformation of migratory flows.

Finally, it is necessary to point out certain important limitations of the study. This paper only analyses highly educated immigrants in the labour market, but not unemployed immigrant workers. It is very likely that both the EU enlargement process and the recession have had an important impact on the unemployment of these highly educated workers in the different countries considered. In particular, it is highly likely that the decrease in over-qualification in the main countries affected by the crisis, Spain and Italy, may be due to the exclusion from the labour market of overeducated workers (Borgna et al., 2019). A second major limitation involves the nature of the data. This is a cross-sectional study, which means we cannot analyse how the migrants' employment changes with time of residence, and we only have the migrants' situations for certain specific times of residence. A third limitation involves the inability to conduct an individual analysis of each one of the nationalities of workers belonging to EU-13 and EU-15 member states, as well as some of their main characteristics, which would have provided a direct view of each country's entry into the EU and the particular effects of the crisis on each market in terms of workers' mobility processes according to certain characteristics. Finally, the lack of longitudinal data on mobile workers during this period and across countries stops us from making a clearer evaluation of the effects arising from the enlargement process with the effects of the economic crisis.

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Chapter 3. The childbearing behavior of non-EU immigrants in the EU. Three studies on the childbearing behavior of Latin American and Maghrebi immigrant women and their descendants in Spain.

Chapter 3, Study 1.

Fertility of immigrants and their descendants in Spain: intergenerational convergence to the native population's behaviour?

Chapter 3, Study 2.

Early Childbearing of Immigrant Women and their Descendants in Spain.

Chapter 3, Study 3.

La fecundidad completa de las inmigrantes latinoamericanas y sus descendientes en España.

Chapter 3, Study 1. Fertility of immigrants and their descendants in Spain: intergenerational convergence to the native population's behaviour?

This study is in the first round of review for publication.

Fertility of immigrants and their descendants in Spain: intergenerational convergence to the native population's behaviour?

We study the fertility patterns of first, 1.5, and second-generation immigrants in Spain, analysing a database linking the 2012-2015 natural movement of population records to the 2011 census. First-generation Latin American immigrants have a lower fertility level than the native population; the 1.5 generation arriving between the ages of 9 and 17 have a higher level, and the second-generation closely follow the native population's fertility level. The first and 1.5 generations of Maghrebis have a much higher fertility level than the native population, and the second generation maintains a slightly higher level. The impact that age, labour market participation, and educational attainment have on the second generation's level is closer to the Spanish population than among the first generation. Selection and disruption hypotheses help to explain the fertility of Latin American immigrants, while socialisation and interrelation of events hypotheses do so for Maghrebis.

Keywords: fertility; migration; immigrant descendants; education; female employment; Spain.

Introduction

The increase in first and second generation migrant populations in Europe in recent decades has made their childbearing behaviour a key determinant of European demographic dynamics and the long-term consequences of migration (de Valk & Milewski, 2011; Sobotka, 2008). However, because this is a relatively recent phenomenon and many databases do not collect information on the parents' country of birth, this field is still developing, and several researchers have called for further studies (Andersson et al., 2017; Dubuc, 2012; Kulu et al., 2017; Kulu & Hannemann, 2016; Milewski, 2011; Scott & Stanfors, 2011).

Spain is an outstanding example of accelerated population growth due to significant incoming migratory flows (Avdeev et al., 2011; Sobotka, 2008) beginning in the late 1990s: its immigrant population increased from 2.2% in the 1991 census to 13.5% in 2011. Although studies have been conducted on the fertility of the first generation in Spain (Castro Martín & Rosero-Bixby, 2011; del Rey & Grande, 2017; Roig Vila & Castro Martín, 2007), the young age structure of their descendants combined with the absence of adequate databases has considerably limited the development of research on the second generation (González Ferrer & Cebolla Boado, 2018; Liu et al., 2019). The study by González-Ferrer et al. (2017) is thus far the only one that directly analyses the fertility of immigrant descendants in Spain. It concludes that in generation 1.5, only descendants of Moroccan origin record a higher fertility than the native population, whereas intergenerational convergence is observed in generation 1.5 among Latin Americans. As the study relies on two surveys conducted in 2006 and 2007, the second generation cannot be analysed.

We use a new database that links the natural movement of population (NMP) records from 2012 to 2015 to Spain's 2011 census, as provided by Spain's National Statistics Institute (INE). We analyse the childbearing behaviour of first, 1.5, and second-generation immigrants in Spain from emerging post-transitional countries[1]. We selected women born between 1965 and 1995 with origins in Latin America and the Maghreb. The diversity of fertility levels in Latin America led to this category being subdivided depending on whether the total fertility rate (TFR) in 2011 in the country of origin was higher or lower than the population replacement level (TFR equal to 2.1). Latin America and the Maghreb are the two main regions for immigration to Spain that do not yet have a post-transitional demographic regime, and have a higher fertility level and earlier age

at first birth (succinctly, higher and earlier fertility) than that of the Spanish population (Sobotka, 2017).

The main purpose here is to study the extent to which years of residency in Spain and being an immigrant descendant contribute to reducing the differences between the fertility level of immigrants and the native population. We classify first-generation immigrants into three categories according to years of residency: fewer than five, between five and eight, and nine or more. We study four categories of immigrant descendants: the 1.5 generation immigrants are divided into those that arrived between the ages of 9 and 17 and those younger than 9; second-generation immigrants are divided into those whose both parents were born abroad and those with one parent born in Spain and one born abroad. Next, we compare the effects of age, educational attainment, and labour market participation on the fertility levels of native and immigrant women. The main hypothesis is that the effect of these three variables on fertility will differ between the native population and first-generation immigrants, reflecting the significant differences between Spain, Latin America, and the Maghreb. Due to a process of convergence, immigrants' descendants will more closely resemble the native population's childbearing patterns.

Fertility in Spain, Latin America, and the Maghreb

Spain is currently the country in the Organisation for Economic Co-operation and Development (OECD) with the third-lowest TFR (close to 1.3 between 2009 and 2018) and with the second-highest average childbearing age (average age of 31 at first birth in 2018) (OECD 2018 and 2019). This is the result of the late and accelerated second demographic transition that began in Spain in the 1980s (Delgado et al., 2008; Lesthaeghe & Van de Kaa, 1986; Surkyn & Lesthaeghe, 2004; Van De Kaa, 1987), and of the significant impact that the 2008 economic crisis had on a weak welfare state that had not fully introduced public policies for facilitating childrearing (Baizán, 2009; Esping-Andersen, 1999). It is worth mentioning that immigrants and their descendants were disproportionally affected by this crisis due to their vulnerable position in the labour market and the lower resources that are available to them (Arcarons & Munõz-Comet, 2018; Mooi-Reci & Muñoz-Comet, 2016; Muñoz-Comet, 2016; Ponzo, 2021; Schnell & Azzolini, 2015). Within this context, Spain is one of the European countries with the widest gaps between the number of children wanted -around two children per woman- and the number actually born (Castro et al., 2018; Sobotka & Beaujouan, 2014). The structure of partnerships in Spain has undergone a recent transformation: the sharp increases in female participation in the labour market (Brewster & Rindfuss, 2000) and in educational attainment (Castro et al., 2018) have led to an increase in the number of couples in which both work and in which the woman has a higher level of education than the man, to the detriment of the structure that reproduced the traditional male breadwinner model (Bueno & García-Román, 2020). The childbearing plans of highly educated women have been less affected in recent years by the economic crisis because these women were in the primary segment of the labour market and their partners were more likely to provide economic stability (Adsera, 2011). In fact, fertility increases with

participation in the labour market and level of education (Bueno & García-Román, 2020). In Spain today, employment, a high level of education and having a partner that provides stability are considered suitable resources or conditions for motherhood (Adsera, 2011; González & Jurado-Guerrero, 2006).

In terms of fertility, Latin America and the Maghreb, are considered two emerging post-transitional regions (Sobotka, 2017). As such, every country in these two regions has a higher TFR and a lower average childbearing age than Spain (according to data from The World Bank), and there have been significant changes since the last third of the twentieth century. TFRs in Latin America have decreased sharply since the 1960s (Lima et al., 2018; Rosero-Bixby et al., 2009). At the beginning of that decade, TFRs were around seven children per woman in most countries, except for Argentina, Chile, Cuba, and Uruguay, where they were around four. Fertility then plummeted, and by 2011 the highest TFR was in Guatemala, at 3.29. Nowadays, there is a group of countries where fertility has fallen below the population replacement level: Brazil, Chile, Colombia, Costa Rica, Cuba, and Uruguay. This decline began in the Maghreb a decade later (D'Addato, 2006; D'Addato et al., 2008; Eltigani, 2005). The TFR used to be around seven, but since the beginning of the twenty-first century it has fallen to between two and three children per woman.

At the same time, the average childbearing age rose in both Latin America and the Maghreb. However, this process started before that, and was more pronounced in the latter (Eltigani, 2005). The persistence of high early fertility in Latin America at a time when TFRs were decreasing and the female presence in education was increasing drew the attention of several scholars (Fussell & Palloni, 2004; Rosero-Bixby et al., 2009). The existence of a strong family-oriented culture has helped to explain this phenomenon, emphasising the importance of marriage in providing economic certainty (Fussell &

Palloni, 2004). The different pace of childbearing postponement in Latin America and the Maghreb is related to the polarising effect that the expansion of education had in the former region. Both regions record a clearly negative correlation between women's educational attainment and early fertility (D'Addato, 2006; D'Addato et al., 2008; Esteve & Florez-Paredes, 2018). However, while the expansion of education in the Maghreb reduced and delayed women's fertility regardless of their educational attainment (D'Addato, 2006), in Latin America this process had a polarising effect. Thus, a bimodal calendar of fertility emerged in Latin America, characterised by high fertility rates among adolescents and at around the age of 30 (Batyra, 2020; Esteve et al., 2013; Esteve & Florez-Paredes, 2018; Lima et al., 2018; Pardo & Cabella, 2018): while women with high educational attainment reduced and delayed their fertility, those with lower levels of education increased their early childbearing. Finally, Latin American and Maghrebi immigrant women in Spain may record different childbearing behaviour due to the higher educational level of women in Latin America and their higher participation in the labour market in this region compared to the Maghreb. Moreover, many women in the Maghreb exit the labour market permanently when they form a family because employment and family life are not at all compatible for them (Verme et al., 2016).

Childbearing of immigrants and their descendants: evidence, theoretical framework and research hypotheses

Many European countries had very low TFRs during the 1990s (Kohler et al., 2002), but saw them rise above the threshold of 1.3 children per woman in the first decade of the 21st century (Goldstein et al., 2009). During this period, immigrant women in Europe generally had higher fertility rates than native women and contributed to the increase in the number of births (Sobotka, 2008). However, the growth of immigrant populations was responsible for a significant part of the increase in TFRs only in southern European countries (Goldstein et al., 2009). In Spain, the higher and earlier fertility of immigrant populations contributed to significant increases in the number of marriages (Delgado et al., 2008) and births (del Rey & Grande, 2017) as well as limiting the rise in the average childbearing age over these years (Castro Martín & Rosero-Bixby, 2011; Castro et al., 2018).

In Spain and elsewhere in Europe, the childbearing behaviour of immigrants differs significantly according to their origin. Only certain origins, mostly emerging post-transitional countries, record fertility that is significantly higher and earlier than that of the native population (Andersson, 2004; Kulu et al., 2019; Roig Vila & Castro Martín, 2007; Sobotka, 2008). At European level, immigrants from Africa and Turkey record higher and earlier fertility than the native population in almost every country (Blekesaune, 2020; Kulu et al., 2019; Mussino & Cantalini, 2020). Latin American immigrant women do not have higher fertility rates in most host countries, and, in some, they even have depressed fertility (Mussino & Cantalini, 2020).

In Spain, the two main groups of immigrants from emerging post-transitional countries are Maghrebis and Latin Americans. In the 2011 census, they accounted for more than three million people and 50% of the immigrant population, making Spain the

European country with the highest number of Latin American immigrants, and the second-highest number of Maghrebi immigrants (Eurostat, 2011). Both record a childbearing behaviour characterised by higher and earlier fertility; however, the differences relative to the native population are smaller in the case of Latin Americans (Castro Martín & Rosero-Bixby, 2011; Roig Vila & Castro Martín, 2007). A determining factor in this phenomenon is the different migratory motivation. Whereas the majority of Latin American women arriving in Spain are looking for employment, in the case of Maghrebi women, we find a predominantly family motivation, with most arriving with a partner (Carella et al., 2021; del Rey et al., 2015; González-Ferrer, 2011; González-Ferrer et al., 2018). In addition, Latin American women adapt their fertility behaviour to the Spanish context more than Maghrebi women, which is to be expected due to the narrower cultural, religious, and linguistic divide between Latin Americans and their Spanish counterparts (Adsera & Ferrer, 2014; Connor & Massey, 2010; Cristina Mora et al., 2018; González Ferrer & Cebolla Boado, 2018; Kraus & Castro-Martín, 2018). Finally, the immigration policy affecting these two groups favours the integration of Latin Americans. According to Spanish legislation, while Latin American immigrants may apply for Spanish citizenship after two years, it takes ten years for Maghrebis.

Research is scarcer regarding the fertility of immigrant descendants; however, the literature allows us to conclude that these descendants have a childbearing behaviour that is very similar to that of native populations, except in the case of groups originating from certain specific emerging post-transitional countries with higher and earlier fertility (Milewski, 2011). In an analysis of the fertility of immigrants and their descendants in six European countries, Kulu et al. (2017) report that most originating regions have a fertility pattern that converges between the first and second generations towards that of the native population. However, descendants originating from India, Pakistan and

Bangladesh in the United Kingdom, from the Maghreb in France, Belgium and Spain, and from Turkey in Germany and France have a higher fertility rate than the native populations. Kulu et al. (2019), summarising the results of seven studies of seven European countries, come to the same general conclusion. The descendants of immigrants from Turkey have a higher fertility rate in France (Pailhé, 2017), Belgium (Van Landschoot et al., 2017), Sweden (Andersson et al., 2017), and Switzerland (Rojas et al., 2018). The descendants of Maghrebi immigrants record a higher fertility rate in Norway (Lillehagen & Lyngstad, 2018), Belgium (Van Landschoot et al., 2017), and Spain (González-Ferrer et al., 2017). However, Dupray and Pailhé (2018) conclude that they have a later fertility calendar in France and a lower propensity to have a first child than native women.

The childbearing behaviour of immigrants and their descendants have been less studied regarding the effects on fertility of labour market participation and educational attainment. These aspects are commonly included as control variables (Andersson et al., 2017; Kulu & Hannemann, 2016; Milewski, 2010, 2011; Stephen & Bean, 1992; Van Landschoot et al., 2017) or as explanatory factors in the interpretation of results (Coleman & Dubuc, 2010; Dubuc, 2012), but their effects on fertility are rarely analysed in depth. More specifically, in analytical approaches, the impact of these predictors of fertility is expected to become increasingly similar for future generations of immigrants and the native population (Parrado & Morgan, 2008). The fact that these fundamental predictors of fertility have the same effect on the second generation as on the native population is a sign that 'integration has largely occurred' (Scott & Stanfors, 2010, 2011). In this line, several studies have suggested that highly educated immigrants are pioneers in the convergence towards the childbearing behaviour of the native population, in both the first

and second generations (Adsera & Ferrer, 2014; Delgado et al., 2008; Kulu et al., 2019; Pailhé, 2017; Sobotka, 2017).

The socialisation process of any generation of immigrants is different, and is expected to be clearly reflected in their childbearing behaviour. First-generation and 1.5 generation immigrants are in a 'socio-cultural middle ground' between their home and host countries (Holland & de Valk, 2013). Second-generation immigrants have been fully socialised in their host countries, although they are also influenced by their family circumstances (Milewski, 2011). Early research has proposed several hypotheses to explain the fertility of first-generation immigrants, with the *socialisation hypothesis*, the *adaptation hypothesis*, the *selection hypothesis*, the *disruption hypothesis* and the *interrelation of events hypothesis* receiving the most attention (Kulu, 2005; Kulu & González-Ferrer, 2014; Milewski, 2010).

The *socialisation hypothesis* argues that this process informs fertility behaviour. Milewski (2010) proposes that this hypothesis has two strands: one states that while first-generation immigrants will uphold the childbearing behaviour of their home countries in the host country, second-generation immigrants will adapt their fertility to the native pattern; the other predicts that there will be differences in the childbearing behaviour of immigrant groups from different societies, reflecting different fertility patterns in their home societies. The *adaptation hypothesis* emphasises the importance of the context in which immigrants live during their adult life, whereby their values and preferences will change and resemble the host country's norms, and they will adjust their fertility behaviour to the socioeconomic conditions prevailing there (González-Ferrer et al., 2017; Milewski, 2010). The *selection hypothesis* proposes that migrants are a specific group in their home societies. According to this hypothesis, first-generation immigrants follow a fertility behaviour that is similar to the norm in the host society, because even before

migrating immigrants were on a par with the native population in the host society in terms of fertility preferences and sociodemographic composition (Kulu & González-Ferrer, 2014). The *disruption* and the *interrelation of events hypotheses* focus on the influence that the migration process has on subsequent childbearing behaviour. The *disruption hypothesis* argues that due to the diverse costs that migrating entails, immigrants will have low fertility rates after settling in the host country (Kulu & González-Ferrer, 2014). The *interrelation of events hypothesis* proposes that immigrants may be prone to forming a family after migration because their move may be related to family reunification (González-Ferrer et al., 2017). We have thus derived the following working hypotheses from the empirical evidence and the theoretical background:

H1) The fertility level of first-generation Latin American women immigrants differs from that of their counterparts in the native population in that it is higher until the age of 25 and lower thereafter, and has a negative relationship with labour market participation and educational attainment. For the 1.5 generation, we expect these differences to be smaller. Second-generation Latin American immigrants will resemble the native population's fertility behaviour very closely.

H2) Latin American immigrant women from countries with a TFR above 2.1 in 2011 have a higher fertility level than those from countries with one below 2.1 in 2011.

H3) The fertility level of first-generation Maghrebi immigrants differs from that of the native population in that it is higher, especially until the age of 25, and it has a negative relationship with labour market participation and a high level of education. For the 1.5 generation, we expect these differences to be smaller, but still significant. Second-generation Maghrebi immigrants will have a fertility level that will have converged towards host country patterns, but will maintain characteristics that are specific to their origin.

H4) In both cases, the fertility level of first-generation immigrants will be closer to that of the host country the longer they live in Spain.

H5) In both cases, the fertility level of 1.5 generation immigrants arriving under the age of 9 will be closer to that of the host country than in the case of 1.5 generation immigrants arriving between the ages of 9 and 17.

H6) In both cases, the fertility level of second-generation immigrants with one parent born abroad and one born in Spain will be closer to that of the host country than in the case of second-generation immigrants whose both parents were born abroad.

H7) Regardless of origin or generation, a high level of education and high labour market participation are two factors that promote convergence towards the native population's fertility level, whereas the differences are greater among women with low educational attainment and low labour market participation.

Data, methods, and sample description

We used a new dataset extracted from the official register of births (*Movimiento Natural de la Población*) and Spain's 2011 census. This dataset links individual birth data between 2012 and 2015 to the 2011 census. This made it possible to use the information in the 2011 census to classify each case according to their own and their parents' country of birth, as well as to gather data related to other socio-demographic characteristics. Linking the 2011 census data to the NMP records up to December 2015 made it possible to analyse the influence that the variables obtained in the 2011 census had on the decision to have children over the following years.

Data for a total of 731,456 women (673,770 host country and 57,686 immigrants) born between 1965 and 1995 in Spain, Latin America and the Maghreb[2] were analysed. In 2011, these women were aged between 16 and 45, and between 2012 and 2015 they had 87,770 children. To account for the current diversity in fertility patterns in Latin America, women born there were divided into two groups according to whether the TFR in their home country was above or below the population replacement level of 2.1 children per woman in 2011[3]. The immigrants studied were first, 1.5, and second generation. First-generation immigrants were born outside Spain and arrived over the age of 17. 1.5 generation immigrants were also born outside Spain, but arrived under the age of 18. Second-generation immigrants were born in Spain, with at least one of their parents born in the Maghreb or Latin America. In those cases in which both parents were born in countries other than Spain, the mother's country of birth was considered.

The dependent variable was the number of children born between 2012 and 2015. This is a count variable, so like other research where a similar measure of fertility is used (Adsera & Ferrer, 2014; Frank & Heuveline, 2005; Mussino et al., 2020), application was made of Poisson models adjusted for the overdispersion of the data (i.e., negative

binomial regression models). Five models with different explanatory variables were estimated, with the native population as the reference category. Model 1 analyses the fertility level of each immigrant category studied. In this model, both 1.5 and second-generation immigrants are each subdivided: 1.5 generation immigrants are those that arrived aged 9 to 17 or those that arrived under the age of 9; second-generation immigrants are those whose both parents were born abroad or those who have one parent born in Spain and one born abroad. Model 2 takes a closer look at first-generation immigrants by subdividing them into three categories according to years of residency: fewer than 5, between 5 and 8, and 9 or more. In this model a subsample made up of women aged between 26 and 45 is analysed due to the absence of younger first-generation immigrants with more than 8 years of residency. To further analyse childbearing behaviour, Models 3, 4 and 5 followed a methodology similar to that applied by Adsera and Ferrer (2014). These models analyse nine immigrant categories, according to generation (first, 1.5, and second generation) and origin (two groups of Latin Americans and Maghrebis). Each model introduces an interaction term between the immigrant category and a key variable related to fertility: Model 3 analyses the effect of age on fertility, Model 4 analyses the effect of labour market participation, and Model 5 analyses the effect of educational attainment. This modelling strategy allows for an enriching analysis of the childbearing behaviour of immigrants and their descendants, not only considering the fertility level but also the influence three key factors have on the fertility level of each immigrant group and generation.

All the models introduced control variables that are relevant for the fertility of immigrant populations. Age was introduced in six 5-year groupings, ranging from the ages of 16 to 45. Three dichotomous variables were included referring to being a student, moving from one municipality to another in the previous 10 years, and a large burden of

household chores. This last variable differentiates between those that do most of the housework and those that do not. The level of education attained was controlled for by identifying three categories: no schooling or primary education, secondary education, and tertiary education. Labour market participation had four categories: inactive (unemployed people that are not jobseekers), unemployed, employed part-time, and employed full-time. A variable with three categories was also included in relation to living with a partner and whether the partner was working or not. A dummy variable controlling for whether second-generation immigrants have one or both parents born abroad was included. Finally, the number of children born before 2012 was added. As a robustness test, the study period was restricted by modifying the dependent variable introduced in the models so that it captured the number of children born in 2012 and 2013 to verify that the results obtained were not affected by changes in the explanatory and independent variables in the period under study. Very similar results were obtained, leading to the same conclusions as those presented in this study. The following section presents the results of the models with the full set of control variables, with one graph for each model[4]. The graphs present the incidence rate ratio (IRR) for the categories of each model's explanatory variable, accompanied by 95% confidence intervals.

Tables 1, 2 and 3 contain descriptive information on the native population and the 21 categories of immigrants analysed. The fact that relatively large migratory flows began to arrive in Spain at the turn of the century is reflected by the young age profile of their offspring. At the time of the 2011 census, 61.5% of second-generation Latin American immigrants and 71.3% of second-generation Maghrebi migrants were under 20. This made it difficult to study their fertility patterns, but the database used helped to overcome this problem. It was not necessary to use the 2011 census records as retrospective information; instead, they provided a starting point for observations. The categories with

the youngest profile were those of generation 1.5, but, even in these cases at least 15% of women were aged 36 to 45 in 2011, and their fertility over the following five years was studied. The fact that 1.5 generation immigrants had a younger profile than second-generation immigrants may seem counterintuitive. However, this can be understood when considering that these migratory flows are relatively recent and that when we refer to different generations, we mean different immigrant generations, and not different generations within the same families.

These different age structures affected the distribution of the sample for the observed variables. Nonetheless, Tables 1, 2 and 3 reveal significant differences between the immigrant categories analysed and the native population. Overall, second-generation immigrants follow the native population's socio-demographic profile more closely than the first generation. The average number of children born between 2012 and 2015 varied widely by origin and generation, with Maghrebi immigrants recording a much higher fertility than the native population, and Latin American immigrants close to the latter's level. According to generation, we observe the same trends in Latin American and Maghrebi immigrants. Within first-generation immigrants, those who have been living in Spain longer, show lower fertility levels. As regards 1.5 generation immigrants, those that arrived aged 9 to 17 record higher fertility levels than those that arrived under the age of 9. In turn, the fertility patterns of second-generation immigrants were very similar between those whose both parents were born abroad and those with one parent born in Spain. In terms of educational attainment, there were also large differences according to origin and generation. First-generation Latin American immigrants had a lower level of education than Spanish women, but the second generation almost completely closed this gap. First-generation Maghrebi immigrants had a much lower educational attainment than their Latin American counterparts, and although the differences were greatly reduced in

the second generation, they remained significant. The degree of participation in the labour market was also much higher among Latin American migrant women than among Maghrebi women, who were more likely to live with a partner. These differences were consistent with the more labour market–centred profile of Latin American immigrants and the more family-centred profile of Maghrebi immigrants, as reported in several previous studies (González-Ferrer et al., 2017).

Table 1. Descriptive statistics of origin and generation. Native and Latin American TFR>2.1.

		Native	First Gen. +9 Res. Years	First Gen. 5-8 Res. Years	First Gen 0-4 Res. Years	1.5 Gen. 9-17 Age Arrival	1.5 Gen. 0-9 Age Arrival	Second Gen. Both Par. Immi.	Second Gen. Mixed Par.
Nº of children birthed between 2012 and 2015 (average)		0.14	0.10	0.14	0.15	0.14	0.11	0.10	0.11
Nº of children birthed between 2012 and 2015 (%)	0	87.4	90.4	86.9	86.3	86.9	89.8	91.2	90.5
	1	11.2	8.9	12.2	12.7	12.1	8.9	7.6	8.2
	2 or more	1.4	0.7	1	0.9	1.1	1.2	1.2	1.3
Educational attainment (%)	No or primary education	35.4	36.9	37.8	34.7	52.7	46	43.8	30.6
	Secondary education	35.4	43.1	41.2	37.8	37.9	32.6	36.8	38.4
	Tertiary education	29.2	20	21	27.5	9.4	21.3	19.4	31
Educational enrollment (%)	Yes	29.5	11.8	12.4	18.7	43.7	38.9	37.3	48
Labour market participation (%)	Inactive	20.7	9.9	12.5	20.6	42.8	41.6	39.3	38.3
	Unemployed	26.2	31.6	29.9	30.1	29.9	24.9	26.1	23.7
	Employed part-time	13.2	19	19.1	14.5	10.4	8	9.3	11.3
	Employed full-time	39.8	39.5	38.5	34.9	16.9	25.5	25.4	26.7
Living with a partner, working or not (%)	No	50.5	28.4	34.9	44.9	77.9	68	66.2	75.7
	Yes, not working	9.7	24.4	24	19.8	7.4	8.9	12	5
	Yes, working	39.8	47.2	41.1	35.2	14.7	23.1	21.8	19.3
Large burden of household chores (%)	Yes	60.9	74.4	70.6	64	44.3	48.2	41.7	44.7
Municipal mobility (previous 10 years)	Yes	22.9	68.9	100	100	82.1	45.9	48.2	25.3
Age (%)	16-20	12.8	-	-	3	45.5	36.9	31.5	30.5
	21-25	13.3	-	5.7	17.3	32.4	15.2	13.2	22.4
	26-30	14	10.2	22.9	25.3	10	11.7	10.9	16.3
	31-35	18.2	26.7	29.1	24.2	4.6	10.8	18.1	14.4
	36-40	20.4	32.5	24	17.8	3.8	13.6	14.6	8.8
	41-45	21.3	30.6	18.2	12.4	3.7	11.9	11.6	7.6
Nº of children had before 2012 (average)		0.83	1.64	1.39	1.05	0.39	0.50	0.61	0.38
Total		673770	7744	6978	5800	4351	2497	568	2487

Table 2. Descriptive statistics of origin and generation. Latin American TFR<2.1.

