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From Immigrants to Professionals: Contemporary Spanish Migration to the United States

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Topic: Contemporary Spanish migration to the United States: changes in flows explanatory factors of these migrations, and skill level of Spanish emigrants.

Abstract: This report presents a demographic analysis of the flows of emigration from Spain to the United States in the 20th century and the first two decades of the 21st century based on Spanish and American databases and guided interviews with Spaniards residing in the United States.

Keywords: Spanish migration, United States, skilled migration, Spaniards.

Introduction

The growing phenomenon of Spanish professionals migrating to the United States reflects an increase in skilled migration in recent years and in the flow of human resources in science and technology (HRST). In the 21st century, the United States has consolidated its position as one of the top destinations for skilled migration. It is currently the main receiving country for skilled workers worldwide and the leading destination for international students. The prestige of the American university system and the professional opportunities afforded to international students in the U.S. helps explain this attraction. The foremost destination for Spanish scientists is, in fact, the United States.

In Spain, however, the news of emigration and of the Spanish brain drain—resulting from the economic and employment crisis the country has been undergoing since 2008—has been cause for some alarm. Public opinion has tended to approach this problem from a reductionist standpoint, more specifically in terms of a "brain drain." This perspective, which suggests that skilled workers are leaving the country never to return again, does not fit the contemporary reality of the movement of skilled workers who emigrate from Spain to the United States. Without denying the very plausible suspicion that the crisis has affected the demography of Spain and the mobility of its professionals, this fact must be interpreted within the larger analytic framework of circular migration and transnationalism. This interpretative model is better suited to the new reality of the more circular and more dynamic movement of skilled Spanish workers. From

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this perspective, the mobility of “brains” represents an opportunity to disseminate knowledge and facilitate a country’s development, including that of the sending country, which in turn benefits from the exchange as well from the return of skilled workers (Daugeliene and Marcinkeviciene 2009).

This report contains some of the results of a study on Spanish migration to the United States undertaken between 2013 and 2015 with funding from the Franklin Institute at the University of Alcalá (Spain). Given the exploratory nature of the research, a quantitative and qualitative methodology was used. The quantitative portion of the methodology utilized Spanish databases (Residential Variation Surveys, Register of Spaniard Residents Abroad) to analyze the migratory flow of Spaniards to the United States and American databases (American Community Survey 2010; Department of Homeland Security) to describe the population of Spaniards residing in the United States in demographic terms.

The qualitative methodology consisted of case studies that used guided interviews to collect data. Interviews were conducted via Skype with 35 Spaniards residing in various American cities. The men and women interviewed represented two ideal profiles developed by the researchers based on the research objectives. The first profile outlined is of a group engaged in research and academia (18 people); the second profile is a group of skilled professionals employed by

companies, including professionals who had been relocated by multinational corporations (17 people).

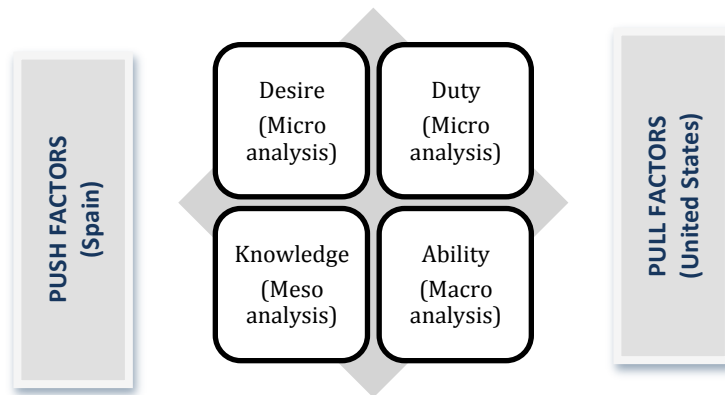
The overall objective of the study is to examine the characteristics of the migratory flow in relation to the migrants' education, as well as the main factors contributing to the mobility of Spanish professionals between Spain and the United States since 2008. To this end, a holistic analytic framework was used that took into account the migrants' values and expectations, the influence of social and immigrant networks and structural factors. In other words, the analytic approach considered macro-level, meso-level or middle-range, and micro-level social variables that influence international migratory processes (Faist 2000). These variables were approached in two dimensions: the pull factors, those that draw Spaniards to the United States such as the demand for scientists and scholars; and the push factors, those that drive skilled Spanish professionals to leave their country, such as the employment crisis or the underdevelopment of Spain's scientific policy.