		First Gen. +9 Res. Years	First Gen. 5-8 Res. Years	First Gen 0-4 Res. Years	1.5 Gen. 9-17 Age Arrival	1.5 Gen. 0-9 Age Arrival	Second Gen. Both Par. Immi.	Second Gen. Mixed Par.
Nº of children birthed between 2012 and 2015 (average)		0.08	0.12	0.14	0.13	0.10	0.11	0.12
Nº of children birthed between 2012 and 2015 (%)	0	92.5	88.4	86.9	87.6	90.7	90.9	89.1
	1	6.8	10.7	12.2	11.8	8.4	7.4	9.5
	2 or more	0.7	0.9	1	0.7	0.9	1.8	1.4
Educational attainment (%)	No or primary edu.	36.1	35.4	29.5	53.9	49.5	37.8	30.8
	Secondary education	44.8	41.1	41.1	38.6	34	38.1	39.4
	Tertiary education	19.2	23.4	29.4	7.5	16.4	24.2	29.8
Educational enrollment (%)	Yes	12.2	14.6	20.4	43.1	39.2	34.8	41.7
Labour market participation (%)	Inactive	10.7	15.2	22.3	41.9	40.4	27.7	34.4
	Unemployed	37.8	35.8	35.4	31.3	27.1	25.7	23.8
	Employed part-time	15.4	16.6	14.2	10.4	10.1	14.5	11.5
	Employed full-time	36	32.4	28.1	16.4	22.4	32.2	30.4
Living with a partner, working or not (%)	No	27.6	29.2	33.1	79.6	67.6	56	68.7
	Yes, not working	24.2	21.9	22.5	7	9.6	16.5	6.2
	Yes, working	48.2	48.9	44.4	13.4	22.7	27.4	25.1
Large burden of household chores (%)	Yes	77.3	71.6	68.9	42.7	44.1	49.9	46.9
Municipal mobility (previous 10 years)	Yes	70.2	100	100	85	46.9	44	26.4
Age (%)	16-20	-	-	3	49.1	41.8	18.3	27.8
	21-25	-	6	14.8	32.1	10.5	12.1	18.8
	26-30	7.8	21.5	24.2	10.3	8.8	17.4	16.2
	31-35	25.5	28.2	23.5	3	9.9	19.5	12.5
	36-40	34.4	24.4	18.9	2.9	14.9	17.1	11.1
	41-45	32.2	20	15.6	2.6	14	15.6	13.6
Nº of children had before 2012 (average)		1.47	1.20	0.93	0.32	0.54	0.68	0.49
Total		4466	2867	3151	1954	1131	339	1509

Table 3. Descriptive statistics of origin and generation. The Maghreb.

		First Gen. +9 Res. Years	First Gen. 5-8 Res. Years	First Gen 0-4 Res. Years	1.5 Gen. 9-17 Age Arrival	1.5 Gen. 0-9 Age Arrival	Second Gen. Both Par. Immi.	Second Gen. Mixed Par.
Nº of children birthed between 2012 and 2015 (average)		0.18	0.34	0.44	0.27	0.15	0.16	0.17
Nº of children birthed between 2012 and 2015 (%)	0	83.9	70.7	63.4	76.3	86.7	86.5	85.3
	1	14.6	26.1	30.7	20.2	12	11.1	12.5
	2 or more	1.4	3.3	5.8	3.5	1.3	2.3	2.2
Educational attainment (%)	No or primary edu.	77.1	76.9	75.2	79.9	59.5	60.9	35.4
	Secondary education	15	15.4	15.9	16.7	27.2	26.8	35.1
	Tertiary education	7.9	7.7	8.9	3.3	13.3	12.4	29.5
Educational enrollment (%)	Yes	9.8	11.6	13.6	26.2	26.7	31.5	38.5
Labour market participation (%)	Inactive	30	41.1	42	44.3	35.6	36.5	26.8
	Unemployed	41.3	40.7	42.5	37.4	34.4	36.5	28.6
	Employed part-time	9.6	5.6	4.8	5.7	9.6	8	12
	Employed full-time	19.1	12.6	10.8	12.6	20.4	19.1	32.6
Living with a partner, working or not (%)	No	21.4	21.4	28.1	60.8	60.5	63.2	68.3
	Yes, not working	38.4	41.3	34.2	17.8	14.9	13.5	7.7
	Yes, working	40.2	37.3	37.7	21.4	24.6	23.3	24
Large burden of household chores (%)	Yes	73.6	71.6	67.1	55.9	57.6	52.6	49.1
Municipal mobility (previous 10 years)	Yes	56.4	100	100	76.8	33.7	29.9	21.9
Age (%)	16-20	-	-	3.5	41.6	31.9	28.6	19.8
	21-25	-	7.8	25.4	30.1	18.4	14.2	18.7
	26-30	8.8	27.7	26.5	15.2	10.3	12.8	18.5
	31-35	28.1	27	20.6	7.1	7.2	15.2	18.2
	36-40	31.5	21.9	14.8	3.5	14.1	15.6	14.5
	41-45	31.6	15.6	9.2	2.5	18.2	13.5	10.3
Nº of children had before 2012 (average)		2.23	1.98	1.48	0.85	0.88	0.92	0.58
Total		2178	2059	2229	1494	790	639	2455

Results

Figure 1 shows the results of Model 1 for the number of children born between 2012 and 2015 for each immigrant category according to origin and generation, with the native population as the reference category. The fertility level of Maghrebi immigrants was much higher than that of Latin Americans: whereas first-generation Latin American immigrants recorded a significantly lower fertility level than Spanish women, first-generation Maghrebi immigrants recorded a significantly higher one. While 1.5 generation Latin American immigrants that arrived aged 9 to 17 had a significantly higher

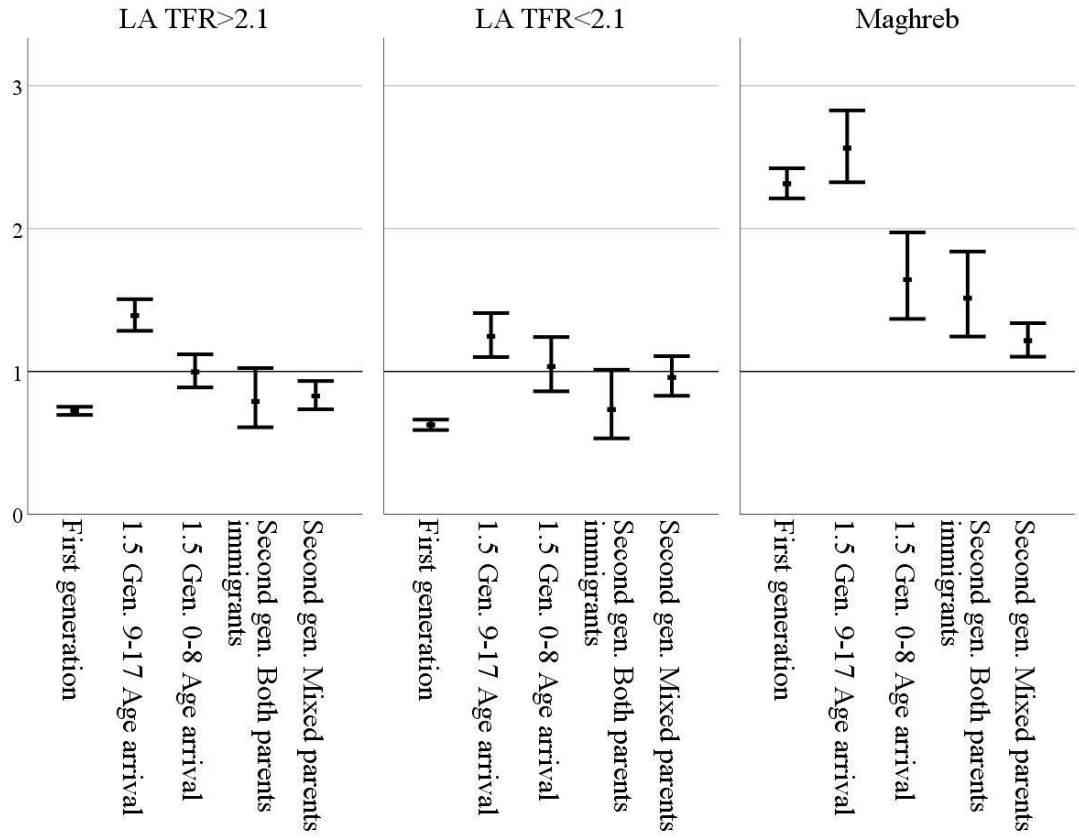

Figure 1. Incidence Rate Ratios relative to native women from a Negative Binomial regression of the number of children born between 2012 and 2015, by origin and generation. Note: Controls for the number of children had before 2012, age, educational attainment, educational enrollment, labour market participation, partnership status, municipal mobility, and large burden of household chores. Estimates of the Negative Binomial regression are available in Table 1 of the Appendix. LA TFR>2.1, Latin American immigrants originating from countries with a TFR above 2.1 in 2011; LA TFR<2.1, Latin American immigrants originating from countries with a TFR below 2.1.

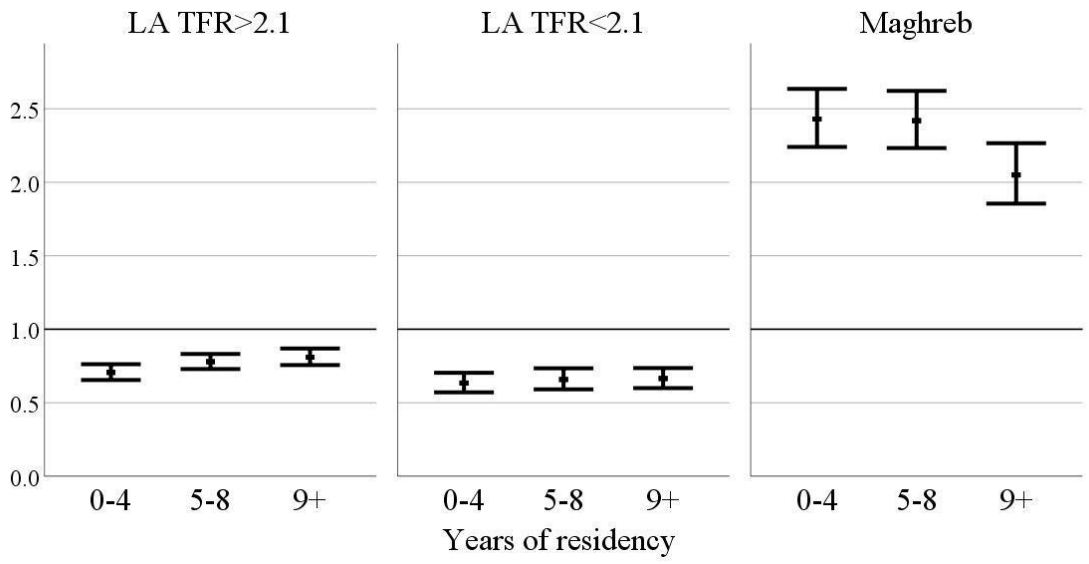

Figure 2. Incidence Rate Ratios relative to native women from a Negative Binomial regression of the number of children born between 2012 and 2015, by origin and years of residency. Note: Controls for the number of children had before 2012, age, educational attainment, educational enrollment, labour market participation, partnership status, municipal mobility, and large burden of household chores. Estimates of the Negative Binomial regression are available in Table 2 of the Appendix. LA TFR>2.1, Latin American immigrants originating from countries with a TFR above 2.1 in 2011; LA TFR<2.1, Latin American immigrants originating from countries with a TFR below 2.1.

fertility level than the native population, those arriving under the age of 9 recorded the same. Second-generation Latin Americans whose both parents were immigrants had a slightly lower fertility level than Spanish women, and second-generation Latin Americans with one Spanish parent were closer to the native population's fertility level. 1.5 generation Maghrebi immigrants that arrived aged 9 to 17 recorded a higher fertility level than the first generation. However, 1.5 generation Maghrebi immigrants that arrived under the age of 9 had a fertility level much closer to Spanish women. Second-generation Maghrebi immigrants still had a higher fertility level than Spanish women, but the gap was narrower for those with one immigrant and one Spanish parent. Overall, no significant differences were observed between the two Latin American groups of countries analysed (see note 3).

Figure 2 presents the results of Model 2 analysing the effect of years of residency on first-generation immigrants' fertility level. For first-generation Latin American immigrants, more years of residence means slightly higher fertility. For first-generation Maghrebi immigrants, the difference lies between those that have been living in Spain for fewer than 9 years and those living for longer, with the latter group having a lower fertility level than the former. In both origins, the longer first-generation immigrants have been living in Spain, the closer their fertility levels resemble the native population.

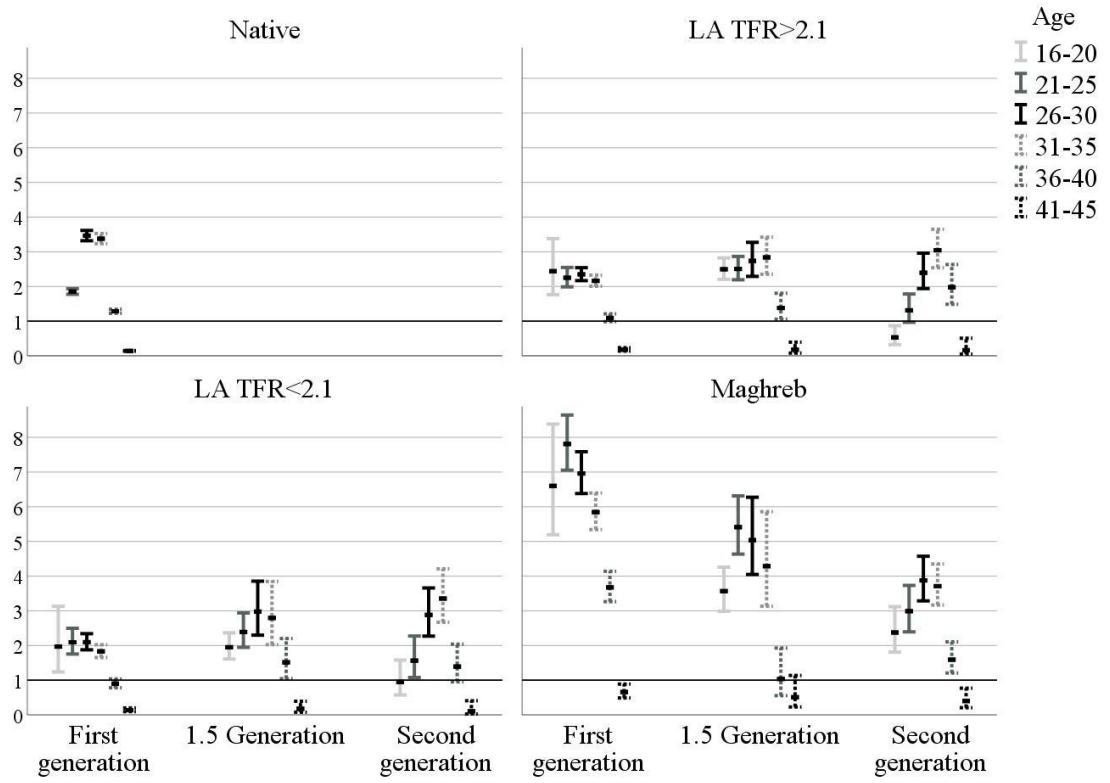

Figure 3. Figure 3. Incidence Rate Ratios relative to native women aged 16 to 20 from a Negative Binomial regression of the number of children born between 2012 and 2015, by origin, generation, and age. Note: Controls for the number of children had before 2012, educational attainment, educational enrolment, labour market participation, partnership status, municipal mobility, large burden of household chores, and a dummy variable controlling for whether second-generation immigrants have one or both parents born abroad.

The effect of age on fertility is presented in Figure 3. The effect of this variable on the native population's fertility level follows an inverted U, with reduced levels at very young and very old ages, and with a high concentration for the period between the ages

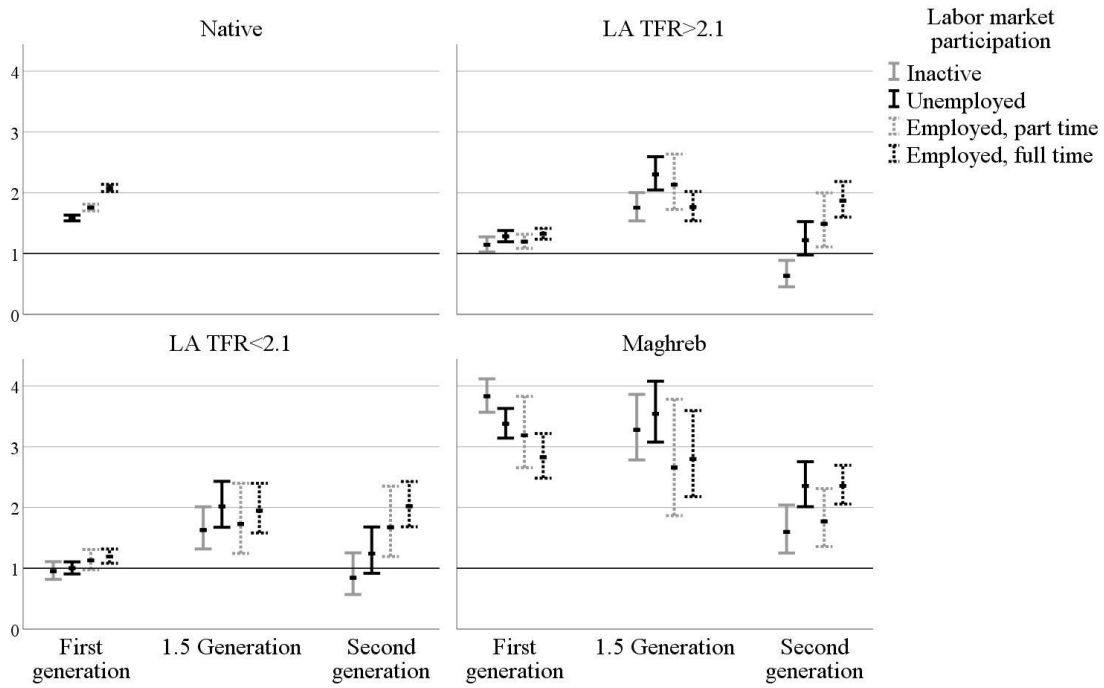

Figure 4. Incidence Rate Ratios relative to inactive native women from a Negative Binomial regression of the number of children born between 2012 and 2015, by origin, generation, and labour market participation. Note: Controls for the number of children had before 2012, age, educational attainment, educational enrolment, partnership status, municipal mobility, large burden of household chores, and a dummy variable controlling for whether second-generation immigrants have one or both parents born abroad. Estimates of the Negative Binomial regression are available in Table 4 of the Appendix. LA TFR>2.1, Latin American immigrants originating from countries with a TFR above 2.1 in 2011; LA TFR<2.1, Latin American immigrants originating from countries with a TFR below 2.1.

of 26 and 35. This fertility pattern was not observed for first-generation Latin American and Maghrebi immigrants, with both following a much earlier and less concentrated process. These immigrants had their highest fertility level between the ages of 16 and 30, after which it decreased. In the case of 1.5 generation Latin American immigrants, a very similar pattern to that of the first generation was observed, although the inverted-U characteristic emerged among those from countries with TFRs below 2.1; the fertility level increased gradually until the ages of 26 to 30. 1.5 generation Maghrebi immigrants also began to follow the inverted-U shape by reducing the fertility level of the youngest women, those aged between 16 and 20. Second-generation Latin American immigrants,

with a concentration of fertility in the 26 to 35 age group, followed the native population's inverted-U pattern. The effect of age on second-generation Maghrebi immigrant fertility came closer to the inverted-U shape, but women aged 16 to 25 still recorded higher fertility than Spanish women.

Figure 4 contains the results of the effect that the level of labour market participation had on fertility. Spanish women had a greater propensity to have children if they were working, especially if they were in full-time rather than part-time employment. This fertility pattern is more common in post-transitional countries than in emerging ones. Thus, for first-generation Latin American women, participating in the labour market did

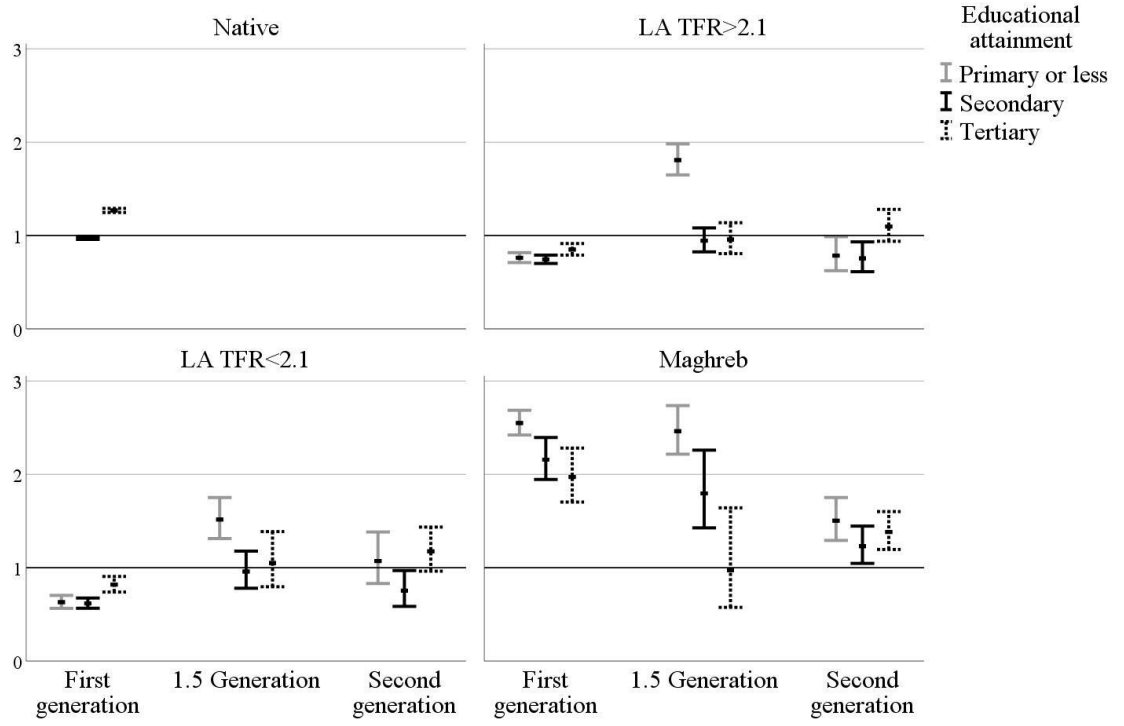

Figure 5. Incidence Rate Ratios relative to native women with primary or less education from a Negative Binomial regression of the number of children born between 2012 and 2015, by origin, generation, and educational attainment. Note: Controls for the number of children had before 2012, age, educational enrolment, labour market participation, partnership status, municipal mobility, large burden of household chores, and a dummy variable controlling for whether second-generation immigrants have one or both parents born abroad. Estimates of the Negative Binomial regression are available in Table 5 of the Appendix. LA TFR>2.1, Latin American immigrants originating from countries with a TFR above 2.1 in 2011; LA TFR<2.1, Latin American immigrants originating from countries with a TFR below 2.1.

not mean an increase in their fertility level. Among 1.5 generation Latin American immigrants, no significant differences were observed between women according to their degree of participation in the labour market. However, for second-generation Latin American immigrants, the same gradient was observed as for Spanish women. In contrast, first-generation Maghrebi immigrants recorded the opposite relationship to that of Spanish women: inactive and unemployed women had the highest fertility levels. No clear pattern was observed among their descendants. We also observed that the differences between immigrants and the native population are generally smaller if we compare women with high levels of labour market participation. This was very clear for the 1.5 generation of Latin American immigrants and for all three generations of Maghrebi immigrants. Whereas inactive and unemployed immigrant women had higher fertility levels than comparable Spanish women, the differences were small among those that were employed.

Model 5's estimates of the impact of education level on fertility are shown in Figure 5. Spanish women with higher education had a significantly higher fertility level than their counterparts with a secondary, primary or lower level of education. The same pattern was found among first-generation Latin American immigrants. However, for the 1.5 generation, we observed that those with lower levels of education had a higher fertility level. Among the second generation, however, the pattern was identical to that of Spanish women. Again, Maghrebi women were very different to Spanish women, with both the first and 1.5 generations recording a higher fertility level among the least educated. In the second generation, education level was not found to have any significant effect. As several studies have shown, highly educated women have been the forerunners in changing fertility patterns: whereas second-generation Maghrebi immigrants with higher education had a similar fertility level to the native population with the same level of

education, those with lower levels of education continued to record higher fertility levels than the native population with the same level of education, even in the second generation.

Discussion and conclusions

Despite originating from regions with similar fertility patterns, Latin American and Maghrebi immigrant women follow a very different childbearing behaviour in Spain. The *selection hypothesis* and the *disruption hypothesis* are relevant for explaining the low fertility level observed in first-generation Latin American immigrant women. These women are employment-focused immigrants, as observed in other countries (Mussino & Cantalini, 2020), their fertility level is lower than that of their home countries and that of Spanish women. This could also be interpreted as a consequence of the disruption effect that migration may have on fertility, combined with the disproportionally strong impact that the economic crisis in Spain during the years studied had on immigrant populations (Arcarons & Munõz-Comet, 2018; Mooi-Reci & Muñoz-Comet, 2016; Muñoz-Comet, 2016). In addition, in times of economic crisis economic immigrants may opt for reducing their fertility level in order to maximise their job opportunities and invest more resources in a smaller number of children (Parrado & Morgan, 2008). Contrary to H4, years of residency do not have a clear effect on the fertility level of first-generation Latin American immigrants. This result supports the notion that their low fertility level is not to be interpreted in the light of the *adaptation hypothesis*. However, as H1 proposes, age has a different effect on the fertility level of first-generation Latin American migrants than on Spanish women. Over the years studied, the former had a higher fertility level in the categories aged under 26, and the latter in the older categories. This result, whereby Latin American immigrants reduce their fertility level but maintain a high level of early childbearing, reflects their countries of origin, where the reduction in the TFRs preceded the postponement of fertility (Fussell & Palloni, 2004; Rosero-Bixby et al., 2009).

The childbearing behaviour of the 1.5 generation of Latin American immigrants provides some evidence against the linear process of convergence towards Spanish

women proposed in H1. Their fertility level is higher than that of first-generation immigrants, and in the case of those that arrived aged between 9 and 17, it is higher than that of the native population. This last result may not seem to agree with González-Ferrer et al. (2017), who did not find any differences between 1.5 generation Latin American immigrants and Spanish women. However, this divergence of results could be understood when considering that they analysed 1.5 generation immigrants as a single group, not looking at differences by age of arrival, and that they used retrospective information obtained from two surveys carried out in 2006 and 2007. The results we obtain could be explained by referring again to the *selection* and *disruption hypotheses*. Those arriving in Spain aged 9 to 17 have been partly socialised in Latin America and did not choose to migrate to Spain, so even if most of their parents were economic migrants, this motivation may not be as strong in this 1.5 generation (Kraus & Castro-Martín, 2018). The disruptive effect that migration may have on fertility is expected to be more significant when migration takes places at a more important stage in migrants' fertility pattern. Considering the bimodal calendar of fertility found in Latin America (Lima et al., 2018), first-generation immigrants coming to Spain aged 18 or older experienced migration at a more crucial time in their fertility calendar than those that arrived under the age of 18. Overall, given that those arriving under the age of 9 reflect the native population's fertility level, H5 is confirmed.

Looking at the effect of labour market participation and educational attainment on the fertility level of 1.5 generation Latin American immigrants, we do not observe a convergence towards the Spanish pattern. However, the effect of age on their fertility level does come closer to the same pattern. On the one hand, as anticipated by the results of the Youth Chances Survey on the fertility intentions of 1.5 generation Latin American adolescents living in Madrid (Spain) (Kraus & Castro-Martín, 2018), these women have

a higher fertility rate in their early twenties than Spanish women. On the other hand, our results show that the age categories with the highest fertility level are 26-30 and 31-35, mirroring the Spanish pattern.

Second-generation Latin American immigrants record an almost exact convergence with the childbearing behaviour of the Spanish population, which supports H1. The only difference is that their fertility level is slightly lower. It is in terms of the effect of age and labour market participation on fertility that this convergence has been most noticeable. These results mirrored the convergence with the native population that we observed in the socio-demographic profile of these immigrants. If we restrict the sample to women over the age of 29, we observe that second-generation Latin American immigrants are almost indistinguishable from Spanish women in terms of labour market participation and educational attainment. Finally, supporting H6, the fertility level of those who have one Latin American and one Spanish parent is closer to Spanish women than that of those whose both parents are Latin American.

No systematic higher fertility has been found for Latin American immigrants from countries with a TFR higher than 2.1 in 2011. Thus, H2 is rejected. The *selection hypothesis* may help to interpret this result: Latin American immigrants in Spain are a specific group from their countries of origin, so the different TFRs are not reflected in their fertility level in Spain.

Consistent with the literature and with H3, first-generation Maghrebi immigrants in Spain record higher and earlier fertility than Spanish women (Castro Martín & Rosero-Bixby, 2011; Roig Vila & Castro Martín, 2007). These results may be interpreted in the light of the *socialisation* and *interrelation of events hypotheses*. These women have been socialised in a region with higher TFRs and younger average ages at the birth of their first child. Furthermore, their migration project is usually linked to their partners and to

starting a family in Spain (del Rey et al., 2015; González-Ferrer, 2011; González-Ferrer et al., 2018). In line with this interpretation and with H4, we observe that first-generation immigrant women residing in Spain for more than eight years significantly reduce their fertility level, although it is still higher than that of Spanish women. The effects of age, labour market participation and educational attainment on their fertility level reflect the childbearing behaviour of their country of origin: fertility is higher in women in their twenties, and then it declines sharply, and there is a negative relationship between education and labour market participation and fertility (D'Addato, 2006; Verme et al., 2016).

The results for 1.5 generation Maghrebi immigrants are consistent with González-Ferrer et al. (2017) and with H3: their childbearing behaviour maintains some of the characteristics of their home country and shows some signs of convergence towards Spanish women. The fertility level of these immigrants falls between that of first-generation immigrants and Spanish women. However, supporting H5 there is a stark difference by age of arrival. Those whose socialisation has mostly taken place in the Maghreb before migrating to Spain have a much higher fertility level than those that migrated to Spain before the age of 9. The effects of age and labour market participation converge towards Spanish patterns, but still record significant differences.

In line with previous studies conducted in other European countries (Kulu et al., 2017; Lillehagen & Lyngstad, 2018; Van Landschoot et al., 2017), second-generation Maghrebi immigrants converge towards the native population's fertility level, although it remains higher. Moreover, the effects of age, labour market participation and educational attainment on fertility also partly converge towards the native population's patterns. Supporting H6, the fertility level among those raised in families in which one parent is Spanish and the other Maghrebi, is closer to Spanish women than those whose both

parents are Maghrebi immigrants. The socio-demographic composition of these groups mirrors these results. If we restrict the sample to women over the age of 29, we observe that second-generation Maghrebi immigrants are very similar to Spanish women, while those whose both parents are Maghrebi immigrants still maintain some similarities with the first-generation.

Overall, high educational attainment and labour market participation are two factors that reduce the differences between immigrants and Spanish women. More specifically, among 1.5 generation Latin American immigrants and in all three Maghrebi immigrant generations, those with a higher level of education and labour market participation have a fertility level that is closer to Spanish women than immigrant women with lower levels. These results are consistent with previous studies whereby highly educated immigrants converge more quickly towards the native population's fertility behaviour (Adsera & Ferrer, 2014; Delgado et al., 2008; Kulu et al., 2019; Pailhé, 2017; Sobotka, 2017), and with our H7.

This article contributes to our understanding of the childbearing behaviour of immigrants and their descendants hailing from emerging post-transitional countries in a host country (Spain) with very low and very late fertility. The use of new administrative data allows for an early approach to the analyses of this country, where no previous studies have investigated the fertility of second-generation immigrants. Our conclusions are consistent with evidence found in previous studies, and highlight the importance of certain factors that explain the fertility of second-generation immigrants. We conclude that motivation is crucial for interpreting the childbearing behaviour of immigrant populations. Latin American and Maghrebi immigrants have very different migratory projects, and their fertility reflects this difference. Latin American women in Spain are mostly economic immigrants, whose fertility is well understood in the light of the

selection and *disruption hypotheses*. Maghrebi women, on the other hand, are mostly family immigrants, and their childbearing behaviour complies with the *socialisation* and *interrelation of events hypotheses*. In addition, Latin America is much closer to Spain in cultural terms than the Maghreb. Consequently, the pace of convergence towards the native population's fertility is much slower in the latter group, as reported by González-Ferrer et al. (2017). We stress the importance not only of analysing the fertility level to assess convergence between different immigrant generations and the native population; first-generation Latin American immigrants do not reflect the fertility level of their home countries, but they seem to record an earlier fertility than Spanish women. Our results evidence that 1.5 generation immigrants should not be considered as in-betweeners between first and second generations. Finally, the database used imposes certain limitations. It does not allow us to perform longitudinal analyses, as it does not provide women's complete fertility history, nor does it allow us to include time-varying covariates, as they are known only for 2011. Furthermore, key factors, such as the migratory project and certain culture-related variables (i.e., knowledge of the language in the host country or religion), are not introduced in the analyses, but probably play decisive roles. These issues, coupled with the fact that Spain is not a traditional immigration destination, could affect the comparison between our results on Latin American and Maghrebi immigrants and prior studies on traditional immigration destinations. However, our main results are consistent with the literature and are easy to interpret in the light of the classic hypotheses. When immigrants' descendants in Spain grow up and more suitable data become available, further studies will be able to verify the conclusions reached in this article by analysing complete fertility and conducting parity specific analyses.

Endnotes

1 Following Sobotka (2017), we use the term emerging post-transitional countries to refer to those "that have experienced a decline in period TFR to around replacement level in the 1990s to 2000s, or that are approaching the completion of their fertility transition and currently have a period TFR of below three births per woman".

2 The Maghreb here refers to Algeria, Libya, Morocco, Mauritania, Libya, and Tunisia. Of the 11,844 women in this group, 11,041 were from Morocco.

3 The group of Latin American countries that in 2011 had a TFR above 2.1 were Guatemala, Bolivia, Panama, Honduras, Paraguay, Ecuador, Nicaragua, Dominican Republic, Venezuela, Argentina, Peru, Mexico, and El Salvador. Those that had a TFR below 2.1 were Uruguay, Colombia, Costa Rica, Brazil, Chile, and Cuba. For the 45,842 women in these two groups, the countries most represented in the sample were Ecuador (8,126), Colombia (7,480), Argentina (4,732), Venezuela (3,616), Peru (3,567), and Bolivia (3,169).

4 Detailed results for the models presented in the graphs can be found in the Appendix. The results for the models without control variables are available upon request.

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Appendix

Table 1. Negative Binomial Regression Model, fertility level by origin and generation. Dependent Variable: Number of children born between 2012 and 2015.

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Origin and generation. Ref: Native					
First Gen. Lat. Ame. TFR>2.1	0.724	0.020	0.696	0.753	.000
1.5 Gen. 9-17 Age Arrival Lat. Ame. TFR>2.1	1.391	0.041	1.284	1.506	.000
1.5 Gen. 0-8 Age Arrival Lat. Ame. TFR>2.1	0.997	0.059	0.888	1.120	0.959
Second Gen. Both parents Lat. Ame. TFR>2.1	0.790	0.133	0.609	1.024	0.075
Second Gen. Mixed parents Lat. Ame. TFR>2.1	0.828	0.061	0.735	0.933	0.002
First Gen. Lat. Ame. TFR<2.1	0.626	0.030	0.590	0.663	.000
1.5 Gen. 9-17 Age Arrival Lat. Ame. TFR<2.1	1.246	0.063	1.101	1.409	.000
1.5 Gen. 0-8 Age Arrival Lat. Ame. TFR<2.1	1.034	0.093	0.861	1.241	0.722
Second Gen. Both parents Lat. Ame. TFR<2.1	0.733	0.164	0.531	1.012	0.059
Second Gen. Mixed parents Lat. Ame. TFR<2.1	0.958	0.074	0.830	1.107	0.564
First Gen. Maghrebi	2.314	0.023	2.211	2.422	.000
1.5 Gen. 9-17 Age Arrival Maghrebi	2.563	0.050	2.324	2.827	.000
1.5 Gen. 0-8 Age Arrival Maghrebi	1.643	0.093	1.368	1.973	.000
Second Gen. Both parents Maghrebi	1.513	0.100	1.244	1.839	.000
Second Gen. Mixed Parents Maghrebi	1.215	0.049	1.103	1.338	.000
Educational attainment. Ref: Primary or less					
Secondary education	0.959	0.008	0.944	0.975	.000
Tertiary education	1.243	0.008	1.223	1.264	.000
Educational enrollment. Ref: No					
Yes	0.815	0.008	0.802	0.827	.000
Labour market participation. Ref: Inactive					
Unemployed	1.446	0.013	1.409	1.485	.000
Employed part-time	1.586	0.015	1.540	1.632	.000
Employed full-time	1.868	0.013	1.821	1.917	.000
Living with a partner, working or not. Ref: No					
Yes, not working	2.302	0.011	2.251	2.354	.000
Yes, working	2.615	0.008	2.572	2.658	.000
Large burden of household chores. Ref: No					
Yes	1.183	0.007	1.166	1.200	.000
Municipal mobility, previous 10 years. Ref: No					
Yes	1.201	0.007	1.184	1.217	.000
Age. Ref: 16-20					
20-25	1.743	0.020	1.675	1.815	.000
26-30	3.074	0.020	2.956	3.197	.000
31-35	2.994	0.020	2.877	3.116	.000
36-40	1.166	0.021	1.118	1.216	.000
40-45	0.133	0.031	0.125	0.141	.000
Nº of children had before 2012	0.682	0.004	0.676	0.688	.000
Intercept	0.034	0.019	0.033	0.036	.000

Table 2. Negative Binomial Regression Model, fertility level by origin and years of residency. Dependent Variable: Number of children born between 2012 and 2015.

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Origin and Years of Res.. Ref: Native					
First Gen. 0-4 Years of Res. Lat. Ame. TFR>2.1	0.810	0.036	0.756	0.869	.000
First Gen. 5-8 Years of Res. Lat. Ame. TFR>2.1	0.779	0.034	0.729	0.832	.000
First Gen. 9+ Years of Res. Lat. Ame. TFR>2.1	0.706	0.039	0.655	0.762	.000
First Gen. 0-4 Years of Res. Lat. Ame. TFR<2.1	0.665	0.052	0.600	0.736	.000
First Gen. 5-8 Years of Res. Lat. Ame. TFR<2.1	0.658	0.055	0.591	0.734	.000
First Gen. 9+ Years of Res. Lat. Ame. TFR<2.1	0.634	0.053	0.571	0.704	.000
First Gen. 0-4 Years of Res. Maghrebi	2.050	0.051	1.855	2.266	.000
First Gen. 5-8 Years of Res. Maghrebi	2.419	0.041	2.233	2.622	.000
First Gen. 9+ Years of Res. Maghrebi	2.430	0.041	2.240	2.635	.000
Educational attainment. Ref: Primary or less					
Secondary education	1.143	0.010	1.122	1.165	.000
Tertiary education	1.477	0.009	1.450	1.505	.000
Educational enrollment. Ref: No					
Yes	0.911	0.008	0.896	0.926	.000
Labour market participation. Ref: Inactive					
Unemployed	1.042	0.016	1.011	1.074	.008
Employed part-time	1.177	0.017	1.139	1.216	.000
Employed full-time	1.349	0.015	1.311	1.389	.000
Living with a partner, working or not. Ref: No					
Yes, not working	2.624	0.009	2.580	2.668	.000
Yes, working	2.248	0.012	2.195	2.302	.000
Large burden of household chores. Ref: No					
Yes	1.131	0.008	1.114	1.149	.000
Age. Ref: 26-30					
31-35	0.999	0.008	0.983	1.014	0.860
36-40	0.390	0.010	0.382	0.398	.000
40-45	0.044	0.025	0.042	0.046	.000
Nº of children had before 2012	0.667	0.004	0.662	0.673	.000
Intercept	0.137	0.016	0.133	0.141	.000

Table 3. Negative Binomial Regression Model, fertility level by origin, generation and age. Dependent Variable: Number of children born between 2012 and 2015.

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Origin, generation and age. Ref: Native 16-20					
Native 21-25	1.853	0.023	1.773	1.937	.000
Native 26-30	3.464	0.022	3.319	3.616	.000
Native 31-35	3.377	0.022	3.234	3.527	.000
Native 36-40	1.284	0.023	1.227	1.344	.000
Native 41-45	0.142	0.033	0.133	0.152	.000
First Gen. Latin American TFR>2.1 16-20	2.442	0.166	1.765	3.379	.000
First Gen. Latin American TFR>2.1 21-25	2.251	0.064	1.987	2.549	.000
First Gen. Latin American TFR>2.1 26-30	2.349	0.040	2.170	2.542	.000
First Gen. Latin American TFR>2.1 31-35	2.162	0.038	2.008	2.327	.000
First Gen. Latin American TFR>2.1 36-40	1.093	0.052	0.986	1.211	0.091
First Gen. Latin American TFR>2.1 41-45	0.179	0.138	0.137	0.235	.000
1.5 Gen. Latin American TFR>2.1 16-20	2.495	0.063	2.205	2.824	.000
1.5 Gen. Latin American TFR>2.1 21-25	2.506	0.068	2.192	2.865	.000
1.5 Gen. Latin American TFR>2.1 26-30	2.739	0.091	2.291	3.274	.000
1.5 Gen. Latin American TFR>2.1 31-35	2.838	0.096	2.353	3.423	.000
1.5 Gen. Latin American TFR>2.1 36-40	1.380	0.137	1.056	1.804	0.018
1.5 Gen. Latin American TFR>2.1 41-45	0.177	0.409	0.079	0.394	.000
Second Gen. Latin American TFR>2.1 16-20	0.531	0.251	0.324	0.869	0.012
Second Gen. Latin American TFR>2.1 21-25	1.313	0.156	0.967	1.782	0.081
Second Gen. Latin American TFR>2.1 26-30	2.396	0.108	1.939	2.961	.000
Second Gen. Latin American TFR>2.1 31-35	3.043	0.093	2.538	3.648	.000
Second Gen. Latin American TFR>2.1 36-40	1.979	0.146	1.487	2.634	.000
Second Gen. Latin American TFR>2.1 41-45	0.163	0.578	0.053	0.507	0.002
First Gen. Latin American TFR<2.1 16-20	1.969	0.237	1.238	3.130	0.004
First Gen. Latin American TFR<2.1 21-25	2.093	0.090	1.755	2.496	.000
First Gen. Latin American TFR<2.1 26-30	2.095	0.056	1.877	2.340	.000
First Gen. Latin American TFR<2.1 31-35	1.829	0.051	1.654	2.023	.000
First Gen. Latin American TFR<2.1 36-40	0.899	0.072	0.781	1.036	0.141
First Gen. Latin American TFR<2.1 41-45	0.136	0.194	0.093	0.199	.000
1.5 Gen. Latin American TFR<2.1 16-20	1.950	0.098	1.609	2.364	.000
1.5 Gen. Latin American TFR<2.1 21-25	2.391	0.105	1.946	2.938	.000
1.5 Gen. Latin American TFR<2.1 26-30	2.977	0.132	2.299	3.855	.000
1.5 Gen. Latin American TFR<2.1 31-35	2.792	0.164	2.026	3.847	.000
1.5 Gen. Latin American TFR<2.1 36-40	1.516	0.190	1.044	2.201	0.029
1.5 Gen. Latin American TFR<2.1 41-45	0.194	0.395	0.087	0.433	.000
Second Gen. Latin American TFR<2.1 16-20	0.950	0.259	0.572	1.578	0.843
Second Gen. Latin American TFR<2.1 21-25	1.565	0.190	1.078	2.273	0.019
Second Gen. Latin American TFR<2.1 26-30	2.883	0.122	2.271	3.660	.000
Second Gen. Latin American TFR<2.1 31-35	3.353	0.116	2.671	4.208	.000
Second Gen. Latin American TFR<2.1 36-40	1.392	0.195	0.951	2.039	0.089
Second Gen. Latin American TFR<2.1 41-45	0.102	0.708	0.026	0.409	0.001
First Gen. Maghrebi 16-20	6.600	0.122	5.195	8.385	.000

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
First Gen. Maghrebi 21-25	7.809	0.052	7.054	8.645	.000
First Gen. Maghrebi 26-30	6.958	0.044	6.380	7.587	.000
First Gen. Maghrebi 31-35	5.845	0.046	5.342	6.395	.000
First Gen. Maghrebi 36-40	3.675	0.061	3.264	4.138	.000
First Gen. Maghrebi 41-45	0.658	0.152	0.488	0.887	0.006
1.5 Gen. Maghrebi 16-20	3.567	0.091	2.987	4.259	.000
1.5 Gen. Maghrebi 21-25	5.410	0.079	4.636	6.313	.000
1.5 Gen. Maghrebi 26-30	5.039	0.112	4.048	6.273	.000
1.5 Gen. Maghrebi 31-35	4.285	0.160	3.134	5.858	.000
1.5 Gen. Maghrebi 36-40	1.035	0.317	0.556	1.927	0.913
1.5 Gen. Maghrebi 41-45	0.509	0.409	0.229	1.135	0.099
Second Gen. Maghrebi 16-20	2.375	0.139	1.808	3.120	.000
Second Gen. Maghrebi 21-25	2.989	0.113	2.394	3.731	.000
Second Gen. Maghrebi 26-30	3.877	0.084	3.287	4.572	.000
Second Gen. Maghrebi 31-35	3.711	0.081	3.168	4.349	.000
Second Gen. Maghrebi 36-40	1.593	0.142	1.205	2.105	0.001
Second Gen. Maghrebi 41-45	0.399	0.334	0.207	0.768	0.006
Educational attainment. Ref: Primary or less					
Secondary education	0.961	0.008	0.946	0.977	.000
Tertiary education	1.241	0.008	1.221	1.262	.000
Educational enrollment. Ref: No					
Yes	0.818	0.008	0.806	0.831	.000
Labour market participation. Ref: Inactive					
Unemployed	1.436	0.013	1.398	1.474	.000
Employed part-time	1.572	0.015	1.527	1.619	.000
Employed full-time	1.848	0.013	1.801	1.897	.000
Living with a partner, working or not. Ref: No					
Yes, not working	2.294	0.011	2.243	2.346	.000
Yes, working	2.599	0.008	2.557	2.642	.000
Large burden of household chores. Ref: No					
Yes	1.179	0.007	1.162	1.196	.000
Municipal mobility, previous 10 years. Ref: No					
Yes	1.190	0.007	1.174	1.206	.000
Second Gen. Both parents immigrants	1.016	0.080	0.869	1.188	0.843
Nº of children had before 2012	0.684	0.004	0.678	0.690	.000
Intercept	0.031	0.082	0.026	0.036	.000

Table 4. Negative Binomial Regression Model, fertility level by origin, generation and labour market participation. Dependent Variable: Number of children born between 2012 and 2015.

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Origin, generation and labour market participation. Ref: Native Inactive					
Native Unemployed	1.585	0.015	1.539	1.633	.000
Native Employed part-time	1.757	0.016	1.702	1.814	.000
Native Employed full-time	2.078	0.015	2.020	2.139	.000
First Gen. Lat. Ame. TFR>2.1 Inactive	1.145	0.055	1.028	1.276	0.014
First Gen. Lat. Ame. TFR>2.1 Unemployed	1.284	0.037	1.195	1.380	.000
First Gen. Lat. Ame. TFR>2.1 Emp. part-time	1.197	0.050	1.086	1.319	.000
First Gen. Lat. Ame. TFR>2.1 Emp. full-time	1.324	0.034	1.238	1.415	.000
1.5 Gen. Lat. Ame. TFR>2.1 Inactive	1.756	0.068	1.538	2.004	.000
1.5 Gen. Lat. Ame. TFR>2.1 Unemployed	2.303	0.060	2.046	2.593	.000
1.5 Gen. Lat. Ame. TFR>2.1 Emp. part-time	2.133	0.108	1.726	2.636	.000
1.5 Gen. Lat. Ame. TFR>2.1 Emp. full-time	1.763	0.070	1.538	2.022	.000
Second Gen. Lat. Ame. TFR>2.1 Inactive	0.635	0.170	0.455	0.888	0.008
Sec. Gen. Lat. Ame. TFR>2.1 Unemployed	1.221	0.114	0.977	1.526	0.079
Sec. Gen. Lat. Ame. TFR>2.1 Emp. part-time	1.490	0.150	1.110	1.999	0.008
Sec. Gen. Lat. Ame. TFR>2.1 Emp. full-time	1.870	0.080	1.600	2.186	.000
First Gen. Lat. Ame. TFR<2.1 Inactive	0.954	0.078	0.819	1.110	0.542
First Gen. Lat. Ame. TFR<2.1 Unemployed	1.002	0.051	0.907	1.106	0.973
First Gen. Lat. Ame. TFR<2.1 Emp. part-time	1.130	0.075	0.975	1.310	0.104
First Gen. Lat. Ame. TFR<2.1 Emp. full-time	1.194	0.050	1.083	1.317	.000
1.5 Gen. Lat. Ame. TFR<2.1 Inactive	1.629	0.108	1.319	2.011	.000
1.5 Gen. Lat. Ame. TFR<2.1 Unemployed	2.018	0.095	1.675	2.431	.000
1.5 Gen. Lat. Ame. TFR<2.1 Emp. part-time	1.728	0.167	1.245	2.398	0.001
1.5 Gen. Lat. Ame. TFR<2.1 Emp. full-time	1.947	0.106	1.581	2.398	.000
Second Gen. Lat. Ame. TFR<2.1 Inactive	0.845	0.201	0.569	1.254	0.402
Second Gen. Lat. Ame. TFR<2.1 Unemployed	1.242	0.154	0.918	1.680	0.159
Sec. Gen. Lat. Ame. TFR<2.1 Emp. part-time	1.675	0.173	1.193	2.351	0.003
Sec. Gen. Lat. Ame. TFR<2.1 Emp. full-time	2.021	0.093	1.683	2.428	.000
First Gen. Maghreb Inactive	3.830	0.037	3.566	4.115	.000
First Gen. Maghreb Unemployed	3.377	0.037	3.141	3.629	.000
First Gen. Maghreb Emp. part-time	3.187	0.094	2.653	3.828	.000
First Gen. Maghreb Emp. full-time	2.826	0.066	2.483	3.217	.000
1.5 Gen. Maghreb Inactive	3.277	0.084	2.782	3.860	.000
1.5 Gen. Maghreb Unemployed	3.541	0.072	3.075	4.078	.000
1.5 Gen. Maghreb Emp. part-time	2.656	0.180	1.866	3.781	.000
1.5 Gen. Maghreb Emp. full-time	2.798	0.128	2.178	3.594	.000
Second Gen. Maghreb Inactive	1.598	0.125	1.252	2.041	.000
Second Gen. Maghreb Unemployed	2.354	0.080	2.013	2.753	.000
Second Gen. Maghreb Emp. part-time	1.771	0.136	1.357	2.311	.000
Second Gen. Maghreb Emp. full-time	2.355	0.069	2.058	2.695	.000

Educational attainment. Ref: Primary or less

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Secondary education	0.959	0.008	0.944	0.975	.000
Tertiary education	1.237	0.008	1.217	1.258	.000
Educational enrollment. Ref: No					
Yes	0.817	0.008	0.805	0.830	.000
Living with a partner, working or not. Ref: No					
Yes, not working	2.288	0.011	2.237	2.340	.000
Yes, working	2.601	0.008	2.558	2.644	.000
Large burden of household chores. Ref: No					
Yes	1.181	0.007	1.165	1.198	.000
Municipal mobility, previous 10 years. Ref: No					
Yes	1.198	0.007	1.181	1.214	.000
Age. Ref: 16-20					
20-25	1.701	0.021	1.633	1.771	.000
26-30	2.969	0.020	2.853	3.089	.000
31-35	2.891	0.021	2.777	3.010	.000
36-40	1.127	0.022	1.080	1.176	.000
40-45	0.129	0.031	0.121	0.137	.000
Second Gen. Both parents immigrants	0.983	0.080	0.840	1.149	0.828
Nº of children had before 2012	0.682	0.004	0.676	0.688	.000
Intercept	0.033	0.082	0.028	0.039	.000

Table 5. Negative Binomial Regression Model, fertility level by origin, generation and educational attainment. Dependent Variable: Number of children born between 2012 and 2015.