Thus, the first part of this report (sections 1 and 2) analyzes contemporary Spanish emigration to the United States from the early 20th century to the first decades of the 21st century. Next, the most significant changes in Spanish international mobility are detailed to describe the group of Spanish residents in the United States, above all with regard to their level of professional skill (section

3). In addition, this study will show how Spanish migration to the United States has undergone a significant qualification process characterized by circularity.

The second part of the report (section 4) will reveal the main results of the qualitative study regarding the factors that explain the emigration of skilled Spanish professionals to the United States. To this end, a distinction is made between two general groups of professionals: students and scientists, on the one hand, and professionals employed and relocated by companies, on the other. The analytical model represented by Figure 1 shows the major explanatory factors of this migration.

Figure 1. Analytical model.



1. Brief historical context for contemporary Spanish migration to the United States

Spanish migration to the United States has evolved from a flow of primarily unskilled male workers to a flow of skilled, dynamic migrants, many of whom are women. Until the mid-20th century, emigration from Spain to the United States consisted largely of young single men and low-skilled workers.¹ Rueda's study (1993), one of the few on the subject, also notes that the majority of these Spaniards arrived in the U.S. directly from Spain, though 34% travelled first to a Latin American country, primarily Cuba. This figure is corroborated by the work of Spanish-American historian James Fernández (2011). These Spanish emigrants were primarily low-skilled workers from the countryside, who settled, for the most part, in cities.

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In the early 20th century New York was the American city with the largest Spanish population, accounting for 25-30% of Spaniards in the United States. Today, remnants of this colony can be found in the heart of Manhattan and the *Little Spain* neighborhood, where *La Nacional* cultural center is headquartered and in the past century provided a meeting place for the Spanish community. As James Fernández (2011) notes, during this period, New York emerged as the financial, industrial, and logistical capital of the new empire and the center of the northern hemisphere. The city attracted migrants by the thousands, approximately 30,000 of whom were Spanish. Photographs recovered by Professor Fernández show

¹ In 80% of the cases, they were male; 84% were between 15 and 45 years old, and 63% were single.

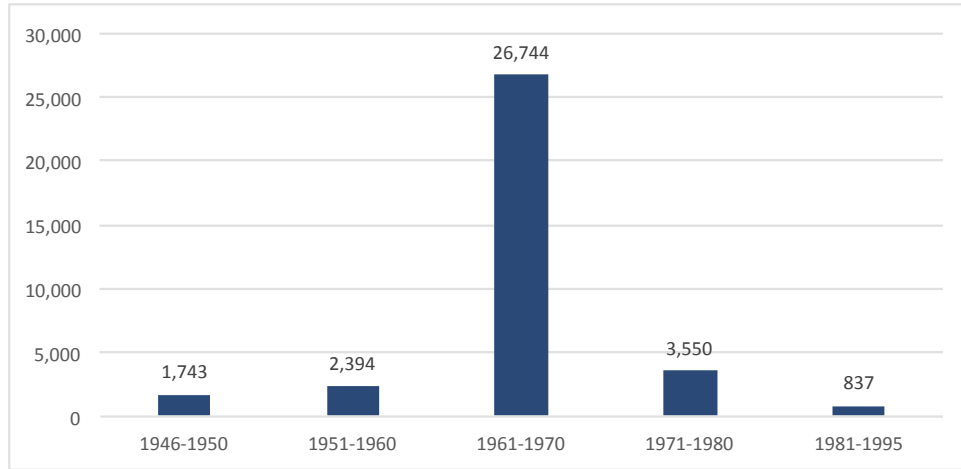
Spanish shopkeepers, maids, restaurateurs, construction workers, families and children in the vibrant and modern New York of the early 20th century.

California was another top destination of the time period. Florida, which welcomed 20% of the Spanish emigrants, was the third most common destination. The city of Tampa (Hillsborough County, Florida) became a hub for Spanish tobacco factory workers (Esteve, Torrens and Cortina 2005) as Cuban tobacco companies relocated to Florida. Much of the skilled workforce in those factories had been born in Spain or in Cuba to Spanish descendants.