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Origin, generation and edu. attainment. Ref: Native Primary or less					
Native Secondary education	0.976	0.009	0.959	0.993	0.005
Native Tertiary education	1.269	0.009	1.247	1.291	.000
First Gen. Lat. Ame. TFR>2.1 Primary or less	0.762	0.036	0.711	0.817	.000
First Gen. Lat. Ame. TFR>2.1 Secondary edu.	0.745	0.031	0.701	0.791	.000
First Gen. Lat. Ame. TFR>2.1 Tertiary edu.	0.851	0.037	0.791	0.915	.000
1.5 Gen. Lat. Ame. TFR>2.1 Primary or less	1.808	0.047	1.650	1.982	.000
1.5 Gen. Lat. Ame. TFR>2.1 Secondary edu.	0.945	0.069	0.825	1.082	0.412
1.5 Gen. Lat. Ame. TFR>2.1 Tertiary edu.	0.958	0.088	0.806	1.138	0.623
Second Gen. Lat. Ame. TFR>2.1 Primary or less	0.785	0.117	0.624	0.988	0.039
Second Gen. Lat. Ame. TFR>2.1 Secondary edu.	0.756	0.107	0.613	0.933	0.009
Second Gen. Lat. Ame. TFR>2.1 Tertiary edu.	1.097	0.079	0.939	1.281	0.243
First Gen. Lat. Ame. TFR<2.1 Primary or less	0.631	0.056	0.565	0.704	.000
First Gen. Lat. Ame. TFR<2.1 Secondary edu.	0.618	0.045	0.566	0.675	.000
First Gen. Lat. Ame. TFR<2.1 Tertiary edu.	0.819	0.052	0.739	0.907	.000
1.5 Gen. Lat. Ame. TFR<2.1 Primary or less	1.516	0.074	1.312	1.752	.000
1.5 Gen. Lat. Ame. TFR<2.1 Secondary edu.	0.959	0.105	0.780	1.178	0.690
1.5 Gen. Lat. Ame. TFR<2.1 Tertiary edu.	1.051	0.142	0.796	1.387	0.726
Second Gen. Lat. Ame. TFR<2.1 Primary or less	1.072	0.130	0.831	1.383	0.594
Second Gen. Lat. Ame. TFR<2.1 Secondary edu.	0.754	0.129	0.586	0.970	0.028
Second Gen. Lat. Ame. TFR<2.1 Tertiary edu.	1.176	0.102	0.963	1.435	0.111
First Gen. Maghreb Primary or less	2.550	0.027	2.421	2.686	.000
First Gen. Maghreb Secondary education	2.158	0.053	1.945	2.395	.000
First Gen. Maghreb Tertiary education	1.972	0.075	1.704	2.282	.000
1.5 Gen. Maghreb Primary or less	2.463	0.054	2.216	2.737	.000
1.5 Gen. Maghreb Secondary education	1.796	0.117	1.427	2.260	.000
1.5 Gen. Maghreb Tertiary education	0.972	0.267	0.575	1.641	0.915
Second Gen. Maghreb Primary or less	1.504	0.078	1.292	1.752	.000
Second Gen. Maghreb Secondary education	1.230	0.083	1.046	1.446	0.012
Second Gen. Maghreb Tertiary education	1.383	0.074	1.196	1.601	.000
Educational enrollment. Ref: No					
Yes	0.814	0.008	0.802	0.827	.000
Labour market participation. Ref: Inactive					
Unemployed	1.451	0.013	1.413	1.490	.000
Employed part-time	1.590	0.015	1.544	1.636	.000
Employed full-time	1.872	0.013	1.824	1.921	.000
Living with a partner, working or not. Ref: No					
Yes, not working	2.303	0.011	2.251	2.355	.000
Yes, working	2.616	0.008	2.574	2.660	.000
Large burden of household chores. Ref: No					
Yes	1.184	0.007	1.167	1.200	.000

	IRR	Standard Error	95% Conf. Interval Inferior	95% Conf. Interval Superior	P-valor
Municipal mobility, previous 10 years. Ref: No					
Yes	1.199	0.007	1.183	1.215	.000
Age. Ref: 16-20					
20-25	1.754	0.021	1.685	1.827	.000
26-30	3.088	0.020	2.968	3.212	.000
31-35	3.006	0.020	2.888	3.129	.000
36-40	1.171	0.022	1.123	1.221	.000
40-45	0.134	0.031	0.126	0.142	.000
Second Gen. Both parents immigrants	0.992	0.081	0.847	1.162	0.925
Nº of children had before 2012	0.682	0.004	0.676	0.687	.000
Intercept	0.034	0.083	0.029	0.040	.000

Chapter 3, Study 2. Early Childbearing of Immigrant Women and their Descendants in Spain.

This study is in the second round of review for publication.

Early Childbearing of Immigrant Women and their Descendants in Spain.

We investigate early childbearing in Maghrebi and Latin American immigrant women and their descendants in Spain. We use a new database linking Natural Movement of the Population records between 2011 and 2015 to the 2011 Spanish Census. To identify whether immigrants' descendants converge toward the Spanish very reduced profile of early fertility, we run Poisson regression models. While Latin American immigrants converge toward the native population, among Maghrebi immigrants, the difference among those who arrived in Spain at more than 15 years of age is reduced, but the difference does not disappear in the second generation. To examine the differences in early childbearing between these two immigrant groups, we implement a multivariate decomposition. The mean number of children born between 2011 and 2015 was 0.12 for Latin American and 0.32 for Maghrebi immigrants. Differences in measured characteristics account for 39.72% of this difference and differences in effects account for 60.28%.

Keywords: fertility; migration; immigrant descendants; education; employment; Spain.

Introduction

Most European countries have experienced increased immigration and a larger share of immigrant descendants in their populations in recent decades (De Haas et al., 2019). One aspect that has drawn the attention of demographers and researchers in allied disciplines is the childbearing behaviour of these populations and its impact on aggregate demographic dynamics (Sobotka, 2008). Early studies focused on the fertility of first-generation immigrants in traditional European immigration countries (Andersson, 2004); soon after this, the second generation in these same countries began to receive attention

(Garssen & Nicolaas, 2008; Milewski, 2010). Most common questions revolved around whether immigrants originating from countries with different fertility levels and fertility calendars adapted their childbearing behaviour to the dominant pattern in host societies. Special attention is paid to the extent to which years of residence in the receiving country and being a descendant of the first immigrant generation can contribute to reducing the differences between an immigrant's and native's childbearing patterns. This research field is still developing (Andersson et al., 2017; de Valk & Milewski, 2011), but the evidence collected thus far has led to two main conclusions. First, the childbearing behaviour of immigrants is deeply affected by their origin. Second, although most immigrant groups adapt their fertility to the point where it begins to resemble native patterns, the literature has identified certain groups (e.g. Turks and North Africans) that maintain the fertility behaviour characteristics of their countries of origin, not only in the first generation but also in their descendants (Kulu et al., 2019; Kulu & González-Ferrer, 2014).

Research has been much less in those European countries that have recently begun to receive large migratory flows, but there is a greater need for it there. Among these countries is Spain, which is commonly identified as an example of rapid population growth due to migration (Avdeev et al., 2011; Sobotka, 2008). The immigrant percentage of the population of Spain grew from 2.2% in the 1991 Census to 13.5% in the 2011 Census, and various studies have been undertaken to identify fertility patterns in first-generation immigrants (Castro Martín & Rosero-Bixby, 2011; del Rey & Grande, 2017; Roig Vila & Castro Martín, 2007). However, little is known of the childbearing behaviour of immigrant descendants due to their relatively young age structure and the lack of data focusing on this group (González Ferrer & Cebolla Boado, 2018; Liu et al., 2019). Currently, to the best of the authors' knowledge, González-Ferrer et al. (2017) have

conducted the only study to focus on the fertility of immigrant descendants in Spain. That study concludes that 'the socialisation hypothesis appears to be relevant only for the 1.5 generation of Moroccan origin', meaning that this is the only group of immigrant descendants with fertility behaviour that maintains features that are characteristic of the society of origin. Because the data used were drawn from two separate surveys conducted in 2006 and 2007, it was not possible to produce an analysis on these grounds.

We seek to fill this gap in the literature and study the early childbearing of the first, 1.5 and second-generation Latin American and Maghrebi immigrants in Spain. We focus on early childbearing (defined here as the fertility between the ages of 18 and 25) because due to the recent arrival of large migratory flows to Spain, immigrants' descendants have a very young age structure. Both Latin American and Maghrebi immigrants have origins in regions without a post-transitional demographic regime[1] and whose childbearing behaviour is characterised by a higher and an earlier fertility than those of Spanish natives (Sobotka, 2017). For this investigation, we use a novel dataset provided by the National Statistics Institute of Spain (INE) that links the Natural Movement of the Population records from 2011 to 2015 with the 2011 Spanish Census. First, we study the differences among the two immigrant groups and native women, focusing on whether immigrant descendants' childbearing behaviour converges towards the native's patterns of behaviour. Finally, we examine the differences in the composition and effects of factors related to early fertility existing between Latin American and Maghrebi women. To this end, we select women born between 1990 and 1992 who were between 18 and 20 years old in 2011, and we analyse their fertility over the following 5 years. To compare each immigrant category with native women, we implement three Poisson regression models with the dependent variable being the number of children born between 2011 and 2015. To analyse the differences between Latin American and

Maghrebi women, we apply a multivariate decomposition for nonlinear response model, decomposing the average number of children that the two groups had between 2011 and 2015 into one component attributable to compositional differences and another attributable to differences in the effects of characteristics.

Fertility in spain, latin america and the maghreb

Spain forms an interesting study case for immigration and fertility due to its current fertility level and childbearing calendar and the changes they have recently undergone. The second demographic transition (Lesthaeghe & Van de Kaa, 1986; Van De Kaa, 1987) was delayed in Southern Europe (Surkyn & Lesthaeghe, 2004), and it took effect in these countries more rapidly than in the forerunner ones. After displaying a high total fertility rate (TFR) relative to the European context during the early 1960s, with above three children per woman, Spain's TFR dropped markedly over the following decades, and it became one of the first countries in the world to reach 'lowest-low fertility' (Kohler et al., 2002). The TFR reached its historical low in 1998 (1.13 children per woman) and then, as was seen in other European countries as well (Goldstein et al., 2009), it rose during the first decade of the twenty-first century, peaking at 1.45 children per woman in 2008. The Great Recession that began in 2008 had a profound effect on the Spanish economy, and its TFR fell to and remained at around 1.3 for the following decade (Sobotka et al., 2011). Parallel to the decline in fertility, as is characteristic of post-transitional fertility regime (Sobotka, 2017), Spain witnessed a steep postponement in childbearing. The pace of this phenomenon was higher than in most neighbouring countries (Castro Martín & Martín-García, 2013), rising from an average age at first birth of about 25 years in the late 1970s to over 30 years in 2011 (INE).

During the years studied, Spain is the Organisation for Economic Co-operation and Development (OECD) country with the second-highest average age at childbearing and those one with the third-lowest TFR (OECD, 2018, 2019). These figures are a result of a high proportion of women not achieving their desired family size. For Spain, along with most countries in Europe, the ideal reproductive rate is two children per woman

(Sobotka & Beaujouan, 2014). However, the gap between the ideal fertility and achieved fertility in Spain is larger than in most European countries (Castro et al., 2018).

The structure of couples has also undergone a recent transformation, as the prevalence of the male breadwinner model has fallen, and increases were seen in the number of couples in which the woman has a higher level of education than the man and for which both members are employed (Bueno & García-Román, 2020). This change is prompted by the large increase in the educational level of women (Castro et al., 2018) and in their participation in the labour market (Brewster & Rindfuss, 2000). Currently in Spain, unlike in other European countries, women with higher educational attainment have lower and a more postponed fertility than those with lower educational attainment (Requena, 2021). However, women and couples with greater participation in the labour market tend to have more children (Bueno & García-Román, 2020), indicating no great incompatibility between motherhood and participation in the labour market.

Unlike Spain, Latin America and the Maghreb currently have an emerging post-transitional fertility regime (Sobotka, 2017). Although all countries in both regions have a higher TFR and an earlier transition to motherhood than Spain (according to data from The World Bank), important transformations have taken place over recent decades. In Latin America, fertility has plummeted since the 1960s (Lima et al., 2018; Rosero-Bixby et al., 2009). At that time, TFRs ranged between six and eight children per woman, with the exception of Argentina, Chile, Cuba and Uruguay, where they were between three and five. Thereafter, fertility declined sharply in all countries, and in 2011, the highest TFR was 3.29 in Guatemala. Indeed, in Brazil, Chile, Colombia, Costa Rica, Cuba and Uruguay, the TFR was below 2.1, the population replacement level. This sharp decline likewise began in the Maghreb in the 1970s (D'Addato, 2006; D'Addato et al., 2008;

Eltigani, 2005). Previously, the TFR was around seven, but since the beginning of the twenty-first century, it has ranged from two to three children per woman.

In spite of the display of a similar trend in their TFRs, the postponement of childbearing began earlier and was more pronounced in the Maghreb than in Latin America (Eltigani, 2005). A significant number of researchers have analysed the maintenance of very early fertility in Latin America during the final decades of the twentieth century at a time when the presence of women at different stages of the educational systems was increasing and the TFRs were sharply decreasing (Fussell & Palloni, 2004; Rosero-Bixby et al., 2009). This phenomenon has been attributed to the importance of marriage in Latin America, where the culture is family-oriented and marriage is a source of certainty and economic stability (Fussell & Palloni, 2004). Another defining characteristic of the demographic transition that took place in both regions is the role of educational expansion. In both the Maghreb and Latin America, a negative relationship is observed between women's educational level and their early fertility (D'Addato, 2006; D'Addato et al., 2008; Esteve & Florez-Paredes, 2018), but the increasing participation of women in the education system had different consequences in the two regions. In the Maghreb, modernisation and educational expansion uniformly reduced and delayed women's fertility, regardless of their level of education (D'Addato, 2006). However, in Latin America, while women who had higher levels of education postponed and reduced their fertility, those with low or medium levels of education had earlier fertility, leading to a bimodal fertility regime, featuring high adolescent fertility and high fertility around the age of 30 (Batyra, 2020; Esteve et al., 2013; Esteve & Florez-Paredes, 2018; Lima et al., 2018; Pardo & Cabella, 2018).

Three other relevant differences are found between the Latin American and Maghrebi emerging post-transitional fertility regimes that may have influenced the

fertility behaviour of these immigrant women in Spain. In both regions, trends are leading away from complex household structures and nuclear households are more prevalent than in the past; in Latin America, complex households in which a nuclear family lives with other family members or another nuclear family are more common (Bongaarts, 2001). While Maghrebi culture encourages marriage and opposes extramarital procreation (Drioui & Bakass, 2021), in Latin America, the proportion of births to single mothers and the proportion of births within a consensual union are quite high (Laplante et al., 2015). Finally, female educational level and labour market participation are much higher in Latin America than in the Maghreb (Eltigani, 2005). In the Maghreb, there is a serious incompatibility between labour market participation and family life, which forces many women to exit the labour market for good when they begin living with their partners and having children (Verme et al., 2016).

Childbearing of immigrants and their descendants: evidence, theoretical framework and research hypotheses

In most of Europe, and particularly in Southern Europe, recent increases in immigrant populations has led to an increase in the TFRs above the lowest-low fertility threshold at the beginning of the twenty-first century (Goldstein et al., 2009; Kohler et al., 2002; Sobotka, 2008). In Spain, previous work has documented the effects of growth of immigrant populations on the increasing number of marriages (Delgado et al., 2008) and births (del Rey Poveda et al., 2015) and on limiting the postponement of childbearing (Castro Martín & Rosero-Bixby, 2011; Castro et al., 2018). For these reasons, immigrants' descendants have exhibited increased population share, becoming a determining factor in European demographic dynamics and demonstrating the long-term consequences of having received certain migratory flows (de Valk & Milewski, 2011; Kraus & Castro Martín, 2018).

Existing research analysing the fertility of first-generation immigrants in European countries has concluded that origin plays a determining role. In most immigrant groups. the fertility level and calendar resemble those of native women, with only those originating from certain emerging post-transitional countries having higher and earlier fertility (Andersson, 2004; Kulu et al., 2019; Roig Vila & Castro Martín, 2007; Sobotka, 2008). This is the case for Turkish and African immigrants (e.g. Maghrebi immigrants) to European countries, who tend to show higher and earlier fertility than native women in their destination countries (Blekesaune, 2020; Kulu et al., 2019; Mussino & Cantalini, 2020). Latin American women have much lower fertility in Europe than in their countries of origin, and they have even lower fertility than native women in some destinations (Mussino & Cantalini, 2020).

Spain has the second-highest absolute number of Maghrebi immigrants and the highest number of Latin American immigrants in Europe; combined, these two groups account for more than three million people and 50% of the immigrant population in Spain (Eurostat, Census 2011). As is true in other European countries, Maghrebi immigrants in Spain have higher and earlier fertility than native women (Castro Martín & Rosero-Bixby, 2011; Roig Vila & Castro Martín, 2007). Latin American immigrants also demonstrate a higher and earlier fertility than native women, but the differences are much narrower (del Rey Poveda et al., 2015; González-Ferrer, 2011; González Ferrer & Cebolla Boado, 2018). Researchers have argued that the different migratory motivations in these two groups and the differences in cultural proximity between them and Spanish natives are responsible for their different childbearing behaviour. Most Maghrebi women coming to Spain have a familial motivation, the majority already have a partner when they arrive (Carella et al., 2021; del Rey Poveda et al., 2015; González-Ferrer, 2011; González-Ferrer et al., 2018), and more than a quarter come after marrying a Moroccan with previous residence in Spain (González-Ferrer, 2011). Latin American women, by contrast, have been considered labour migrants in Spain, and their educational attainment is higher than that of their counterparts in their origin countries (Castro Martín & Rosero-Bixby, 2011; del Rey Poveda et al., 2015). Additionally, it would be reasonable to expect Latin American women to adapt their childbearing behaviour to a greater extent to the Spanish norm than Maghrebi women would as a consequence of their cultural, religious and linguistic proximity to Spanish women (Adsera & Ferrer, 2014; Connor & Massey, 2010; Cristina Mora et al., 2018; González Ferrer & Cebolla Boado, 2018; Kraus & Castro Martín, 2018).

Several researchers have claimed that there have been insufficient studies on the fertility of second-generation immigrants in Europe (Andersson et al., 2017; Dubuc,

2012; Kulu et al., 2017; Kulu & Hannemann, 2016; Milewski, 2011; Scott & Stanfors, 2011). However, the existing literature allows us to conclude that most immigrant groups adapt their childbearing behaviour in the second generation to the native pattern, and as is often the case for first-generation immigrants, only certain groups maintain higher and earlier fertility than native women (Milewski, 2011). Kulu et al. (2017) analysed the birth transitions of immigrants originating in different regions and their descendants in six European countries. They found higher fertility than the native populations in only Indian, Pakistani and Bangladeshi immigrants' descendants in the United Kingdom; Turkish descendants in Germany and France; and Maghrebi descendants in Belgium, France and Spain. Reviewing seven studies in various European countries, Kulu et al. (2019) obtained very similar results: Turkish descendants have higher fertility than natives in Belgium (Van Landschoot et al., 2017), France (Pailhé, 2017), Sweden (Andersson et al., 2017) and Switzerland (Rojas et al., 2018), and Maghrebi descendants maintain higher fertility in Belgium (Van Landschoot et al., 2017), Norway (Lillehagen & Lyngstad, 2018) and Spain (González-Ferrer et al., 2017). As noted earlier, this last cited article is the only one to focus on the fertility of immigrant's descendants in Spain. Analyses of the descendants are restricted to the 1.5 generation, and it is concluded that while Latin American 1.5 generation immigrants have a very similar fertility level to native women, Maghrebi 1.5 generation immigrants 'display higher rates of progression to second and third birth than comparable native women'.

The relative importance of the following factors explaining the fertility of immigrants in Western countries has been assessed from a theoretical point of view: socialisation, adaptation, selection, disruption and interrelation of events (Kulu, 2005; Kulu & González-Ferrer, 2014; Milewski, 2010). The socialisation hypothesis proposes that fertility behaviour is learnt throughout the process of socialisation and maintained

thereafter. Following Milewski (2010), this hypothesis has two main aspects: the first predicts that first-generation immigrants will reproduce the childbearing behaviour typical of their origin countries in the host society, while second-generation immigrants will converge towards the native pattern; the second indicates that differences can be expected to emerge between immigrant groups according to origin. The adaptation hypothesis, for its part, focuses on adult life and suggests that first-generation immigrants' reproductive behaviour resembles the dominant behaviour in the destination society. A change in both the values and the preferences of immigrants and an adjustment to a new set of socioeconomic conditions may trigger this resemblance (González-Ferrer et al., 2017; Milewski, 2010). The selection hypothesis argues that those who decide to migrate are a specific group that should be understood differently from their origin populations in their fertility preferences and in key socioeconomic characteristics related to fertility (e.g. educational attainment and labour market experience). According to this hypothesis, first-generation immigrants have fertility behaviour that is similar to that of the destination society due to their shared preferences and characteristics (Kulu & González-Ferrer, 2014). Finally, the disruption hypothesis and the interrelation of events hypothesis stress the impact that the migration process may have on fertility. The former proposes that immigrants may exhibit low levels of fertility immediately after migration, due to the economic, social and psychological costs of this process (Kulu & González-Ferrer, 2014). The later argues that migration and settling in a new country may be related to family reunification or to the establishment of a new household and thus to forming a family (González-Ferrer et al., 2017).

From the empirical evidence and the theoretical background, we formulate the following hypotheses:

1) First-generation Latin American immigrants will have slightly higher early fertility than natives. These differences will narrow by generation 1.5 as the age of arrival to Spain decreases, and the second generation will converge towards the early fertility level of natives.

2) Latin American immigrants originating from countries where the TFR was higher than 2.1 in 2011 will show higher early fertility in Spain than those originating from countries with a TFR below 2.1.

3) First-generation Maghrebi immigrants will have much higher early fertility than natives. These differences will narrow in generation 1.5 as the age of arrival to Spain decreases, but relevant differences will still appear. The second generation will converge towards the natives' early fertility level but will maintain higher fertility.

4) An important part of the higher early fertility among Maghrebi immigrants than among Latin American immigrants relates to the different compositions of the two groups: Latin American immigrants will have greater participation in the educational system, a higher level of education and a higher level of participation in the labour market, and they will live with their partners less often.

5) Differences in the effects of key variables related to early fertility will also be relevant to the higher early fertility of Maghrebi immigrants relative to that of Latin American immigrants.

5.1) The intensifying effect on early fertility of leaving the educational system with primary education or less, and the lowering effect of enrolling in university studies will be greater in Latin American immigrants than in Maghrebi immigrants.

5.2) There will be a greater incompatibility between labour market participation and early fertility in Maghrebi immigrant women than in Latin American women.

5.3) The early fertility lowering effects of living with a family member in Latin American women will be less than those for in Maghrebi women.

Data, methods and sample description

We use a novel dataset that links individual birth registers between 2011 and 2015 to a 10% sample of the 2011 census, it has been provided by the Spanish National Statistical Office. We extract information regarding country of birth, parental country of birth and socioeconomic characteristics from the 2011 census, and we analyse the influence of these variables on the number of children birthed over the following 5 years. The sample is made up of 54363 native women, 3409 Latin American women and 967 Maghrebi[2] women, born between 1990 and 1992. At the end of 2011 these women were between 19 and 21 years old, and their fertility behaviour is observed until the end of 2015, when they were between 23 and 25 years old. We further differentiate Latin American women into two groups according to the value of TFR in their origin country in 2011 (according to World Bank data), dichotomised into above or below 2.1 children per woman[3]. This disaggregation has been made due to the variability of TFRs in Latin America. The cut-off point has been set at 2.1 because it is the replacement fertility level and because our sample is divided into two groups of similar size. A similar disaggregation is not made for Maghrebi immigrants due to their smaller number in our sample and the fact that most of them come from Morocco. Finally, immigrant women are subdivided into five categories according to their immigrant generation and to their age of arrival in Spain: first-generation immigrants, those who arrived at 16 to 20 years old; generation 1.5, those who arrived under the age of 16, subdivided into the categories of 0 to 6, 7 to 12 and 13 to 15 years old when they arrived in Spain; and second generation, those who were born in Spain but their parents were born in Latin America or the Maghreb[4]. This categorisation relates to the educational stages of the Spanish education system: from 0 to 6 years of age, schooling is not compulsory; from 6 to 15 years old, schooling is compulsory,

divided into primary (from 7 to 12) and secondary (from 13 to 15) tiers; from 16 years old and older, schooling is not compulsory.

The first stage of the analysis compares the categories of immigrant populations with the native population. Special attention is paid to whether the possible differences between first-generation immigrants and native women were narrower in generation 1.5 immigrants and second-generation immigrants. To establish this, three Poisson regression models are implemented with different sets of controls, in which the dependent variable is the number of children birthed between 2011 and 2015 with native women as the reference category. These models are appropriate, as the dependent variable is a count variable, and the models have been used in other studies that have adopted similar fertility measures (Adsera & Ferrer, 2014; Frank & Heuveline, 2005; Mussino et al., 2020). Model 1 only incorporates two control variables: year of birth and number of children birthed before 2011. Model 2 adds a control variable on educational status and another on labour status. The variable on educational status combines information on current educational enrolment and on the level of education attained. The variable for employment status distinguishes among inactivity, unemployment and employment. Model 3 adds one control variable for household composition, distinguishing three possible situations: women living with any member of their families, women living with their partners and without any other member of their families, and women living with other people or alone.

In the second stage, we implement a decomposition of the mean number of children that Latin American and Maghrebi women had between 2011 and 2015. Maghrebi immigrant women had an average of 0.32 children, much higher than the average of 0.12 among Latin American women (see Table 1). By means of a Multivariate Decomposition for a Poisson regression model, we examine how much of the 0.2 mean difference in the number of children is accounted for by the different compositions of the

two groups and how much is related to different behaviour (Powers et al., 2011). All variables from Model 3 are included in this decomposition, in addition to a variable that differentiates immigrants by generation and age of arrival. To support the interpretation of the results of this decomposition, a Poisson regression model is implemented for each of the two groups separately, and all variables involved in the decomposition are included.

The following presentation of results is divided as follows. First, descriptive statistics are discussed, and the main differences in the composition of the sample and in the fertility levels of each category analysed are identified. Next, the results of the three Poisson regression models are displayed, with a graph containing the incidence rate ratio (IRR) with 95% confidence intervals. Finally, a table is given with a summary of the decomposition results. The detailed results of the three Poisson regression models are provided in the appendix; the results of the separate models of the decomposition are available upon request.

Table 1. Sample description by origin, generation and age of arrival. Continued on the following page.

					Latin America TFR>2.1				
		Native	Latin America	Maghreb	First Gen.	13-15	7-12	0-6	Secod Gen.
Mean Nº of children between 2011-2015		0.05	0.12	0.32	0.17	0.18	0.14	0.10	0.03
Trans. to motherhood before 2016		6.80	17.10	32.26	25.74	24.41	18.87	15.76	5.47
Trans. to motherhood before 2011		3.06	9.83	17.27	17.82	13.92	10.06	9.70	2.83
Educational status	Not studying and have no educational attainment	6.53	9.47	23.78	8.66	12.42	8.26	15.15	5.06
	Not studying and have primary education	11.98	16.25	23.78	19.06	23.34	17.08	11.52	8.70
	Not studying and have secondary education or more	18.72	20.09	13.24	31.68	19.27	17.36	15.76	18.42
	Studying on a complementary course	7.12	10.47	8.48	12.13	9.64	9.64	11.52	9.92
	Studying at high school	16.00	18.22	13.24	14.85	20.34	22.73	13.33	15.59
	Studying at university	39.64	25.49	17.48	13.61	14.99	24.93	32.73	42.31
Labour status	Inactive	60.46	50.92	48.40	38.86	45.18	53.17	59.39	65.18
	Unemployed	26.28	31.12	37.85	36.14	34.69	32.92	23.03	21.46
	Employed	13.26	17.95	13.75	25.00	20.13	13.91	17.58	13.36
Household composition	Family	95.67	89.44	76.11	80.94	86.94	91.46	90.91	96.36
	Partner	2.83	8.51	22.13	14.60	11.35	7.30	7.88	2.63
	Other (alone, with friends, etc…)	1.51	2.05	1.76	4.46	1.71	1.24	1.21	1.01
Year of birth	1990	33.49	33.76	35.78	51.24	35.12	27.82	31.52	29.15
	1991	32.88	31.92	30.71	27.72	27.62	33.61	33.94	35.22
	1992	33.63	34.32	33.51	21.04	37.26	38.57	34.55	35.63
TOTAL		54363	3409	967	404	467	726	165	494

Table 1. Sample description by origin, generation and age of arrival.

		Latin America TFR<2.1					Maghreb				
		Fist Gen.	13-15	7-12	0-6	Second Gen.	First Gen.	13-15	7-12	0-6	Second Gen.
Mean Nº of children between 2011-2015		0.14	0.19	0.10	0.08	0.04	0.74	0.30	0.27	0.23	0.16
Trans. to motherhood before 2016		20.98	20.88	15.72	12.82	5.38	68.91	34.50	29.27	27.14	14.36
Trans. to motherhood before 2011		12.68	8.79	10.38	7.69	2.15	44.56	16.37	13.41	12.86	5.96
Educational status	Not studying and have no edu. attainment	7.80	13.19	13.52	12.82	5.38	46.63	34.50	20.12	27.14	7.86
	Not studying and have primary education	18.54	21.61	15.09	14.10	9.32	26.94	23.39	33.54	17.14	19.24
	Not studying and have secondary edu. or more	31.71	18.32	14.78	15.38	17.92	8.29	14.04	14.02	22.86	13.28
	Studying on complementary course	11.22	11.36	13.21	11.54	7.17	9.33	8.77	6.10	8.57	8.94
	Studying at high school	16.10	18.32	19.81	15.38	15.77	5.18	13.45	15.24	12.86	16.53
	Studying at university	14.63	17.22	23.58	30.77	44.44	3.63	5.85	10.98	11.43	34.15
Labour status	Inactive	39.02	43.59	46.23	52.56	62.72	50.78	41.52	43.29	42.86	53.66
	Unemployed	40.00	32.97	34.91	34.62	21.51	40.93	44.44	40.24	44.29	30.89
	Employed	20.98	23.44	18.87	12.82	15.77	8.29	14.04	16.46	12.86	15.45
Household compo.	Family	78.05	91.58	89.62	85.90	94.62	34.20	77.78	84.76	80.00	92.68
	Partner	19.02	7.33	8.49	7.69	2.51	62.69	21.64	15.24	12.86	5.96
	Other (alone, with friends, etc…)	2.93	1.10	1.89	6.41	2.87	3.11	0.58	0.00	7.14	1.36
Year of birth	1990	44.88	30.40	29.25	26.92	33.33	46.63	35.67	31.71	38.57	31.44
	1991	28.29	32.23	33.65	37.18	32.62	33.16	26.90	35.37	25.71	30.08
	1992	26.83	37.36	37.11	35.90	34.05	20.21	37.43	32.93	35.71	38.48
TOTAL		205	273	318	78	279	193	171	164	70	369

Results

Table 1 presents descriptive information on the sample analysed for native, Latin American and Maghrebi women. The immigrants are subdivided according to their immigrant generation and their arrival in Spain. Large differences are seen both in the early transition to motherhood and in terms of the educational, employment and household composition variables. As noted in other studies (Castro Martín & Rosero-Bixby, 2011; Roig Vila & Castro Martín, 2007), the native's early transition to motherhood is much lower than that of first-generation Latin American and, particularly, Maghrebi immigrants: while only 7% of the native women born between 1990 and 1992 had transitioned to motherhood before 2016, this figure rises to 24% for first-generation Latin American immigrants and to 69% for first-generation Maghrebi immigrants. These differences narrow when comparing 1.5 generation immigrants to native women, all the more so when focusing on immigrants who arrived in Spain earlier in life. However, Latin American immigrants who arrived in Spain between 13 and 15 years old had higher fertility than those who arrived between 16 and 20 years old. Finally, the early fertility of second-generation immigrants converges more towards that of native women, although important differences are observed between Latin American and Maghrebi immigrants. The early fertility of second-generation Latin American immigrants is, although similar, even lower than that of Spanish natives. That of second-generation Maghrebi women is still much higher than that of native women.

These same patterns are reproduced in the educational, employment and household composition variables. Native women exhibit a profile associated with much reduced early motherhood: they are mostly students, especially at university, inactive in the labour market and living with their families. First-generation Latin American immigrants tend to have a labour market-oriented profile (Castro Martín & Rosero-Bixby,

2011; del Rey Poveda et al., 2015), most of them are employed or seeking employment instead of studying and most live with their families. First-generation Maghrebi immigrants follow the family-oriented profile described elsewhere (del Rey Poveda et al., 2015; González-Ferrer, 2011; González-Ferrer et al., 2018), which is associated with higher early fertility: most live with their partners, are not active in the labour market and are not enrolled as students. The 1.5 and second-generation immigrants originating from both regions converge towards the profile of Spanish native women. However, while second-generation Latin American immigrants' profiles are associated with lower early fertility than that of native women—Latin Americans are enrolled as students of one type or another in an even higher proportion—second generation Maghrebi women are still less likely to be studying and more likely to be living with a partner. The relevant differences between natives and immigrants highlighted in this paragraph in key variables related to early fertility may play a determining role in the differences between the levels of early fertility. The results of the three Poisson regression models are presented below.

Figure 1 presents the results of the three Poisson regression models. Model 1 indicates a process of intergenerational convergence towards native-level early fertility level in the three immigrant categories analysed. However, there are relevant differences between Latin American and Maghrebi women. First-generation Latin American immigrants have higher early fertility than native women, with an IRR of around 2.5. This difference increases for Latin American immigrants who arrived at 13 to 15 years old and decreases for those who arrived at younger than 13 years old. There are no significant differences between second-generation Latin American immigrants and native women. Differences between Maghrebi immigrants and natives are much more marked in all the categories analysed. The first generation has an IRR of 9.6, which is lower in the 1.5

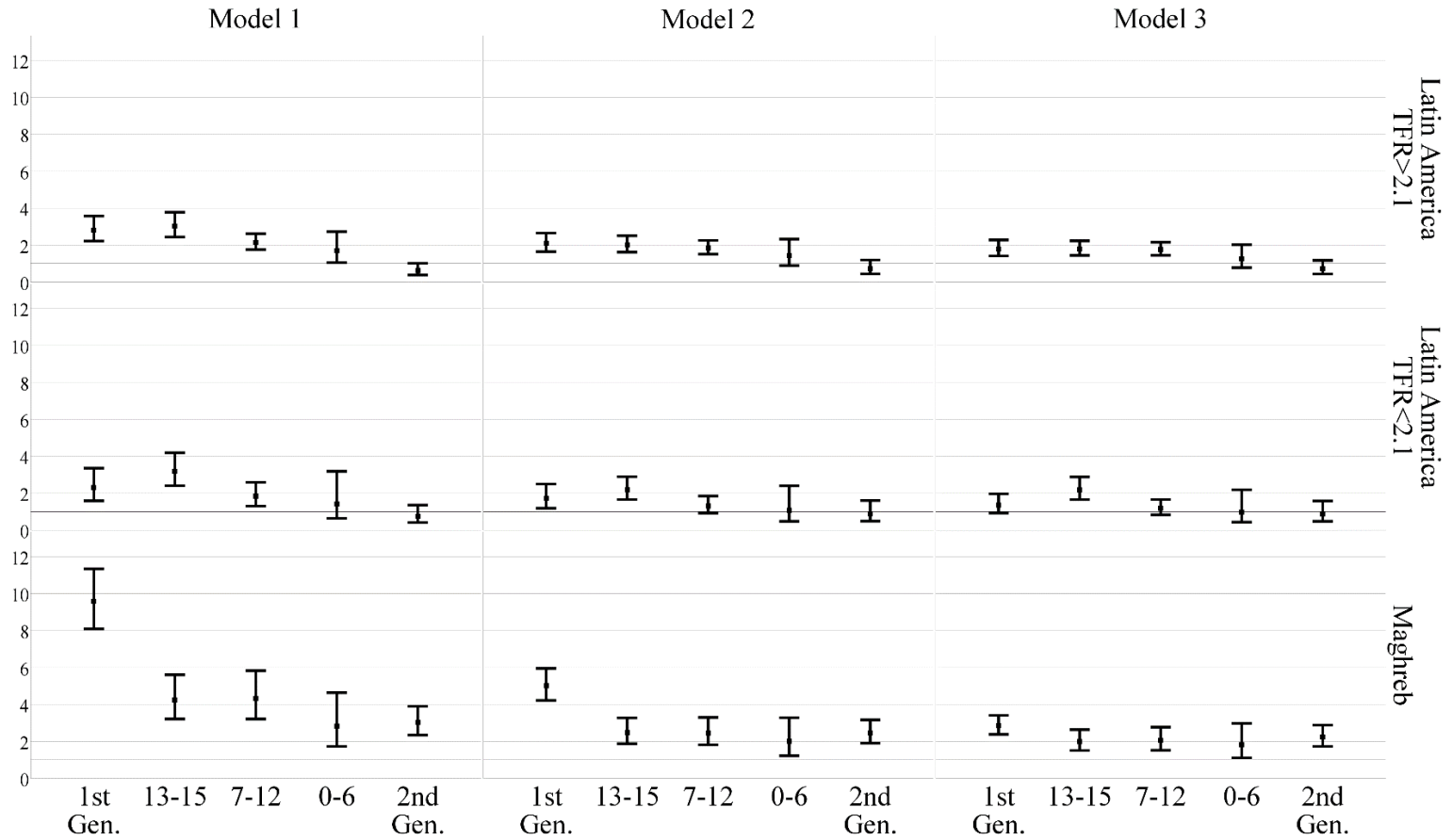

Figure 6. Poisson regression models results by origin, generation and age at arrival. Incidence rate ratios with 95% confidence intervals. Dependent variable: number of children had between 2011 and 2015. Reference category: Native women. Model 1 controls for year of birth and number of children had prior to 2011; Model 2 adds two control variables on educational status and labour status; Model 3 adds one control variable on household composition.

generation. Maghrebi second-generation immigrants, with an IRR of 3, continue to show much higher early fertility than native women.

In the Model 2 results, the differences narrow between each category of immigrant women and native women. Therefore, the different compositions according to educational status and labour market participation between immigrants and natives accounts for a substantial part of the higher early fertility of certain categories of immigrants. First-generation Latin American and Maghrebi women reduce their higher early fertility with respect to native women to a greater extent than their descendants; as noted above, these are the immigrant categories whose labour market participation and educational enrolment characteristics differ the most from native women. In Latin American women, the process of intergenerational convergence and higher early fertility in those who arrived in Spain between 13 and 15 years of age is again observed. Among Maghrebi immigrants, we find larger differences with respect to natives, as before. The first generation has an IRR of 5, a rate that is halved in the 1.5 generation categories and maintained in the second generation.

Incorporating household composition as a control variable into Model 3 further reduces the differences between immigrants and natives, again, especially in first-generation immigrants. In this case we identify a different pattern in the two Latin American immigrant categories. For those who originate from countries with a TFR higher than 2.1 in 2011, there is a higher early fertility in the first generation and in those who arrived in Spain at more than 6 years old. However, those who come from countries with a TFR lower than 2.1 in 2011, the first generation does not present any significant differences with respect to the natives, with these differences only existing in those who arrived between 13 and 15 years old. In both groups, early fertility is practically identical to that of natives in those who arrive before 7 years old and in second-generation

immigrants. Maghrebi immigrants follow the same pattern as in Model 2, with the IRR of the first generation dropping to 2.8 and that of the other categories being around 2.

After noting that Latin American and Maghrebi women show different patterns in early childbearing relative to native women, we delve into the possible causes of these different fertility levels.

Table 2 presents the results of a multivariate decomposition of the mean number of children that Latin American and Maghrebi immigrant women had between 2011 and 2015. Maghrebi immigrants (0.32) had on average 0.2 more children than Latin American immigrants (0.12), and 39.72% of this difference can be explained by the different compositions of the two groups in the set of predictors, particularly in relation to the contribution of educational status and household composition. Educational status is the most important predictor, accounting for 20.6% of the difference. Latin American immigrant women have a higher level of education and are enrolled in studies of some type in greater proportion than Maghrebi women, and this is associated with lower early fertility in both groups. For example, if Maghrebi women were to be enrolled in university studies in the same proportion as Latin American women, the difference in the average number of children between 2011 and 2015 would be reduced by 14.4%. The other key predictor is household composition. If household compositions were the same for Maghreb and Latin American women, the difference in early fertility would be reduced by 15%. In particular, Maghrebi women live with their partners more frequently than Latin American women do, which is related to their higher fertility.

The remaining 60.28% of the difference is explained by different coefficients across the two groups in the observed variables. The categories of the variable referring to generation and age of arrival have different effects in Latin American and Maghrebi women. In Maghrebi women, the first generation has the highest early fertility, but in

Latin American women, those who have arrived in Spain between 13 and 15 years of age have the highest fertility. Thus, if the effect that arriving in Spain between the ages of 13 and 15 has on Maghrebi women were the same as the effect it has on Latin American women, the difference between these two groups in the average number of children between 2011 and 2015 would increase by 5.4%. Belonging to the second generation also has a different effect, as this category reduces the fertility of Latin American women more than it does that of Maghrebi women. If this reducing effect on Latin American women were also present in Maghrebi women, the difference in our measure of early fertility would be reduced by 6.8%.

Differences in educational status also have different effects on these two groups. Although in both Maghrebi and Latin American women, having a higher level of education and being enrolled in school reduce early fertility, this gradient is much more pronounced in Latin American women than in Maghrebi women. Having abandoned the educational system after primary or lower education increases fertility to a greater degree among Latin American women than among Maghrebi women, and being enrolled in university studies reduces early fertility more among Latin American women than among Maghrebi women. In other words, if the effect that abandoning the educational system at primary or lower education has on Latin American women were the same for Maghrebi women, the difference in early fertility among them would increase by almost 5%. Furthermore, if the effect of having a university education for Maghrebi women were the same as for Latin American women, the difference would be reduced by 6.5%.

Labour market participation has opposite effects on Maghrebi and Latin American women. Although in both groups, unemployment is the most favourable category for early fertility, being in a situation of inactivity increases the fertility of Maghrebi immigrants and reduces that of Latin American women. The latter, on the other hand,

have higher fertility when they are employed or seeking employment. If the lowering effect on early fertility that being inactive has on Latin American women were also found in Maghrebi women, the difference between them would be reduced by 13.5%.

Table 2. Multivariate decomposition for Poisson regression model of the mean number of children had between 2011 and 2015. Analysed groups: Latin American and Maghrebi women. * Sig. < 0.05

		Mean number of children between 2011-2015	
Latin American		0.12	
Maghrebi		0.32	
		Nº of children	% Of the difference
Due to compositional differences		0,08	39.72
Due to differences in the effects of characteristics		0,12	60.28
		Characteristics (%)	Coefficients (%)
Generation/Age of arrival	First Gen.	2.2*	3.2
	13-15	0.1	-5.4*
	12-7	-0.4	-2.8
	6-0	-0.1	-1.0
	Second Gen.	-6.0	6.8*
Educational status	Not stud. and have no edu. attainment	7.5*	-1.9
	Not stud. and have primary education	2.6	-2.9
	Not stud. and have sec. edu. or more	-3.3	3.0
	Studying on a complementary course	-1.0	0.5
	Studying at high school	0.4	-1.4
	Studying at university	14.4*	6.5
Labour status	Inactive	-0.2	13.5*
	Unemployed	1.8	-3.1
	Employed	1.4	-2.9
Household compo.	Family	13.8*	-14.7
	Partner	1.4	-1.3
	Other (alone, with friends, etc…)	-0.3*	0.7
Year of birth	1990	0.8*	4.2
	1991	0.3	-3.4
	1992	0.1	-0.5
Nº of previous children		4.0	-1.0
		39.7	60.3
_cons			64.4

Finally, household composition has a similar effect on early fertility in both Latin American and Maghrebi women; living with the family reduces fertility compared to living with a partner. However, the early fertility lowering effect of living with the family is stronger for Maghrebi women than for Latin American women. If this effect were also found in Latin American women, the difference between them in the average number of children had between 2011 and 2015 would increase by 14.7%.

Discussion and Conclusions

The fertility of immigrant populations originating from emerging transitional countries plays a key role in the demographic dynamics of host countries with very low fertility. This combination of factors is found in several European countries, such as Spain, which in recent decades have received sizeable migratory flows from areas with earlier and higher fertility. Moreover, the childbearing behaviour of the given immigrant groups in the host societies is both a cause for and a consequence of broader processes of social, economic and cultural integration. Thus, the fertility of immigrant descendants is of special interest, and investigating it allows us to analyse 'the process of immigrant incorporation in Western Europe over the long run' (Milewski, 2011). Several studies have already observed the fertility of second-generation immigrants in Western European countries, but due to the young age structure that this group has in Spain and the lack of adequate databases, the Spanish case is a missing piece in this puzzle.

In line with previous work, first-generation Latin American immigrant women have higher early fertility than native Spanish women (del Rey Poveda et al., 2015; González-Ferrer, 2011; González Ferrer & Cebolla Boado, 2018); this difference is considerably reduced in models incorporating a comprehensive set of control variables. However, while González-Ferrer et al. (2017) conclude that 1.5 generation Latin American immigrants mirrored the fertility pattern of native women, we find differences within this group depending on age of arrival in Spain and TFR of the country of origin. Even after adopting a comprehensive set of control variables, it was identified that Latin American immigrants who arrived in Spain between 13 and 15 years old have higher early fertility, and those originating from countries with a TFR above 2.1 in 2011 also have higher fertility if they arrived between 7 and 12 years old. Finally, Latin American second-generation immigrants have the same level of early fertility as natives.

These results partially confirm Hypothesis 1, as indicated by the socialisation and selection hypotheses. Initially, although first-generation immigrants show higher early fertility than natives, this difference is mainly rooted in their differing composition and is lower than what would be expected given the large difference between the level of early childbearing in Latin America and Spain. For 1.5 generation immigrants, the younger the age of arrival, the greater the convergence to the native level. Finally, second generation's early fertility resembles that of native women.

However, those who arrive in Spain between the ages of 13 and 15 from Latin American countries with lower fertility have higher early fertility than first-generation immigrants. This result is contrary to what is proposed by the socialisation hypothesis, but we argue that it can be interpreted in light of the selection and disruption hypotheses. First, in line with the selection hypothesis, first-generation Latin American immigrants in Spain have particular characteristics not shared by all groups Latin American women, being characterised by a higher level of education and a greater labour market orientation than women who did not migrate to Spain. Therefore, their early fertility is expected to be lower than that observed in their countries of origin. However, Latin American immigrants who arrived in Spain between 13 and 15 years old are also been socialised in Latin America to a large extent, and, being passive agents of migration, they are a less select group than first-generation immigrants (Kraus & Castro Martín, 2018). The disruption hypothesis may also help explain the higher fertility in women who arrived between the ages of 13 and 15 than in those who arrived between the ages of 16 and 20. It is expected that the disruptive effect that migration may have on fertility in these immigrants is more relevant for women whose migration occurs at a more important stage in their childbearing calendar. Bearing in mind the bimodal calendar of fertility that is characteristic of many Latin American countries (Lima et al., 2018), women who migrate

to Spain between 16 and 20 years of age do so in a period of greater intensity within the reproductive calendar of their societies of origin than those who migrate somewhat younger.

Latin American immigrants from countries with a TFR above 2.1 in 2011 do not exhibit systematically higher early fertility in Spain than those from countries with lower TFRs. Hypothesis 2, which is derived from the socialisation hypothesis, is not supported. This result can be interpreted in relation to the selection hypothesis, observing how this process functions in countries of origin with different fertility levels, blurring differences in the destination society.

Fertility in first-generation Maghrebi women is much higher than that of native women, supporting results published elsewhere (Castro Martín & Rosero-Bixby, 2011; Roig Vila & Castro Martín, 2007). Also, as González-Ferrer et al. (2017) concluded, in generation 1.5, the differences with respect to natives narrow, but do they not disappear. These results support the socialisation hypothesis and our Hypothesis 3. However, we also identify two results not predicted by these hypotheses. First, in the 1.5 generation, women who arrived between 0 and 6 years old have the same early fertility as those who arrived between 7 and 12 and even as those who arrived between 13 and 15. Moreover, the early fertility level of the second generation is equal to that of generation 1.5. This indicates that in place of a process of progressive intergenerational convergence in Maghrebi immigrants, the distinction appears to be between arriving by 16 years old or not. This result can be tentatively explained with the consideration that Maghrebi immigrants have a family profile, and their migratory project is linked to that of their partners (del Rey Poveda et al., 2015; González-Ferrer, 2011; González-Ferrer et al., 2018). This factor is expected to be more relevant for first-generation immigrants than in their descendants. In this group, the transmission to the second generation of a high level

of early fertility, it should be noted, has been observed in other European countries as well, such as France, Belgium and Norway (Kulu et al., 2017; Lillehagen & Lyngstad, 2018; Van Landschoot et al., 2017).

Once it is established that Maghrebi immigrants have a high level of early fertility and that they do not converge with the passage of generations toward native women as Latin American women do, the decomposition analysis allows us to describe in greater depth the characteristics of the existing difference in the early childbearing of these two groups of immigrants. The different composition of the two groups in variables related to early fertility accounts for almost 40% of the higher level of early fertility among Maghrebi women. The lower educational level, combined with the lower level of participation in the Spanish education system and the greater tendency of Maghrebi women to live with their partners are the two main determinants of their different composition. Taking into account the different migratory motivations and in line with the selection hypothesis, as their migratory project is related to improving their job prospects, it is reasonable to expect to find a higher educational level in Latin American immigrants and their descendants. Similarly, we would expect to observe a greater tendency to live with a partner among Maghrebi women, most of whom have familial aims. These findings support Hypothesis 4, although this is not fully confirmed, as we do not observe that higher labour market participation among Latin American women can explain their lower early fertility.

The differences in the coefficients support the socialisation hypothesis, as they reflect the differences that previous studies have identified within existing fertility patterns in Latin America and the Maghreb, confirming the three sections of Hypothesis 5. Being enrolled in any type of study and having a high level of education reduces early fertility to a greater extent for Latin American immigrants than for Maghrebi immigrants,

and leaving the educational system early with a low level of education increases early fertility more for Latin American immigrants than for Maghrebi immigrants. This result is consistent with the bimodal pattern of age at first birth and the polarising effect of educational expansion that has been identified in Latin America (Batyra, 2020; Esteve et al., 2013; Esteve & Florez-Paredes, 2018; Lima et al., 2018; Pardo & Cabella, 2018). Being employed reduces early fertility in Maghrebi immigrants in Spain and increases it in Latin American immigrant women, replicating the significant incompatibility between these two spheres in the Maghreb (Verme et al., 2016) and the differing motivations for migration among Maghrebi and Latin American women. Cohabiting with a family member reduces fertility to a greater extent in Maghrebi women than in Latin American women, as can be expected, given that a complex family structure is more common in Latin America than in the Maghreb (Bongaarts, 2001) and that in the Maghreb, extramarital procreation is less culturally accepted than it is in Latin America (Drioui & Bakass, 2021).

This study contributes to the development of the fertility of the descendants of immigrants in Europe, providing an early approach to the study of the fertility of second-generation Maghrebi and Latin American women in Spain. On the one hand, the results are in accordance with what has been observed in previous studies that have analysed the fertility of the descendants of Maghrebi and Latin American immigrants in other European countries (Kulu et al., 2017, 2019; Mussino & Cantalini, 2020). Systematically higher fertility is found in first-, 1.5 and second-generation Maghrebi immigrants than in natives, Latin American immigrants show a fertility that is much closer to natives in all generations. The results also mainly support the socialisation and selection hypotheses. Both aspects of the socialisation hypothesis specified by Milewski (2010) are confirmed in our results: first-generation Latin American and Maghrebi immigrants present

childbearing behaviour with certain characteristics that are typical of their countries of origin, second-generation immigrants are much more similar to native Spanish women; both when analysing the early fertility level and when comparing the reproductive behaviour of the two immigrant groups in greater detail, we find that there are differences between them that are related to the childbearing behaviour typical of their origin countries. The results obtained for Latin American immigrants support the selection hypothesis, as their level of early fertility, once a set of controls is introduced in the models, is very similar to that of Spanish natives, even in the first generation. Also, it was found that those originating from Latin American countries with a higher TFR do not show systematically higher early fertility in Spain. These findings should be considered in light of the limitations of this study. Although our data allow us to analyse the fertility of descendants of immigrants in Spain for the first time using administrative data, as it does not provide fertility history in full and the observation period is only five years, no longitudinal analysis or analysis of the specific transitions to the first, second and subsequent births was possible. Moreover, although early fertility is a relevant aspect for childbearing, the observed results cannot be extrapolated directly to complete fertility. As the age structure of the immigrant descendants in Spain becomes more aged and more suitable data become available, future studies will be able to overcome these limitations.

Endnotes

1 Following Sobotka (2017), we use the term emerging post-transitional countries to refer to those "that have experienced a decline in period TFR to around replacement level in the 1990s to 2000s, or that are approaching the completion of their fertility transition and currently have a period TFR of below three births per woman".

2 The Maghreb is the collective name for the countries of Algeria, Libya, Mauritania, Morocco and Tunisia. According to the 2011 Census, in this group in Spain 93% of the women originate from Morocco.

3 The Latin American countries that in 2011 had a TFR above 2.1 are Argentina, Bolivia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Venezuela. In this group, 31% of the women originate from Ecuador, 16% from Argentina and 13% from Venezuela. The Latin American countries that had a TFR below 2.1 in 2011 are Brazil, Chile, Colombia, Costa Rica, Cuba and Uruguay. In this group, 49% of the women originate from Colombia, 16% from Brazil and 13% from Uruguay.

4 If parents are born in different countries outside Spain, the mother's country of birth is taken.

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Appendix

Model 1. Poisson regression models results by origin, generation and age at arrival. Incidence rate ratios with 95% confidence intervals. Dependent variable: number of children had between 2011 and 2015. Controls for year of birth and number of children had prior to 2011.

				95% Conf. Interval	
	Exp(B)	Standard Error	Sig.	Inferior	Superior
Origin/Generation/Age of arrival. Ref. Cat.: Native women					
LA+ 16-20	2.82	0.12	0.000	2.22	3.57
LA+ 13-15	3.04	0.11	0.000	2.44	3.78
LA+ 12-7	2.14	0.10	0.000	1.75	2.62
LA+ 6-0	1.69	0.24	0.030	1.05	2.73
LA+ 2ndG	0.62	0.25	0.059	0.38	1.02
LA- 16-20	2.31	0.19	0.000	1.59	3.36
LA-13-15	3.18	0.14	0.000	2.41	4.19
LA- 12-7	1.84	0.18	0.001	1.30	2.59
LA- 6-0	1.43	0.41	0.382	0.64	3.18
LA- 2ndG	0.75	0.30	0.348	0.42	1.36
Maghrebi 16-20	9.58	0.09	0.000	8.09	11.34
Maghrebi 13-15	4.25	0.14	0.000	3.22	5.61
Maghrebi 12-7	4.33	0.15	0.000	3.21	5.83
Maghrebi 6-0	2.83	0.25	0.000	1.73	4.63
Maghrebi 2ndG	3.02	0.13	0.000	2.34	3.90
Year of birth. Ref. Cat.: 1990					
1991	0.86	0.04	0.000	0.79	0.92
1992	0.74	0.04	0.000	0.68	0.80
Nº of previous children	1.81	0.02	0.000	1.76	1.87
Constant	0.06	0.03	0.000	0.06	0.06

Model 2. Poisson regression models results by origin, generation and age at arrival. Incidence rate ratios with 95% confidence intervals. Dependent variable: number of children had between 2011 and 2015. Controls for year of birth, number of children had prior to 2011, educational status and labor status.

				95% Conf. Interval	
	Exp(B)	Standard Error	Sig.	Inferior	Superior
Origin/Generation/Age of arrival. Ref. Cat.: Native women					
LA+ 16-20	2.09	0.12	0.000	1.65	2.65
LA+ 13-15	2.01	0.11	0.000	1.62	2.51
LA+ 12-7	1.85	0.10	0.000	1.52	2.26
LA+ 6-0	1.44	0.24	0.134	0.89	2.32
LA+ 2ndG	0.73	0.25	0.207	0.45	1.19
LA- 16-20	1.72	0.19	0.004	1.19	2.50
LA-13-15	2.19	0.14	0.000	1.66	2.89
LA- 12-7	1.31	0.18	0.120	0.93	1.85
LA- 6-0	1.08	0.41	0.854	0.48	2.40
LA- 2ndG	0.89	0.30	0.693	0.49	1.60
Maghrebi 16-20	5.01	0.09	0.000	4.22	5.95
Maghrebi 13-15	2.48	0.14	0.000	1.88	3.27
Maghrebi 12-7	2.45	0.15	0.000	1.82	3.30
Maghrebi 6-0	2.00	0.25	0.006	1.23	3.28
Maghrebi 2ndG	2.45	0.13	0.000	1.90	3.17
Educational status. Ref. Cat.: Not studying and have no edu. attainment					
Not studying and have primary education	0.77	0.05	0.000	0.70	0.84
Not studying and have secondary education or more	0.35	0.05	0.000	0.32	0.39
Studying, complementary courses	0.40	0.07	0.000	0.35	0.46
Studying, high school studies	0.35	0.06	0.000	0.31	0.40
Studying, university studies	0.08	0.08	0.000	0.07	0.09
Labor status. Ref. Cat.: Inactive					
Unemployed	2.20	0.04	0.000	2.03	2.40
Employed	1.88	0.05	0.000	1.70	2.09
Year of birth. Ref. Cat.: 1990					
1991	0.95	0.04	0.236	0.88	1.03
1992	0.88	0.04	0.002	0.81	0.95
Nº of previous children	1.53	0.02	0.000	1.48	1.59
Constant	0.10	0.06	0.000	0.09	0.11

Model 3. Poisson regression models results by origin, generation and age at arrival. Incidence rate ratios with 95% confidence intervals. Dependent variable: number of children had between 2011 and 2015. Controls for year of birth, number of children had prior to 2011, educational status, labor status and household composition.

				95% Conf. Interval	
	Exp(B)	Standard Error	Sig.	Inferior	Superior
Origin/Generation/Age of arrival. Ref. Cat.: Native women					
LA+ 16-20	1.79	0.12	0.000	1.41	2.28
LA+ 13-15	1.80	0.11	0.000	1.44	2.23
LA+ 12-7	1.76	0.10	0.000	1.45	2.15
LA+ 6-0	1.25	0.24	0.355	0.78	2.02
LA+ 2ndG	0.72	0.25	0.188	0.44	1.18
LA- 16-20	1.36	0.19	0.111	0.93	1.97
LA-13-15	2.18	0.14	0.000	1.66	2.88
LA- 12-7	1.18	0.18	0.346	0.84	1.66
LA- 6-0	0.98	0.41	0.962	0.44	2.19
LA- 2ndG	0.88	0.30	0.662	0.48	1.58
Maghrebi 16-20	2.85	0.09	0.000	2.38	3.41
Maghrebi 13-15	1.99	0.14	0.000	1.51	2.64
Maghrebi 12-7	2.06	0.15	0.000	1.52	2.77
Maghrebi 6-0	1.82	0.25	0.017	1.11	2.98
Maghrebi 2ndG	2.23	0.13	0.000	1.73	2.88
Educational status. Ref. Cat.: Not studying and have no edu. attainment					
Not studying and have primary education	0.79	0.05	0.000	0.73	0.87
Not studying and have secondary education or more	0.39	0.05	0.000	0.35	0.43
Studying, complementary courses	0.45	0.07	0.000	0.39	0.52
Studying, high school studies	0.39	0.06	0.000	0.35	0.45
Studying, university studies	0.09	0.08	0.000	0.08	0.11
Labor status. Ref. Cat.: Inactive					
Unemployed	2.05	0.04	0.000	1.89	2.23
Employed	1.75	0.05	0.000	1.58	1.94
Household composition. Ref. Cat.: Family					
Partner	2.75	0.05	0.000	2.51	3.01
Other (alone, friends…)	1.01	0.13	0.942	0.79	1.30

	Exp(B)	Standard Error	Sig.	95% Conf. Interval Inferior	Superior
Year of birth. Ref. Cat.: 1990					
1991	0.99	0.04	0.772	0.91	1.07
1992	0.93	0.04	0.065	0.85	1.00
Nº of previous children	1.34	0.02	0.000	1.28	1.41
Constant	0.08	0.06	0.000	0.08	0.09

Chapter 3, Study 3. La fecundidad completa de las inmigrantes latinoamericanas y sus descendientes en España.

This study is in the second round of review for publication.

La fecundidad completa de las inmigrantes latinoamericanas y sus descendientes en España.

Este estudio analiza la fecundidad completa de las inmigrantes latinoamericanas y de sus descendientes en España. Utilizamos una base de datos que vincula al Censo de 2011 el Movimiento Natural de la Población desde 2011 hasta 2015 y aplicamos modelos de regresión de Poisson. Las inmigrantes latinoamericanas de primera generación tienen una fecundidad completa superior a las nativas y las de 1.5 y segunda generación de en torno a un 10% inferior.

Keywords: fecundidad; inmigrantes; segunda generación; América Latina; España.

Introduction

La fecundidad de las inmigrantes y de sus descendientes juegan un papel cada vez más importante en las dinámicas demográficas de países europeos que, como España, han recibido importantes flujos migratorios durante las últimas décadas (Avdeev et al., 2011; Sobotka, 2008). Inicialmente, numerosos estudios se centraron en analizar la fecundidad de las inmigrantes de primera generación que residían en países europeos tradicionalmente receptores de inmigrantes (Andersson, 2004) y, conforme el volumen de la segunda generación aumentaba, también lo hicieron los estudios focalizándose en ella (Garssen & Nicolaas, 2008; Milewski, 2010). Estas investigaciones, siguiendo otras previamente realizadas en países que ya habían sido destino de relevantes flujos migratorios (véanse los estudios de Frank y Heuveline (2005) y de Stephen y Bean (1992) en Estados Unidos), analizaron si la fecundidad de las descendientes de inmigrantes convergía hacia el nivel de fecundidad de las nativas eliminando las diferencias que presentaba la primera generación. Aunque este campo aún se encuentra en desarrollo en

Europa (Andersson et al., 2017; de Valk & Milewski, 2011), la literatura existente señala que existe gran heterogeneidad en función del origen concreto de las inmigrantes. Mientras que las pautas de fecundidad de la mayoría de grupos de descendientes de inmigrantes convergen hacia las propias de las nativas, existen también determinados colectivos – como los de origen turco o magrebí – que tienden a mantener comportamientos reproductivos característicos de sus sociedades de origen (Kulu et al., 2019; Kulu & González-Ferrer, 2014).

Las inmigrantes latinoamericanas y sus descendientes en Europa, a pesar de despertar gran interés por provenir de países con Índices Sintéticos de Fecundidad (ISF) elevados en el contexto europeo, constituyen un colectivo sobre el que quedan preguntas muy importantes por responder. Esto es así debido al carácter reciente de los flujos de estos inmigrantes hacia España (Muñoz de Bustillo & Antón, 2010), que es el principal destino en Europa de inmigrantes latinoamericanos. Como consecuencia, a pesar de que sí que existen diversos estudios que analizan la fecundidad de la primera generación de inmigrantes latinoamericanas en España (Castro Martín & Rosero-Bixby, 2011; del Rey & Grande, 2017; Roig Vila & Castro Martín, 2007), la estructura de población joven de sus descendientes combinada con la ausencia de bases de datos adecuadas, han limitado las posibilidades de analizar la fecundidad de la segunda generación de inmigrantes latinoamericanas en España (González Ferrer & Cebolla Boado, 2018; Liu et al., 2019). Actualmente, el artículo de González-Ferrer et al. (2017) es el único que analiza directamente la fecundidad de las descendientes de inmigrantes en España. Concluye que en la generación 1.5 solo las inmigrantes magrebíes muestran una mayor fecundidad que las nativas y que en el caso de las latinoamericanas se observa convergencia hacia las nativas. Debido a que el estudio utiliza dos encuestas de los años 2006 y 2007, no fue posible analizar la segunda generación.

Este artículo pretende contribuir a superar este vacío en la literatura analizando la fecundidad completa de las inmigrantes latinoamericanas de primera, 1.5 y segunda generación en España. Para ello utilizamos una nueva base de datos que combina el Movimiento Natural de la Población (MNP) entre los años 2011 y 2015 con el Censo español del 2011. Primeramente, comparamos la fecundidad completa de las inmigrantes latinoamericanas de primera, 1.5 y segunda generación con respecto a las nativas españolas. A continuación, para considerar las diferencias que existen en los niveles de fecundidad en Latinoamérica, desagregamos el análisis en función del país concreto de origen. Finalmente, analizamos el efecto que el ISF del país de origen de las inmigrantes latinoamericanas tiene en su fecundidad completa. Para ello, seleccionamos a las mujeres nacidas entre 1950 y 1969 en España y Latinoamérica, y analizamos el número de hijos que habían tenido al concluir 2015 utilizando modelos de regresión de Poisson.

La fecundidad en España y en Latinoamérica

España conforma un contexto muy específico e interesante en el que estudiar el comportamiento reproductivo de inmigrantes latinoamericanas debido al actual nivel de fecundidad y a la transformación que ha experimentado recientemente. La segunda transición demográfica (Lesthaeghe & Van de Kaa, 1986; Van De Kaa, 1987) tuvo lugar en España de forma tardía (Surkyn & Lesthaeghe, 2004) y acelerada con respecto a los países del centro y del norte de Europa. De esta forma, como muestra la Tabla 1, el ISF se mantuvo en casi tres hijos por mujer durante los años 60 e inicios de los 70, para caer a 1,36 en 1990 y tocar fondo en 1,13 en 1998. Este régimen de muy baja fecundidad se observó en la mayoría de países europeos (Kohler et al., 2002) y se revirtió ligeramente al inicio del Siglo XXI (Goldstein et al., 2009), aunque la crisis económica iniciada en 2008 tuvo graves repercusiones en España y su ISF se mantuvo alrededor de 1,3 desde su comienzo (Sobotka et al., 2011). Durante estas décadas, como es característico de los países que han experimentado la segunda transición demográfica (Sobotka, 2017), también se retrasó drásticamente la edad media al nacimiento del primer hijo. Según datos del Instituto Nacional de Estadística (INE) aumentó de 25 años durante los años 70 a más de 30 en la década de 2010. Con todo, España es actualmente el tercer país de la Organización para la Cooperación y el Desarrollo Económico (OCDE) con el ISF más bajo y el segundo con la edad media al nacimiento del primer hijo más alta.

Por su parte, en Latinoamérica no se ha completado la segunda transición demográfica en términos de su fecundidad, siendo denominada como una región emergentemente post-transicional (Sobotka, 2017). Como muestra la Tabla 1, los ISF se redujeron drásticamente desde los años 60 y a finales del Siglo XX estos variaban entre 1,6 en Cuba y 4,6 en Guatemala. La transición a la maternidad también se ha pospuesto progresivamente en Latinoamérica, aunque no tanto como cabría esperar teniendo en

Tabla 1. Índice Sintético de Fecundidad en Latinoamérica y España, por país y año. Fuente: Banco Mundial.

	1960	1970	1980	1990	2000	2010	2015
Argentina	3,11	3,08	3,30	3,00	2,54	2,35	2,30
Bolivia	6,36	6,00	5,47	4,89	4,05	3,21	2,89
Brasil	6,06	4,97	4,04	2,90	2,30	1,80	1,75
Chile	4,70	3,78	2,74	2,58	2,06	1,88	1,75
Colombia	6,74	5,28	3,86	3,08	2,57	1,99	1,86
Costa Rica	6,71	4,60	3,58	3,26	2,36	1,89	1,81
Cuba	4,19	3,94	1,90	1,71	1,60	1,65	1,67
Ecuador	6,72	6,14	4,73	3,74	3,10	2,62	2,50
El Salvador	6,67	6,17	5,10	3,96	3,02	2,27	2,10
España	2,86	2,84	2,22	1,36	1,22	1,37	1,33
Guatemala	6,90	6,64	6,34	5,44	4,60	3,38	3,03
Honduras	7,46	7,27	6,31	5,12	4,24	2,96	2,58
México	6,77	6,61	4,82	3,47	2,72	2,34	2,22
Nicaragua	7,37	6,86	6,14	4,60	3,11	2,60	2,48
Panamá	5,87	5,17	3,88	3,06	2,74	2,62	2,54
Paraguay	6,50	5,74	5,17	4,55	3,55	2,73	2,51
Perú	6,94	6,32	5,04	3,91	2,85	2,55	2,32
R. Dominicana	7,56	6,18	4,38	3,41	2,84	2,50	2,41
Uruguay	2,88	2,90	2,73	2,52	2,24	2,01	2,00
Venezuela	6,36	5,32	4,20	3,45	2,82	2,47	2,34

cuenta la reducción en los ISF y la expansión educativa (Fussell & Palloni, 2004; Rosero-Bixby et al., 2009). Actualmente, diversos países presentan un calendario de fecundidad bimodal, con altas tasas de fecundidad en torno a los 20 y en torno a los 30 años (Batyra, 2020; Esteve & Florez-Paredes, 2018; Lima et al., 2018; Pardo & Cabella, 2018). Finalmente, aunque todos los países latinoamericanos tienen un ISF más elevado que

España, existen importantes diferencias entre ellos: países como Brasil, Chile, Colombia, Costa Rica y Cuba tienen ISF de en torno a 1,8 hijos por mujer; otros como Bolivia, Ecuador, Guatemala, Honduras o Panamá se encuentran entre 2,5 y 3 hijos por mujer.

La fecundidad de las inmigrantes y de sus descendientes

La creciente llegada de inmigrantes al sur de Europa originarios de regiones con mayores ISF a inicios del Siglo XXI contribuyó a elevar los ISF de estos países (Goldstein et al., 2009). España es un claro ejemplo de este fenómeno, la población inmigrante creció drásticamente durante dichos años pasando de 845.977 personas en el Censo de 1991, a 2.172.201 en el de 2001, y a 6.307.277 en el de 2011. Además, en este periodo los inmigrantes latinoamericanos se constituyeron como uno de los principales colectivos de inmigrantes en España (Muñoz de Bustillo & Antón, 2010), llegando a 2.394.020 personas en 2011 (el 5,1% de la población española). Como resultado, aumentaron en España el número de matrimonios (Delgado et al., 2008) y de nacimientos (del Rey & Grande, 2017), y se limitó el aumentó en la edad media al nacimiento del primer hijo (Castro Martín & Rosero-Bixby, 2011; Castro et al., 2018).

Tanto en España como a nivel europeo se ha observado gran heterogeneidad en el comportamiento reproductivo de la población inmigrante en función de su origen. Únicamente aquellas inmigrantes provenientes de determinadas regiones que todavía no han completado la segunda transición demográfica muestran una fecundidad superior a las nativas (Andersson, 2004; Kulu et al., 2019; Roig Vila & Castro Martín, 2007; Sobotka, 2008). En el contexto europeo las inmigrantes provenientes de África y de Turquía destacan por su mayor y más temprana fecundidad con respecto a las nativas (Blekesaune, 2020; Kulu et al., 2019; Mussino & Cantalini, 2020). Por su parte, las inmigrantes latinoamericanas no presentan una mayor fecundidad en la mayor parte de Europa, teniendo incluso una menor fecundidad que las nativas en determinados países (Mussino & Cantalini, 2020). En España, aunque las inmigrantes magrebíes sí que tienen una ampliamente mayor fecundidad que las españolas, las latinoamericanas solo muestran una ligera mayor fecundidad (Castro Martín & Rosero-Bixby, 2011; Roig Vila & Castro

Martín, 2007). Esta reducida diferencia se ha tratado de explicar aludiendo a factores clave como la existencia de una motivación laboral en la mayoría de inmigrantes latinoamericanas (del Rey Poveda et al., 2015; González-Ferrer, 2011; González Ferrer & Cebolla Boado, 2018; Grande & García González, 2019) y al hecho de que en la mayoría de los casos exista una cercanía cultural en términos de idioma y religión, lo que facilitaría la convergencia hacia el comportamiento de las nativas (Adsera & Ferrer, 2014; Connor & Massey, 2010; Cristina Mora et al., 2018; González Ferrer & Cebolla Boado, 2018; Kraus & Castro-Martín, 2018). Por otro lado, las inmigrantes latinoamericanas sí que mantienen ciertos comportamientos relacionados con la maternidad propios de sus países de origen, como sería la elevada prevalencia de uniones consensuales (Cortina Trilla et al., 2010).

La fecundidad de las descendientes de inmigrantes ha sido menos estudiada en el contexto europeo. La literatura concluye que la mayoría de grupos de inmigrantes adaptan su fecundidad al contexto de la sociedad receptora, existiendo solo determinados colectivos que mantienen el comportamiento reproductivo propio de sus sociedades de origen (Milewski, 2011). Concretamente, solo las descendientes de inmigrantes magrebíes, turcos, indios o bangladesís acostumbran a mantener una mayor fecundidad que las mujeres nativas en diversos países europeos (Andersson et al., 2017; González-Ferrer et al., 2017; Kulu et al., 2017, 2019; Lillehagen & Lyngstad, 2018; Pailhé, 2017; Rojas et al., 2018; Van Landschoot et al., 2017). Las descendientes de inmigrantes latinoamericanas no presentan una mayor fecundidad que las nativas en diversos países europeos, aunque es cierto que el único estudio que analiza su fecundidad en España solamente incluye la generación 1.5 (González-Ferrer et al., 2017), por lo que todavía desconocemos el comportamiento reproductivo de la segunda generación en el principal país receptor de inmigrantes latinoamericanas en Europa. Los resultados del citado

estudio sobre las inmigrantes latinoamericanas de generación 1.5 señalan que tienen una clara menor propensión a transitar al primer hijo, y una muy ligera mayor propensión de transitar al segundo y al tercero.

Desde el punto de vista teórico, existe un conjunto de hipótesis que han sido utilizadas para tratar de explicar la fecundidad de las inmigrantes en sus países de destino (Andersson et al., 2017; Kulu, 2005; Kulu & González-Ferrer, 2014; Milewski, 2010). Dado que aquí analizamos la fecundidad completa, nos es complicado evaluar la importancia de aquellas que se centran en el impacto del proceso migratorio (i.e. hipótesis de la disrupción e hipótesis de la interrelación de eventos), por lo que nos centraremos en las hipótesis de la socialización, de la adaptación, del grupo minoritario y de la selección. La hipótesis de la socialización sostiene que el comportamiento reproductivo se aprende durante la etapa de socialización y se mantiene en la vida adulta. Milewski (2010) señala que esta hipótesis implica dos proposiciones: las inmigrantes de primera generación reproducirán el comportamiento reproductivo propio de sus países de origen y las de segunda generación el del país de destino; existirán diferencias en la fecundidad de las inmigrantes en función de sus sociedades de origen. Por el contrario, la hipótesis de la adaptación afirma que las inmigrantes de primera generación ajustarán su fecundidad a la existente en la sociedad de destino, siendo este el resultado de un cambio en los valores y las aspiraciones reproductivas de las inmigrantes o de un acomodo a las condiciones socioeconómicas existentes en la sociedad receptora (González-Ferrer et al., 2017; Milewski, 2010). La hipótesis del grupo minoritario plantea que determinados grupos de inmigrantes pueden reducir su fecundidad, incluso por debajo de la propia de la sociedad receptora, debido a que al encontrarse en una situación de desventaja en ciertas esferas sociales (e. g. el mercado laboral, el acceso a la vivienda, etc.) necesiten realizar mayores esfuerzos para lograr un determinado estatus o seguridad económica (Andersson et al.,

2017). Finalmente, la hipótesis de la selección propone que las inmigrantes son un colectivo específico de sus sociedades de origen. Concretamente, estas comparten ciertas características con las nativas de la sociedad de destino, por lo que el comportamiento reproductivo será similar (Kulu & González-Ferrer, 2014).

Partiendo de los resultados obtenidos en estudios previos y de las consideraciones teóricas señaladas, formulamos las siguientes hipótesis:

H1 Las inmigrantes latinoamericanas de primera generación tendrán una fecundidad completa más elevada que las nativas españolas.

H2 Las inmigrantes latinoamericanas de generación 1.5 tendrán una fecundidad completa más cercana a las nativas españolas que las inmigrantes de primera generación.

H3 Las inmigrantes latinoamericanas de segunda generación tendrán una fecundidad completa que será muy similar a la de las nativas españolas.

H4 La fecundidad completa de las inmigrantes latinoamericanas en España variará ampliamente en función del país de origen concreto.

H5 En las inmigrantes latinoamericanas de primera generación, el ISF de sus países de origen tendrá un claro efecto en su fecundidad completa. Concretamente, aquellas originarias de países con ISF más elevados tendrán una mayor fecundidad completa en España.

H6 En las descendientes de inmigrantes latinoamericanas no se observará un claro efecto del ISF de sus países de origen.

Fuente, método y descripción de la muestra

Hemos usado una nueva base de datos consistente en la combinación del 10% del Censo del 2011 con los registros del MNP entre los años 2011 y 2015. De esta forma utilizamos la información del Censo de 2011 para clasificar cada persona en función de su país de nacimiento y del país de nacimiento de sus padres, así como para obtener otras variables sociodemográficas como el año de nacimiento, el nivel de estudios y el número de hijos tenidos hasta el año 2011. Los registros de nacimientos del MNP hasta 2015 nos permiten añadir el número de hijos tenidos hasta dicho año, haciendo posible analizar la fecundidad completa de las mujeres nacidas hasta 1969 – que en 2015 ya habían acabado su periodo reproductivo –.

Aunque la base de datos descrita nos da la oportunidad de avanzar en el estudio de la fecundidad de las inmigrantes latinoamericanas y de sus descendientes en España, el carácter transversal de la misma supone limitaciones a tener en cuenta. Por un lado, no es recomendable establecer relaciones de causalidad entre las variables analizadas y, además, es necesario ser cautos de cara a la inclusión en los modelos de variables de control sobre las que es razonable esperar que se produzca una doble relación de dependencia con respecto al número total de hijos de cada mujer. Siguiendo este razonamiento, variables como la participación laboral o la situación de pareja no han sido incluidas en los modelos. Por otro lado, a causa de la crisis económica que empezó en España en 2008 tuvo lugar una cuantiosa emigración de retorno de inmigrantes latinoamericanos (Lozano Ascencio & Martínez Pizarro, 2015; Prieto et al., 2015). Concretamente, siguiendo datos de la Estadística de Variaciones Residenciales, 619.444 inmigrantes latinoamericanos emigraron de España en la década previa al Censo de 2011 (Jáuregui Díaz et al., 2015), observándose un retorno diferencial por edad, sexo, nivel de estudios y país de nacimiento (Prieto et al., 2015). Sin embargo, la base de datos utilizada

en este artículo no permite analizar el papel que dicha migración de retorno tuvo sobre la fecundidad completa agregada de las inmigrantes latinoamericanas que sí fueron registradas en el Censo de 2011.

La muestra se compone de 573.957 mujeres nacidas entre 1950 y 1969. De estas, 550.321 son nativas españolas y 23.636 inmigrantes latinoamericanas, de las cuales 18.469 son inmigrantes de primera generación, 2.521 de generación 1.5 y 2.646 de segunda generación. Las inmigrantes de primera generación son definidas como aquellas mujeres que nacieron en cualquier país de Latinoamérica y llegaron a España una vez cumplidos los 18 años. Las de generación 1.5 son aquellas que nacieron en Latinoamérica y llegaron a España antes de cumplir los 18 años. Las de segunda generación son aquellas que nacieron en España y al menos uno de sus progenitores nació en Latinoamérica. En los casos en los que el padre y la madre nacieron en distintos países, el país de nacimiento de la madre fue tenido en cuenta.

La variable dependiente analizada es el número total de hijos tenidos antes de concluir 2015. Debido a que se trata de una "count variable", como en otras investigaciones con similares medidas de la fecundidad (Adsera & Ferrer, 2014; Frank & Heuveline, 2005; Mussino et al., 2020), se han aplicado modelos de regresión de Poisson, cuya ecuación general es la siguiente:

$$log(y) = \alpha + \beta 1X1 + \beta 2X2 + \cdots + \beta pXp$$

siendo y la variable dependiente, α el coeficiente de la intersección del modelo y β1, 2, p los coeficientes asociados a cada una de las variables independientes, representadas como X1, 2, p.

Se han realizado tres modelos con diferentes variables explicativas, siendo las nativas la categoría de referencia en todos ellos. El primer modelo únicamente divide a las latinoamericanas en función de la generación de inmigrantes a la que pertenecen. El

segundo divide a las latinoamericanas en función de su país de origen y de la generación de inmigrantes a la que pertenecen, permitiéndonos analizar las diferencias existentes entre orígenes concretos. El tercer modelo permite estudiar el efecto del ISF existente en el país de origen, en el año de nacimiento de cada mujer, sobre la fecundidad completa. Para ello, incorpora una interacción entre la generación de inmigrantes a la que pertenece cada mujer latinoamericana y el ISF que había en su país de origen y año de nacimiento. Todos los modelos incorporan una variable de control sobre la cohorte de nacimiento para evitar posibles efectos causados por cambios generacionales. También se han realizado todos los modelos incorporando el nivel educativo como variable de control, aunque debido a las muy reducidas diferencias observadas únicamente presentamos en los gráficos los resultados de ambos modelos en los análisis que no diferencian ni por país de nacimiento ni por ISF en origen. La Tabla 2 muestra el detalle de las variables explicativas y de control utilizadas en cada modelo.

Tabla 2. Detalle de las variables incluidas en cada modelo realizado.

	Variable explicativa	Variables de control
Modelo 1	Generación de inmigrantes. Categorías: nativas, inmigrantes de 1ª generación, de generación 1.5 y de 2ª generación.	Variante 1: cohorte de nacimiento. Variante 2: cohorte de nacimiento y nivel de estudios.
Modelo 2	Generación de inmigrantes y país de nacimiento. Categorías: nativas y un total de 57 categorías resultantes de dividir cada generación de inmigrantes (1ª, 1.5 y 2ª) por cada país de origen (19 países latinoamericanos).	Variante 1: cohorte de nacimiento. Variante 2: cohorte de nacimiento y nivel de estudios.
Modelo 3	Generación de inmigrantes e ISF del país y año de nacimiento. Categorías: nativas y un total de 15 categorías resultantes de dividir cada generación de inmigrantes (1ª, 1.5 y 2ª) por cada intervalo del ISF en el país y año de nacimiento (ISF de 2-3, 3-4, 4-5, 5-6 y >6).	Variante 1: cohorte de nacimiento. Variante 2: cohorte de nacimiento y nivel de estudios.

La siguiente sección presenta los resultados de los modelos en gráficos, estos muestran las estimaciones medias marginales del número de hijos tenidos por cada categoría de la variable explicativa. Estas estimaciones están acompañadas por sus intervalos de confianza al 95%. El número medio de hijos tenidos por las nativas españolas aparece representado con una línea continua horizontal, sobre la que se han trazado una línea punteada superior, y otra inferior, que representa un incremento, o reducción, del 10% en el número medio de hijos tenidos. Los resultados completos de estos modelos se encuentran en el anexo online.

La Tabla 3 contiene la información descriptiva del conjunto de la muestra, estando las mujeres latinoamericanas divididas en función de la generación de inmigrantes a la que pertenecen. Tanto en esta tabla como en la Tabla 4, con el fin de enriquecer la descripción de la muestra analizada, aparecen dos variables que no han sido incluidas en los modelos (participación en el mercado laboral y vivir o no con la pareja). El carácter reciente de los flujos migratorios desde Latinoamérica hacia España (Muñoz de Bustillo & Antón, 2010) determina la estructura de edad de las inmigrantes latinoamericanas de generaciones primera y 1.5: se observa una mayor proporción de mujeres nacidas en los años 60 que en los 50. Las inmigrantes de segunda generación tienen una estructura de edad distinta, con una mayor proporción de mujeres nacidas en los años 50. Estas diferencias en la cohorte de nacimiento pueden afectar la distribución de la muestra en las variables observadas, sin embargo, encontramos diferencias relevantes. Primeramente, mientras que las nativas españolas han tenido 1,72 hijos de media, las latinoamericanas de primera generación han tenido 2,02 hijos de media. Esta mayor fecundidad se explica por el superior porcentaje de latinoamericanas de primera generación con tres o más hijos (33%) con respecto a las españolas (18%), ya que el porcentaje de mujeres sin hijos es el mismo (17%). La fecundidad de las latinoamericanas

Tabla 3. Descripción de la muestra, nativas españolas y latinoamericanas (LA) en función de la generación de inmigrantes. Fuente: Censo España 2011.

		Nativas	1ª Gen. LA	1.5 Gen. LA	2ª Gen. LA
Nº de hijos (media)		1.72	2.02	1.49	1.6
Nº de hijos (%)	0	17	17	25	25
	1	18	19	21	17
	2	47	31	39	38
	3	14	20	12	14
	4 o más	4	13	3	6
Nivel educativo (%)	Primaria o inferior	20	21	8	17
	Secundaria	61	56	57	55
	Universitaria	19	23	35	28
Participación en el mercado laboral (%)	Inactiva	24	15	18	25
	Desempleada	22	29	22	22
	Empleada, tiempo parcial	11	17	11	10
	Empleada, tiempo completo	43	39	49	43
Vive con la pareja (%)		76	67	69	64
Cohorte de nacimiento (%)	1950-54	22	14	11	31
	1955-59	25	20	25	27
	1960-64	27	30	36	22
	1965-69	26	36	28	20
Principales orígenes (%)	Colombia	-	20	7	6
	Ecuador	-	17	4	6
	Argentina	-	11	14	25
	Cuba	-	5	6	35
	Perú	-	10	3	3
	Venezuela	-	6	34	3
	R. Dominicana	-	7	3	3
	Brasil	-	5	11	6
	Bolivia	-	6	0	2
	Uruguay	-	4	7	2
Total		550321	18469	2521	2646

de generación 1.5 desciende hasta 1,49 hijos de media y la de las de segunda generación se acercó a las nativas, con 1,6 hijos de media. El nivel educativo de las tres generaciones de latinoamericanas es superior al de las nativas, siendo más abultadas las diferencias en la generación 1.5. Las inmigrantes latinoamericanas presentan una clara orientación laboral, siendo el porcentaje de empleadas superior en las latinoamericanas de primera

generación que en las nativas (56% y 54% respectivamente) y sobre todo en las de generación 1.5 (60%). La segunda generación de latinoamericanas converge hacia el nivel de participación laboral de las nativas españolas. Por su parte, el porcentaje de mujeres que convive con su pareja es superior en las nativas españolas que en las latinoamericanas. Finalmente, la Tabla 3 muestra el porcentaje de inmigrantes latinoamericanas de cada generación que pertenecen a los 10 orígenes con más inmigrantes en España (en el anexo online se incluye una tabla con la información de los 19 países latinoamericanos analizados). En general se observan tanto regularidades como diferencias en la composición por país de origen de las tres generaciones de inmigrantes analizadas. Colombia y Ecuador son los países más representados en la primera generación, pero en las descendientes sus proporciones se reducen. En las generaciones de descendientes vemos como Venezuela es el origen más representado en la generación 1.5 y Cuba y Argentina lo son en la segunda generación. Estas diferencias han motivado la realización del segundo modelo, que como se ha descrito anteriormente, divide a las latinoamericanas en función de su país de origen y de la generación de inmigrantes a la que pertenecen.

La Tabla 4 presenta información descriptiva de la muestra, divida por generación de inmigrantes, para las originarias de los tres países de Latinoamérica con mayor presencia en el Censo de 2011 de España (en el anexo online se incluye dicha tabla con la información de todos los países analizados). Las inmigrantes de primera generación presentan una mayor fecundidad completa que las nativas en los tres casos, aunque se observan importantes diferencias: desde los 2,48 hijos por mujer de las ecuatorianas de primera generación hasta los 1,87 de las colombianas y 1,91 de las argentinas. Las descendientes con estos orígenes tienen un menor nivel de fecundidad, estando incluso por debajo de las nativas españolas. Además, también existen notables diferencias en las otras variables sociodemográficas observadas.

Tabla 4. Descripción de la muestra de los tres países de Latinoamérica con mayor número de inmigrantes en el Censo de 2011, en función de la generación de inmigrantes. Fuente: Censo España 2011.

		1ª Gen. Colombia	1.5 Gen. Colombia	2ª Gen. Colombia	1ª Gen. Ecuador	1.5 Gen. Ecuador	2ª Gen. Ecuador	1ª Gen. Argentina	1.5 Gen. Argentina	2ª Gen. Argentina
Nº de hijos (media)		1,87	1,39	1,44	2,48	1,57	1,56	1,91	1,46	1,64
Nº de hijos (%)	0	16	32	29	13	35	38	18	26	24
	1	22	22	22	13	17	14	18	20	16
	2	35	28	28	26	24	17	35	39	39
	3	19	13	16	26	15	18	19	13	16
	4 o más	9	5	4	23	9	12	11	2	5
Nivel educativo	Primaria o inferior	24	16	27	27	22	26	9	9	16
(%)	Secundaria	58	60	53	60	64	50	54	57	55
	Universitaria	17	25	20	13	15	24	36	34	30
Participación en	Inactiva	14	24	21	10	24	26	16	16	27
el mercado	Desempleada	32	30	26	28	31	25	31	22	18
laboral (%)	Empleada, tiempo parcial	17	14	17	22	16	14	16	13	9
	Empleada, tiempo completo	36	32	37	40	29	35	37	48	46
Vive con la pareja (%)		68	67	64	70	72	50	74	66	62
Cohorte de	1950-54	12	10	21	11	7	25	21	16	42
Nacimiento (%)	1955-59	21	20	23	19	18	22	23	29	28
	1960-64	30	34	22	31	34	21	27	32	17
	1965-69	37	36	34	39	41	33	29	23	13
Total		3602	174	163	3053	96	156	2100	346	664

Resultados

El Gráfico 1 muestra los resultados de los modelos que únicamente distinguen por generación de inmigrantes. Las nativas tienen 1,73 hijos de media en el modelo que solo controla por cohorte de nacimiento y 1,71 en el que también controla por nivel educativo. En ambos modelos las inmigrantes latinoamericanas de primera generación presentan una mayor fecundidad, de en torno a 2,08 hijos por mujer. También en ambos modelos, ambas generaciones de descendientes muestran una menor fecundidad completa de en torno a 1,56 hijos por mujer, un 10% menor que las nativas. Debido a las reducidas diferencias que genera incluir una variable de control del nivel educativo, en los siguientes gráficos únicamente se mostrarán los resultados de los modelos que solo controlan por cohorte de nacimiento.

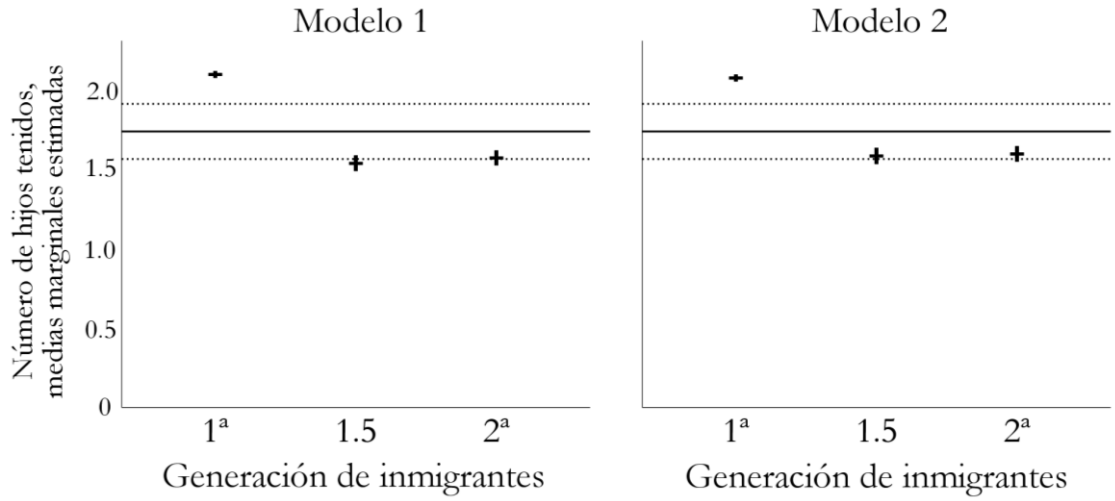

Gráfico 1. Modelo de regresión de Poisson con Intervalos de Confianza al 95% del número total de hijos tenidos, por generación de inmigrantes. Se presentan las medias marginales estimadas. El Modelo 1 controla por cohorte de nacimiento; el Modelo 2 controla también por nivel de estudios. Categoría de referencia: nativas; su fecundidad completa aparece representada con la línea continua horizontal y las líneas horizontales puntuadas representan una variación de un 10%. Fuente: Censo 2011 y Movimiento Natural de la Población 2011-2015.

El Gráfico 2 presenta los resultados del modelo que además de por generación de inmigrantes, también divide a estas en función de su país de origen, permitiéndonos así

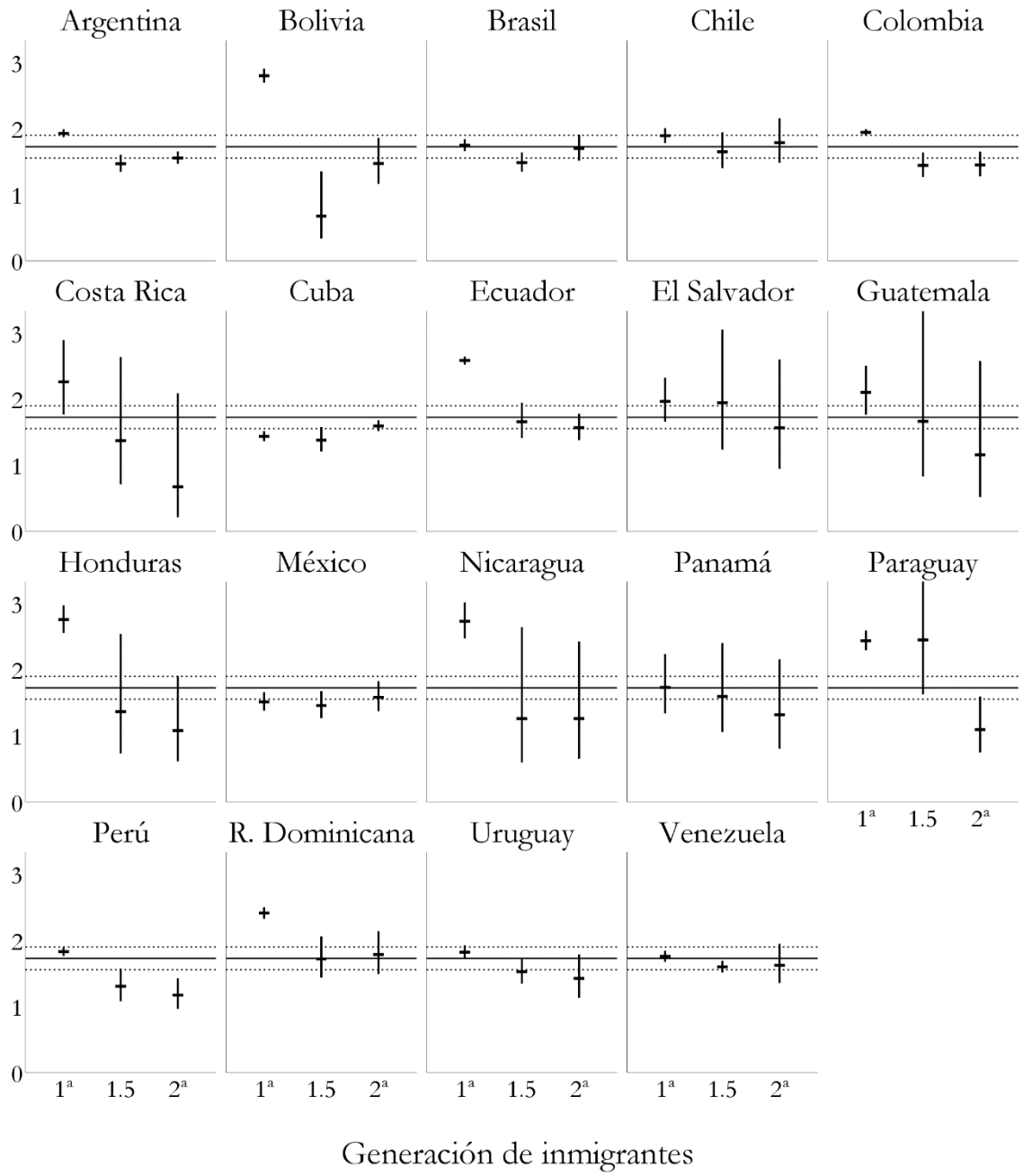

Gráfico 2. Modelo de regresión de Poisson con Intervalos de Confianza al 95% del número total de hijos tenidos, por generación de inmigrantes y país de origen. Se presentan las medias marginales estimadas. El modelo controla por cohorte de nacimiento. Categoría de referencia: nativas; su fecundidad completa aparece representada con la línea continua horizontal y las líneas horizontales puntuadas representan una variación de un 10%. Fuente: Censo 2011 y Movimiento Natural de la Población 2011-2015.

observar la variabilidad existente entre orígenes concretos. En este, la media estimada de las nativas es de 1,73 hijas por mujer. Se observan tanto importantes diferencias entre países como determinados patrones comunes. Las inmigrantes de primera generación

tienen una mayor fecundidad completa que las españolas en todos los países, excepto en Cuba (1,44) y México (1,51). Destacan Bolivia (2,8 hijos por mujer), Ecuador (2,58), Honduras (2,76) y Nicaragua (2,73); habiendo otros, como Colombia (1,94), en los que la diferencia con respecto a las nativas es de en torno al 10%; y otros, como Venezuela (1,76), en los que la diferencia es mínima.

En la mayoría de los países, las generaciones 1.5 y segunda tienen un nivel de fecundidad completa más similar a las nativas que la primera generación. En todos los países en los que la primera generación tiene una fecundidad completa superior a las nativas en al menos un 10%, la generación 1.5 reduce su fecundidad y se acerca al nivel de las españolas. De hecho, en muchos casos, la generación 1.5 tiene una menor fecundidad completa que las nativas. Ecuador, el país de Latinoamérica con mayor número de inmigrantes en España, es un claro ejemplo de este fenómeno: la primera generación tenía una fecundidad completa mucho mayor a las nativas y la generación 1.5 (1,66 hijos por mujer) tiene prácticamente el mismo número de hijos por mujer que estas – incluso un poco menor –. En otros países con importantes grupos de inmigrantes en España, como Argentina, Colombia o Perú, en los que la primera generación tenía una fecundidad en torno a un 10% superior a las nativas, la generación 1.5 tiende a mostrar un nivel de fecundidad completa inferior a un 10% menor a las nativas españolas.

Fijándonos en la segunda generación, observamos unos niveles de fecundidad muy similares a los de la generación 1.5. En los cinco países con mayor número de inmigrantes en España, la segunda generación tiene un nivel de fecundidad completa al menos de en torno a un 10% menor a las nativas – en los casos de Argentina (1,55), Bolivia (1,47), Colombia (1,45) y Ecuador (1,57) –, pudiendo llegar a niveles más bajos ¬– en el caso de Perú (1,17). Además, solo encontramos dos países en los que la segunda

generación tiene una mayor fecundidad completa que las españolas, siendo las diferencias muy reducidas: Chile, con 1,79 hijos por mujer, y República Dominicana, con 1,78.

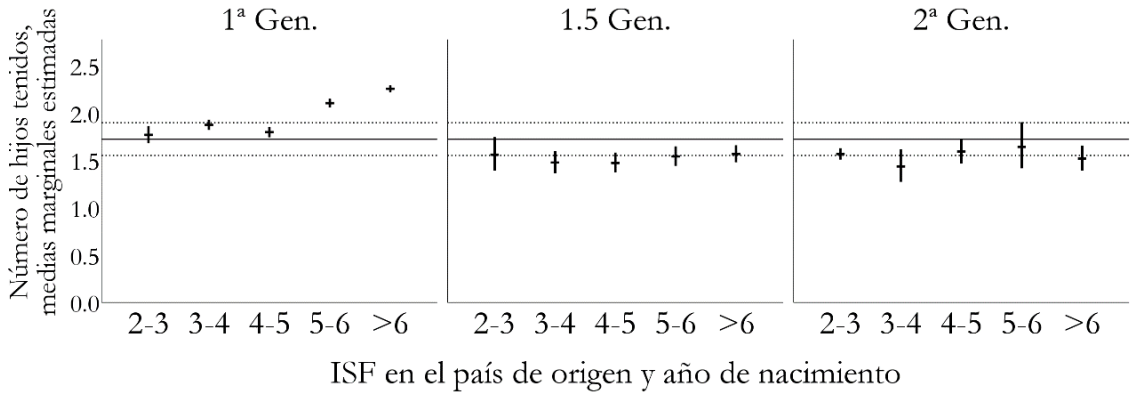

Figure 7 Gráfico 3. Modelo de regresión de Poisson con Intervalos de Confianza al 95% del número total de hijos tenidos, por generación de inmigrantes e ISF en el país de origen y año de nacimiento. Se presentan las medias marginales estimadas. El modelo controla por cohorte de nacimiento. Categoría de referencia: nativas; su fecundidad completa aparece representada con la línea continua horizontal y las líneas horizontales puntuadas representan una variación de un 10%. Fuente: Censo 2011 y Movimiento Natural de la Población 2011-2015.

Por último, el Gráfico 3, que divide a las latinoamericanas en función de su generación de inmigrantes y del ISF que había en su país de origen en su año de nacimiento, nos permite analizar el efecto que el nivel de fecundidad en origen tiene sobre la fecundidad completa de las tres generaciones de inmigrantes. En este modelo las nativas españolas tienen una fecundidad completa de 1,73 hijos por mujer. En las latinoamericanas de primera generación observamos diferencias relevantes en función del ISF en su país y año de nacimiento. Aquellas que nacieron en contextos con ISF de entre 2 y 5 hijos por mujer presentan una ligera mayor fecundidad completa que las nativas, teniendo no más de un 10% extra de hijos por mujer (entre 1,77 y 1,88). Sin embargo, aquellas que nacieron en países con un ISF de entre 5 y 6 y migraron a España, tuvieron 2,1 hijos de media por mujer. Esta cifra se eleva hasta los 2,26 hijos por mujer en aquellas que nacieron en países con un ISF superior a 6. Tanto en la generación 1.5 como en la segunda no se observa ningún efecto claro del ISF de sus países de origen o ascendencia

en los niveles de fecundidad completa. Las descendientes de inmigrantes latinoamericanas presentan, con independencia de la variable explicativa que ahora tratamos, una fecundidad completa de en torno a 1,56 hijos por mujer, un 10% inferior a las nativas españolas.

Conclusiones

El comportamiento reproductivo de las inmigrantes y de sus descendientes recibe la atención de numerosas investigaciones debido a que es un fenómeno que es tanto causa como consecuencia de procesos más amplios de integración socioeconómica y cultural. En concreto, los estudios centrados en las descendientes de inmigrantes aportan resultados esenciales para conocer el devenir de dichos procesos de integración en el largo plazo (Milewski, 2011). Desafortunadamente, en muchas ocasionas las restricciones impuestas por la inexistencia de bases de datos adecuadas dificultan, llegando a imposibilitar, el estudio del comportamiento reproductivo de las descendientes de inmigrantes. Este es el caso de las inmigrantes de segunda generación latinoamericanas en España (González Ferrer & Cebolla Boado, 2018; Liu et al., 2019), un colectivo de creciente relevancia social y demográfica del que se desconocen aspectos clave como su nivel de fecundidad. Esta investigación trata de contribuir al conocimiento sobre dicho colectivo analizando la fecundidad completa de las inmigrantes latinoamericanas de primera, 1.5 y segunda generación.

En línea con estudios previos (del Rey Poveda et al., 2015; González-Ferrer, 2011; González Ferrer & Cebolla Boado, 2018), nuestros resultados señalan que las inmigrantes latinoamericanas de primera generación tienen una mayor fecundidad completa que las nativas españolas. Este resultado confirma la hipótesis 1, que inspirándose en la hipótesis de la socialización proponía que las inmigrantes latinoamericanas de primera generación, que has sido socializadas en contextos de más elevada fecundidad, tendrán una mayor fecundidad completa en España. Sin embargo, la diferencia entre mujeres latinoamericanas de primera generación y españolas no es muy abultada – concretamente de 0,36 hijas por mujer siguiendo la media marginal estimada del modelo que solo controla por cohorte de nacimiento –. Esta diferencia, aunque relevante, no resulta muy

cuantiosa y podría explicarse teniendo en cuenta que existe un proceso de selección en origen debido a que la mayoría de las inmigrantes latinoamericanas llegan a España con una clara orientación laboral y tienen un nivel educativo superior a la media de sus sociedades de origen (Castro Martín & Rosero-Bixby, 2011; del Rey Poveda et al., 2015).

Las inmigrantes latinoamericanas de 1.5 y segunda generación muestran una fecundidad completa de en torno a un 10% inferior a las nativas españolas. Esta menor fecundidad viene marcada porque una de cada cuatro descendientes de inmigrantes latinoamericanas concluye su periodo reproductivo sin haber tenido hijos. Los resultados con respecto a la generación 1.5 coinciden con los obtenidos por González-Ferrer et al. (2017), quienes encontraron una menor propensión a tener el primer hijo en este colectivo al compararlo con las nativas españolas. Nuestra hipótesis 2 se confirma como cierta, dado que el nivel de fecundidad completa de la generación 1.5 de inmigrantes latinoamericanas se encuentra más cercano a las nativas españolas que en el caso de las inmigrantes de primera generación, observándose un proceso de convergencia hacia el patrón existente en la sociedad receptora. Los resultados con respecto a la segunda generación nos llevan a rechazar la hipótesis 3, debido a que las inmigrantes latinoamericanas de segunda generación muestran una relevante menor fecundidad que las nativas. En conjunto, la menor fecundidad observada en ambas generaciones de descendientes de inmigrantes latinoamericanas puede explicarse a través de la hipótesis del grupo minoritario y teniendo en cuenta la motivación laboral de este colectivo. Las inmigrantes latinoamericanas y sus descendientes se encuentran comúnmente en situaciones precarias e inestables en el mercado laboral español, siendo desproporcionadamente afectadas durante los años de crisis económica (Arcarons & Munõz-Comet, 2018; Mooi-Reci & Muñoz-Comet, 2016; Muñoz-Comet, 2016). Por tanto, y considerando la motivación laboral de estas inmigrantes, es razonable observar

un menor nivel de fecundidad completa con respecto a las nativas, entendiéndose como una estrategia para mejorar su posición en el mercado laboral e incrementar los recursos que pueden invertir en un menor número de hijos (Parrado & Morgan, 2008).

Aunque hemos identificado patrones comunes en el análisis separado por país de origen, las claras diferencias encontradas entre estos confirman la hipótesis 4. Este resultado es entendible debido a que existe gran variabilidad en los ISF y en otros aspectos relacionados con el comportamiento reproductivo dentro de Latinoamérica. En el último análisis realizado hemos estudiado cómo influye el ISF del país de origen, en el año de nacimiento, sobre la fecundidad completa de las inmigrantes latinoamericanas en España. De esta forma es posible explicar, al menos parcialmente, las diferencias encontradas entre países. Ambas hipótesis formuladas a este respecto son contrastadas como ciertas. Hemos encontrado un efecto claro del ISF del país y del año de nacimiento en las inmigrantes de primera generación. Este resultado respalda la hipótesis de la socialización. Aquellas inmigrantes que nacen y crecen en contextos en los que hay una mayor fecundidad tienen en el país de destino una mayor fecundidad completa que aquellas provenientes de países con menores ISF. Sin embargo, las inmigrantes de generación 1.5 y segunda generación no ven su fecundidad completa afectada por el ISF de sus países de nacimiento, o de ascendencia en el caso de las inmigrantes de segunda generación.

En conjunto, las conclusiones de este estudio están en concordancia con las obtenidas en investigaciones previas. Concluimos que las hipótesis de la socialización, de la selección y del estatus del grupo minoritario son esenciales para entender el comportamiento reproductivo de las inmigrantes latinoamericanas en España. Las inmigrantes latinoamericanas de primera generación tienen una mayor fecundidad completa que las nativas españolas, especialmente en los casos en los que nacieron en

países con ISF superiores a 5 hijos por mujer. Por tanto, debido a la reducción generalizada en los ISF en Latinoamérica, cabe esperar que conforme las nuevas generaciones de mujeres inmigrantes completen su periodo reproductivo sus niveles de fecundidad completa sean progresivamente más similares a las nativas españolas. Por su parte, tanto la generación 1.5 como la segunda de inmigrantes latinoamericanas tienen una menor fecundidad completa que las españolas, situación probablemente debida, al menos en parte, a su posición de desventaja en determinados ámbitos de la sociedad española, como el mercado laboral. Conforme pasen los años, nuevas bases de datos estarán disponibles y cohortes más numerosas de descendientes de inmigrantes alcanzarán, desarrollarán y concluirán sus periodos reproductivos. Futuros estudios podrán analizar entonces en mayor profundidad el comportamiento reproductivo de las inmigrantes latinoamericanas y de sus descendientes en España. Estos podrán superar algunas de las limitaciones de este trabajo, siendo especialmente necesarias investigaciones que aporten una óptica longitudinal del análisis de la fecundidad, que arrojen luz sobre el papel que las migraciones de retorno tienen sobre la fecundidad observada en los países receptores de flujos migratorios y que estudien tanto la fecundidad completa como el calendario reproductivo.

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Apéndice

Descripción porcentual de la muestra de inmigrantes latinoamericanas en función de la generación a la que pertenecen y de su país de origen. Fuente: Censo España 2011.

	Primera generación	Generación 1.5	Segunda generación	Total
Colombia	19.5	6.9	6.2	16.7
Ecuador	16.5	3.8	5.9	14.0
Argentina	11.4	13.7	25.1	13.2
Cuba	5.4	6.1	34.6	8.8
Perú	9.8	3.4	3.3	8.4
Venezuela	5.7	33.6	2.8	8.3
R. Dominicana	6.8	2.9	2.6	5.9
Brasil	4.8	11.1	6.3	5.6
Bolivia	5.7	0.5	1.9	4.7
Uruguay	3.9	6.6	1.9	4.0
Chile	3.2	3.6	2.3	3.1
México	1.7	5.4	4.5	2.4
Paraguay	2.4	0.4	0.9	2.0
Honduras	1.4	0.3	0.4	1.2
Nicaragua	0.8	0.2	0.3	0.7
El Salvador	0.4	0.4	0.4	0.4
Guatemala	0.3	0.2	0.2	0.3
Panamá	0.2	0.6	0.5	0.3
Costa Rica	0.2	0.3	0.2	0.2
Total	18469	2521	2646	23636

Descripción de la muestra de todos los países de Latinoamérica, en función de la generación de inmigrantes. Fuente: Censo España 2011.

		1ª Gen. Argentina	1.5 Gen. Argentina	2ª Gen. Argentina	1ª Gen. Bolivia	1.5 Gen. Bolivia	2ª Gen. Bolivia	1ª Gen. Brasil	1.5 Gen. Brasil	2ª Gen. Brasil
Nº de hijos (media)		1,91	1,46	1,64	2,68	0.67	1,45	1,66	1,45	1,74
Nº de hijos (%)	0	18	26	24	15	50	39	22	22	18
	1	18	20	16	11	33	16	23	24	19
	2	35	39	39	20	17	20	31	42	45
	3	19	13	16	24	0	12	15	9	9
	4 o más	11	2	5	30	0	12	8	2	10
Nivel educativo	Primaria o inferior	9	9	16	35	33	24	20	7	28
(%)	Secundaria	54	57	55	54	33	55	55	66	58
	Universitaria	36	34	30	10	33	20	25	27	14
Participación en	Inactiva	16	16	27	14	33	29	22	18	28
el mercado	Desempleada	31	22	18	17	0	20	36	25	30
laboral (%)	Empleada, tiempo parcial	16	13	9	17	8	12	13	13	5
	Empleada, tiempo completo	37	48	46	51	58	39	29	44	37
Vive con la pareja (%)		74	66	62	50	42	39	68	74	69
Cohorte de	1950-54	21	16	42	11	0	16	10	10	30
Nacimiento (%)	1955-59	23	29	28	20	58	24	16	25	31
	1960-64	27	32	17	29	25	33	32	44	20
	1965-69	29	23	13	41	17	27	42	20	19
Total		2100	346	664	1046	12	49	883	279	166

		1ª Gen. Chile	1.5 Gen. Chile	2ª Gen. Chile	1ª Gen. Colombia	1.5 Gen. Colombia	2ª Gen. Colombia	1ª Gen. Costa Rica	1.5 Gen. Costa Rica	2ª Gen. Costa Rica
Nº de hijos (media)		1,87	1,59	1,80	1,87	1,39	1,44	2,29	1,29	0,60
Nº de hijos (%)	0	21	25	23	16	32	29	7	14	60
	1	16	20	21	22	22	22	11	43	20
	2	33	42	30	35	28	28	50	43	20
	3	20	7	20	19	13	16	18	0	0
	4 o más	10	7	7	9	5	4	14	0	0
Nivel educativo	Primaria o inferior	13	4	11	24	16	27	14	0	0
(%)	Secundaria	66	66	57	58	60	53	36	57	40
	Universitaria	21	29	31	17	25	20	50	43	60
Participación en	Inactiva	22	14	31	14	24	21	32	14	20
el mercado	Desempleada	28	33	16	32	30	26	25	0	20
laboral (%)	Empleada, tiempo parcial	17	11	8	17	14	17	11	0	0
	Empleada, tiempo completo	33	42	44	36	32	37	32	86	60
Vive con la pareja (%)		68	74	59	68	67	64	86	86	20
Cohorte de	1950-54	21	12	30	12	10	21	29	14	0
Nacimiento (%)	1955-59	21	15	21	21	20	23	21	0	0
	1960-64	28	40	20	30	34	22	25	29	20
	1965-69	29	33	30	37	36	34	25	57	80
Total		585	92	61	3602	174	163	28	7	5

		1ª Gen. Cuba	1.5 Gen. Cuba	2ª Gen. Cuba	1ª Gen. Ecuador	1.5 Gen. Ecuador	2ª Gen. Ecuador	1ª Gen. El Salvador	1.5 Gen. El Salvador	2ª Gen. El Salvador
Nº de hijos (media)		1,40	1,40	1,64	2,48	1,57	1,56	1,97	1,90	1,50
Nº de hijos (%)	0	18	31	19	13	35	38	23	10	30
	1	37	21	20	13	17	14	12	10	20
	2	36	32	45	26	24	17	35	60	30
	3	7	10	12	26	15	18	20	20	10
	4 o más	2	5	4	23	9	12	10	0	10
Nivel educativo	Primaria o inferior	8	6	12	27	22	26	38	50	10
(%)	Secundaria	49	52	59	60	64	50	52	40	60
	Universitaria	44	43	29	13	15	24	10	10	30
Participación en	Inactiva	18	28	25	10	24	26	35	0	10
el mercado	Desempleada	36	19	21	28	31	25	23	50	30
laboral (%)	Empleada, tiempo parcial	12	8	8	22	16	14	10	10	0
	Empleada, tiempo completo	33	45	46	40	29	35	32	40	60
Vive con la pareja (%)		69	62	70	70	72	50	71	50	50
Cohorte de	1950-54	17	23	32	11	7	25	23	20	10
Nacimiento (%)	1955-59	17	32	30	19	18	22	26	10	20
	1960-64	29	28	24	31	34	21	28	40	30
	1965-69	37	16	15	39	41	33	23	30	40
Total		1004	155	915	3053	96	156	69	10	10

		1ª Gen. Guatemala	1.5 Gen. Guatemala	2ª Gen. Guatemala	1ª Gen. Honduras	1.5 Gen. Honduras	2ª Gen. Honduras	1ª Gen. México	1.5 Gen. México	2ª Gen. México
Nº de hijos (media)		2,03	1,60	1,20	2,65	1,25	1,09	1,46	1,45	1,61
Nº de hijos (%)	0	21	20	20	11	25	36	29	32	31
	1	23	20	40	9	25	18	21	12	11
	2	26	40	40	25	50	45	32	39	32
	3	10	20	0	29	0	0	14	15	20
	4 o más	21	0	0	25	0	0	4	2	6
Nivel educativo	Primaria o inferior	39	20	20	40	13	45	6	2	9
(%)	Secundaria	40	20	20	52	63	55	43	39	46
	Universitaria	21	60	60	8	25	0	51	58	45
Participación en	Inactiva	29	20	20	21	50	36	26	23	27
el mercado	Desempleada	15	0	40	19	0	36	30	15	14
laboral (%)	Empleada, tiempo parcial	18	20	0	15	13	27	13	8	11
	Empleada, tiempo completo	39	60	40	44	38	0	31	55	47
Vive con la pareja (%)		63	80	60	51	50	82	73	58	62
Cohorte de	1950-54	10	20	40	12	13	36	14	18	31
Nacimiento (%)	1955-59	26	0	20	17	0	0	20	26	21
	1960-64	31	40	20	35	0	45	29	32	25
	1965-69	34	40	20	36	88	18	37	24	23
Total		62	5	5	255	8	11	319	137	118

		1ª Gen. Nicaragua	1.5 Gen. Nicaragua	2ª Gen. Nicaragua	1ª Gen. Panamá	1.5 Gen. Panamá	2ª Gen. Panamá	1ª Gen. Paraguay	1.5 Gen. Paraguay	2ª Gen. Paraguay
Nº de hijos (media)		2,62	1,17	1,29	1,74	1,53	1,33	2,35	2,30	1,13
Nº de hijos (%)	0	16	33	29	26	20	25	17	20	38
	1	8	17	14	15	13	33	16	0	17
	2	26	50	57	32	60	25	26	30	42
	3	23	0	0	18	7	17	20	30	4
	4 o más	27	0	0	9	0	0	21	20	0
Nivel educativo	Primaria o inferior	30	17	29	12	0	0	34	40	33
(%)	Secundaria	53	17	43	44	67	33	55	50	42
	Universitaria	17	67	29	44	33	67	10	10	25
Participación en	Inactiva	16	17	29	18	27	0	17	20	25
el mercado	Desempleada	15	33	14	41	7	25	15	40	21
laboral (%)	Empleada, tiempo parcial	11	33	14	9	7	42	16	20	8
	Empleada, tiempo completo	59	17	43	32	60	33	51	20	46
Vive con la pareja (%)		35	67	29	62	80	58	52	60	71
Cohorte de	1950-54	10	0	43	35	7	25	12	0	29
Nacimiento (%)	1955-59	19	17	0	6	27	25	18	30	33
	1960-64	35	33	29	21	33	33	32	20	21
	1965-69	36	50	29	38	33	17	38	50	17
Total		150	6	7	34	15	12	443	10	24

		1ª Gen. Perú	1.5 Gen. Perú	2ª Gen. Perú	1ª Gen. R. Dominicana	1.5 Gen. R. Dominica.	2ª Gen. R. Dominicana	1ª Gen. Uruguay	1.5 Gen. Uruguay	2ª Gen. Uruguay
Nº de hijos (media)		1,77	1,28	1,17	2,34	1,65	1,75	1,80	1,46	1,45
Nº de hijos (%)	0	21	36	44	13	22	32	15	21	25
	1	22	18	18	16	22	10	23	25	22
	2	32	31	24	26	32	25	40	44	43
	3	16	12	8	25	15	18	17	8	8
	4 o más	9	4	6	19	8	15	6	2	2
Nivel educativo	Primaria o inferior	11	5	9	42	31	22	17	5	20
(%)	Secundaria	62	59	60	47	53	57	67	64	37
	Universitaria	26	36	31	11	17	21	16	31	43
Participación en	Inactiva	12	19	22	14	33	16	15	19	22
el mercado	Desempleada	23	25	28	32	31	25	32	17	33
laboral (%)	Empleada, tiempo parcial	18	12	11	15	6	9	15	9	10
	Empleada, tiempo completo	46	45	39	40	31	50	38	55	35
Vive con la pareja (%)		65	72	52	64	74	62	71	77	63
Cohorte de	1950-54	12	19	23	14	10	18	20	7	31
Nacimiento (%)	1955-59	22	25	26	19	24	22	20	22	25
	1960-64	29	20	22	31	28	26	29	42	18
	1965-69	37	36	29	36	39	34	31	30	25
Total		1807	85	87	1256	72	68	726	166	51

		1ª Gen. Venezuela	1.5 Gen. Venezuela	2ª Gen. Venezuela
Nº de hijos (media)		1,69	1,54	1,59
Nº de hijos (%)	0	20	21	23
	1	22	21	20
	2	38	44	41
	3	15	11	11
	4 o más	6	3	5
Nivel educativo	Primaria o inferior	9	6	16
(%)	Secundaria	46	54	50
	Universitaria	44	40	34
Participación en	Inactiva	19	17	15
el mercado	Desempleada	34	18	31
laboral (%)	Empleada, tiempo parcial	12	9	14
	Empleada, tiempo completo	35	57	41
Vive con la pareja (%)		71	70	64
Cohorte de	1950-54	11	8	14
Nacimiento (%)	1955-59	19	26	28
	1960-64	32	38	32
	1965-69	37	28	26
Total		1047	846	74

Resultados modelos mostrados en los gráficos.

Tabla 1. Resultados modelo de regresión de Poisson del número total de hijos tenidos, por generación de inmigrantes. Corresponde con Gráfico 1, Modelo 1.

	Exp(B)	Sig.	Media marginal estimada	Error Estándar	I.C. 95% Superior	I. C 95% Inferior
Origen y generación. Ref: Nativas			1.726	0.002	1.723	1.730
Latinoamericanas primera generación	1.206	0	2.082	0.011	2.061	2.104
Latinoamericanas generación 1.5	0.884	0	1.526	0.025	1.478	1.576
Latinoamericanas segunda generación	0.904	0	1.560	0.024	1.514	1.608
Cohorte de nacimiento. Ref: 1950-54						
1955-59	0.889	0				
1960-64	0.808	0				
1965-69	0.755	0				
Intercepto	2.011	0				

Tabla 2. Resultados modelo de regresión de Poisson del número total de hijos tenidos, por generación de inmigrantes. Corresponde con Gráfico 1, Modelo 2.

	Exp(B)	Sig.	Media marginal estimada	Error Estándar	I.C. 95% Superior	I. C 95% Inferior
Origen y generación. Ref: Nativas			1.710	0.002	1.706	1.714
Latinoamericanas primera generación	1.205	0	2.060	0.011	2.039	2.082
Latinoamericanas generación 1.5	0.92	0	1.573	0.026	1.523	1.624
Latinoamericanas segunda generación	0.927	0	1.585	0.024	1.538	1.633
Cohorte de nacimiento. Ref: 1950-54						
1955-59	0.912	0				
1960-64	0.84	0				
1965-69	0.797	0				
Nivel Educativo. Ref: Primaria o inferior						
Secundaria	0.863	0				
Universitaria	0.736	0				
Intercepto	2.249	0				

Tabla 3. Resultados modelo de regresión de Poisson del número total de hijos tenidos, por generación de inmigrantes y país de origen. Corresponde con Gráfico 2.

	Exp(B)	Sig.	Media marginal estimada	Error Estándar	I.C. 95% Superior	I. C 95% Inferior
Origen y generación. Ref: Nativas						
1ª Gen. Argentina	1.218	0.027	1.927	0.030	1.869	1.988
1.5 Gen. Argentina	0.964	0.918	1.468	0.065	1.345	1.602
2ª Gen. Argentina	0.67	0.327	1.555	0.047	1.465	1.650
1ª Gen. Bolivia	1.621	0	2.797	0.053	2.695	2.903
1.5 Gen. Bolivia	0.392	0.008	0.676	0.239	0.338	1.352
2ª Gen. Bolivia	0.853	0.179	1.471	0.175	1.166	1.857
1ª Gen. Brasil	1.598	0	1.747	0.046	1.660	1.839
1.5 Gen. Brasil	0.791	0.459	1.485	0.074	1.347	1.637
2ª Gen. Brasil	0.625	0.103	1.699	0.100	1.514	1.906
1ª Gen. Chile	1.413	0	1.890	0.057	1.782	2.006
1.5 Gen. Chile	1.419	0.093	1.649	0.136	1.402	1.940
2ª Gen. Chile	0.634	0.018	1.786	0.170	1.482	2.153
1ª Gen. Colombia	1.003	0.982	1.941	0.024	1.895	1.988
1.5 Gen. Colombia	0.925	0.707	1.442	0.093	1.271	1.636
2ª Gen. Colombia	0.764	0.282	1.451	0.095	1.277	1.649
1ª Gen. Costa Rica	1.496	0	2.262	0.283	1.771	2.891
1.5 Gen. Costa Rica	0.96	0.616	1.371	0.457	0.713	2.634
2ª Gen. Costa Rica	0.908	0.132	0.673	0.388	0.217	2.086
1ª Gen. Cuba	1.583	0	1.438	0.038	1.364	1.515
1.5 Gen. Cuba	0.73	0.405	1.381	0.094	1.209	1.577
2ª Gen. Cuba	0.73	0.346	1.595	0.041	1.516	1.677
1ª Gen. Ecuador	1.059	0.001	2.583	0.030	2.525	2.642
1.5 Gen. Ecuador	0.755	0.003	1.657	0.135	1.413	1.943
2ª Gen. Ecuador	0.679	0	1.567	0.100	1.383	1.777
1ª Gen. El Salvador	1.397	0	1.964	0.168	1.660	2.323
1.5 Gen. El Salvador	0.996	0.965	1.945	0.446	1.240	3.049
2ª Gen. El Salvador	1.034	0.718	1.566	0.404	0.944	2.597
1ª Gen. Guatemala	1.017	0.484	2.103	0.187	1.766	2.504
1.5 Gen. Guatemala	0.927	0.006	1.664	0.588	0.832	3.328
2ª Gen. Guatemala	0.94	0.503	1.156	0.472	0.520	2.574
1ª Gen. Honduras	1.117	0	2.757	0.106	2.557	2.973
1.5 Gen. Honduras	0.851	0	1.366	0.432	0.735	2.538
2ª Gen. Honduras	0.901	0.001	1.079	0.311	0.613	1.899
1ª Gen. México	0.876	0.004	1.513	0.070	1.381	1.656
1.5 Gen. México	0.844	0.017	1.458	0.104	1.268	1.675
2ª Gen. México	0.917	0.231	1.582	0.115	1.373	1.824
1ª Gen. Nicaragua	1.138	0.133	2.732	0.138	2.474	3.016
1.5 Gen. Nicaragua	1.127	0.603	1.260	0.476	0.601	2.642
2ª Gen. Nicaragua	0.907	0.706	1.261	0.420	0.656	2.423

	Exp(B)	Sig.	Media marginal estimada	Error Estándar	I.C. 95% Superior	I. C 95% Inferior
1ª Gen. Panamá	1.054	0.057	1.731	0.225	1.341	2.234
1.5 Gen. Panamá	0.884	0.056	1.596	0.333	1.060	2.401
2ª Gen. Panamá	0.824	0.096	1.319	0.330	0.808	2.153
1ª Gen. Paraguay	1.125	0	2.438	0.076	2.294	2.591
1.5 Gen. Paraguay	0.835	0.005	2.450	0.511	1.628	3.686
2ª Gen. Paraguay	0.841	0.008	1.094	0.211	0.750	1.596
1ª Gen. Perú	1.095	0.003	1.827	0.032	1.765	1.892
1.5 Gen. Perú	0.955	0.582	1.303	0.125	1.080	1.572
2ª Gen. Perú	1.035	0.719	1.172	0.116	0.965	1.423
1ª Gen. República Dominicana	1.311	0.03	2.411	0.045	2.325	2.500
1.5 Gen. República Dominicana	0.794	0.489	1.719	0.158	1.436	2.057
2ª Gen. República Dominicana	0.39	0.103	1.784	0.164	1.491	2.135
1ª Gen. Uruguay	1.012	0.641	1.820	0.050	1.724	1.921
1.5 Gen. Uruguay	0.86	0.002	1.527	0.098	1.346	1.731
2ª Gen. Uruguay	0.984	0.787	1.422	0.165	1.133	1.786
1ª Gen. Venezuela	0.833	0	1.755	0.042	1.675	1.839
1.5 Gen. Venezuela	0.8	0.001	1.599	0.044	1.515	1.688
2ª Gen. Venezuela	0.924	0.002	1.623	0.149	1.355	1.944
Cohorte de nacimiento. Ref: 1950-54						
1955-59	0.889	0				
1960-64	0.807	0				
1965-69	0.754	0				
Intercepto	2.012	0				

Tabla 4. Resultados modelo de regresión de Poisson del número total de hijos tenidos, por generación de inmigrantes e ISF en el país de origen y año de nacimiento. Corresponde con Gráfico 3.

	Exp(B)	Sig.	Media marginal estimada	Error Estándar	I.C. 95% Superior	I. C 95% Inferior
Generación e ISF país y año origen. Ref: Nativas			1.726	0.002	1.723	1.729
Primera generación 2-3	1.026	0.321	1.771	0.046	1.684	1.862
Primera generación 3-4	1.087	0	1.876	0.027	1.824	1.930
Primera generación 4-5	1.042	0.007	1.799	0.027	1.746	1.853
Primera generación 5-6	1.22	0	2.105	0.022	2.062	2.149
Primera generación >6	1.308	0	2.257	0.017	2.224	2.291
Generación 1.5 2-3	0.904	0.078	1.560	0.089	1.395	1.745
Generación 1.5 3-4	0.856	0	1.477	0.060	1.364	1.599
Generación 1.5 4-5	0.854	0	1.474	0.053	1.373	1.583
Generación 1.5 5-6	0.894	0.001	1.542	0.052	1.444	1.648
Generación 1.5 >6	0.909	0.001	1.568	0.046	1.482	1.660
Segunda generación 2-3	0.909	0	1.568	0.030	1.510	1.629
Segunda generación 3-4	0.832	0.003	1.436	0.087	1.275	1.618
Segunda generación 4-5	0.923	0.061	1.594	0.068	1.467	1.732
Segunda generación 5-6	0.952	0.512	1.643	0.123	1.419	1.903
Segunda generación >6	0.88	0.004	1.520	0.067	1.394	1.657
Cohorte de nacimiento. Ref: 1950-54						
1955-59	0.891	0				
1960-64	0.806	0				
1965-69	0.754	0				
Intercepto	2.012	0				

Chapter 4. Discussion and conclusions.

The studies presented in Chapters 2 and 3 have drawn some conclusions that contribute to a deeper understanding of the integration of different immigrant populations in the EU. Specifically, Chapter 2 has focused on analyzing the labor market performance of EU-13 immigrants in their main destinations in the EU-15, comparing their outcomes with those of EU-15 immigrants and host country nationals. As for Chapter 3, we have investigated the fertility behavior of immigrants and their descendants originating from outside the EU in Spain, which is the EU country that has recorded the highest aggregated net migration during the last decades (The World Bank, 2023). Both research areas are of utmost relevance in today's European societies and the phenomena observed in both are interrelated. The labor market integration of intra-EU immigrants is crucial for the proper functioning of the EU. Particularly, the extent to which they experience over-qualification is a good indicator of the efficiency in the use of human capital in the EU labor markets (Kahanec & Zimmermann, 2008; Kalfa & Piracha, 2017). The childbearing behavior of immigrants and their descendants plays a leading role in the demographic dynamics of the EU countries that have low fertility and sizeable immigrant populations (Sobotka, 2008). Due to the combination of very low fertility and the recently rapid population growth caused by the arrival of millions of immigrants, Spain provides us with the opportunity to expand the knowledge that has been gained by studying other European countries that have traditionally received immigration.

The results discussed in the two studies included in Chapter 2 complement each other and lead us to reach the following conclusions, that are the major contributions within this chapter. First, in line with previous research (Felbo-Kolding et al., 2018; Fries-Tersch et al., 2018; Kahanec & Zimmermann, 2016; Landesmann et al., 2015; Luthra et al., 2016; Ritzen & Kahanec, 2017; Verwiebe et al., 2014; Visintin et al., 2015), the legal

status and the nationality of intra-EU immigrants have been important regarding their labor market outcomes in the hosting countries between 2005 and 2016. EU-13 immigrant workers in EU-15 countries tend to have lower labor market outcomes; both in terms of employment and over-qualification in comparison to EU-15 immigrants and host country nationals. This result holds true when analyzing workers with different levels of qualification and when focusing on highly educated intra-EU immigrants. Second, while the enlargement of the EU has meant the improvement of the legal status of intra-EU immigrant workers originating from EU-13 countries, the moratoria imposed by certain EU-15 countries have been an obstacle to full European integration. EU-13 immigrants performed better in EU-15 labor markets in the absence of these transitional arrangements that curtailed their access to the EU-15 labor markets. Third, differences in the types of welfare states and in the labor market structures across EU-15 countries are related to observed trends in the labor market integration of EU-13 workers. Specifically, countries with lower segmentation of the labor market and less regulation have recorded lower levels of over-qualification.

In Chapter 3 we have analyzed the childbearing behavior of the two largest immigrant groups originating from outside the EU, now residing in Spain, from three different perspectives. Although each study aims to answer questions derived from the same set of assumptions and hypotheses formulated in previous research, each analysis focuses on women born in a different time period and on a different aspect of their fertility. We believe that altogether the results yield a rather comprehensive picture of the fertility of Latin American and Maghrebi immigrants in Spain. Specifically, we contribute to this field of research with the first studies to analyze the fertility of second-generation immigrants in Spain. Our main conclusion is that Maghrebi and Latin American immigrants and their descendants have a very different childbearing behavior. While

Latin American immigrants and their descendants tend to have a fertility level that is close to native Spanish women, Maghrebi immigrants and their descendants tend to have a higher fertility. Furthermore, descendants from Latin American immigrants converge more towards native women than descendants from Maghrebi immigrants. These results are in accordance with previous research for first-generation Latin American and Maghrebi immigrants in Spain (Castro Martín & Rosero-Bixby, 2011; del Rey et al., 2015; González-Ferrer, 2011; Roig Vila & Castro Martín, 2007), and for first-generation Latin American and Maghrebi immigrants and their descendants in other European countries (Kulu et al., 2017, 2019; Lillehagen & Lyngstad, 2018; Mussino & Cantalini, 2020; Van Landschoot et al., 2017). Another relevant result is that 1.5 generation immigrants should not be considered as in-betweeners of the first and second generations. When further subdividing 1.5 generation immigrants by age of arrival, we do not find a linear process of convergence towards the native Spanish women. We believe that these results should be interpreted in the light of the specific migration motivation of each immigrant group and of the fertility calendars of their origin societies. Lastly, we would like to stress the importance of not only investigating the convergence of the fertility of immigrants towards the natives' patterns in terms of the *quantum*, but also in terms of the *tempo* and of other factors related to the childbearing behavior (e.g., the effect that the labor market participation or the educational level have on fertility). In the same vein, when comparing different immigrant groups in the same destination country, looking at differences beyond the fertility level can prove to be very enriching.

These conclusions should be considered in the light of the limitations of these studies, that at the same time point to promising lines of research. The main limitations stem from the fact that both the EU-LFS and the Spain's 2011 Census do not specifically target migrants. This causes several drawbacks, in the case of the EU-LFS, it is important

to consider that it suffers from difficulties in covering recently arrived immigrants and those who are engaged in circular migration (Eurostat, 2011; Fajth et al., 2017). In the case of the 2011 Census of Spain, key factors related to the integration of immigrants, such as proficiency in the host country language or the type of migration project, are missing. Moreover, analyses that disaggregate the immigrant population by specific country of origin have proved challenging. Regarding the two studies on the intra-EU immigrants, the EU-LFS does not allow to break down EU-10 and EU-3 immigrants. In the case of the three studies on the fertility of immigrants, the young age structure of immigrant descendants in Spain has limited our possibilities because of small sample sizes in the age groups over 40 years old. However, as shown in the third study of Chapter 3, there are differences in the completed fertility of Latin American immigrants according to their specific origin country. Finally, the lack of longitudinal data has limited our analyses in both chapters. Regarding Chapter 2, having the employment histories of intra-EU immigrants and natives would have allowed more precise analyses of the impact of the EU enlargements, the moratoria, and the economic crisis that started in 2008. With respect to Chapter 3, the fertility histories of immigrant women and their descendants would enable analyses from a life course perspective. As more suitable data becomes available and larger cohorts of immigrant descendants finish their reproductive life, future studies will be able to overcome the aforementioned limitations.

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