From 1946 until the 1960s, Spanish migration to the Americas grew as a result of Latin American demand, primarily from countries like Argentina. The United States was at the periphery of this overseas migration during the first decades of the last century. However, America became a more important destination in the 1970s, in part due to the economic crisis of the decade and in part because European countries that had previously received Spanish immigrants (Germany, France, Switzerland) were closing their borders and increasing restrictions on the entry of Spanish workers, as seen in Figure 2.

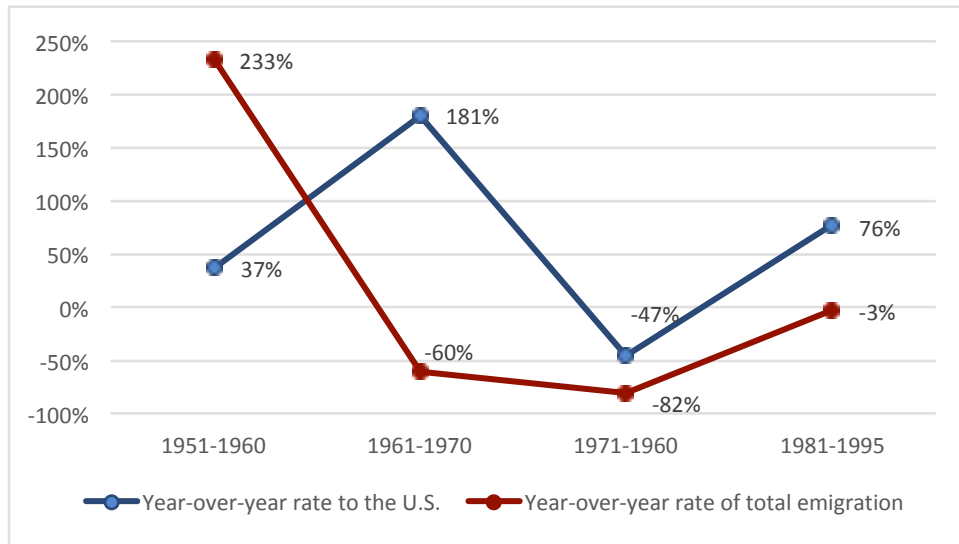
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Figure 2. Transatlantic emigration from Spain to the United States as a percentage of total transatlantic emigration (1946-1995). Source: Palazón 1998.



The annual rates of Spanish transatlantic migration (Figure 3) clearly illustrate that as general migration to Latin America decreased, migration of Spaniards to the United States increased. It can also be observed that Spanish migration decreased significantly beginning in the 1980s as migration to Latin American countries rose again, although never at the levels of the 1950s and 1960s.

Figure 3. Annual rate of growth of transatlantic emigration (1945-1990). Source: Palazón 1994.



During the 1980s, Spanish emigration rates fell drastically due to the global oil crisis. At the same time, many of the Spaniards who had emigrated in the 1960s began to return to Spain. The restoration of democracy in Spain, its entry into the European Union, and the vitality of the Spanish economy help explain the slowing of Spanish emigration during the 1980s and 1990s.

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However, Spanish migration abroad picked up again beginning in the year 2000 due to the great international mobility created by the immigration of foreigners to Spain at the start of the century. Beginning in the 2000s, Spain became a destination for immigrants as well as a place of return and of new emigration to other European countries. The bulk of emigration from Spain in recent years has consisted, in essence, of foreign immigrants returning to their countries of origin.

The data of the Residential Variation Survey (National Institute of Statistics, INE) reveals that starting in 2002, Spain experienced an exponential growth in migration abroad of approximately 912%. An incorrect interpretation of this data has at times led to the conclusion that this figure signifies a new Spanish exodus comparable to that of the 1960s, when in reality this phenomenon is primarily due to the migratory flows of foreigners entering and exiting the country. It is important to underscore that the migration from Spain to other countries in recent years has predominantly consisted of foreigners and/or of people of Spanish nationality born abroad. In other words, these are immigrants who return to their country or re-emigrate to other foreign countries. Thus, of the 377,040 residents who emigrated abroad in 2012, the baseline year for this study, 15% (56,392) were of Spanish nationality and 85% (320,657) were of foreign nationality (Residential Variation Survey, INE).²

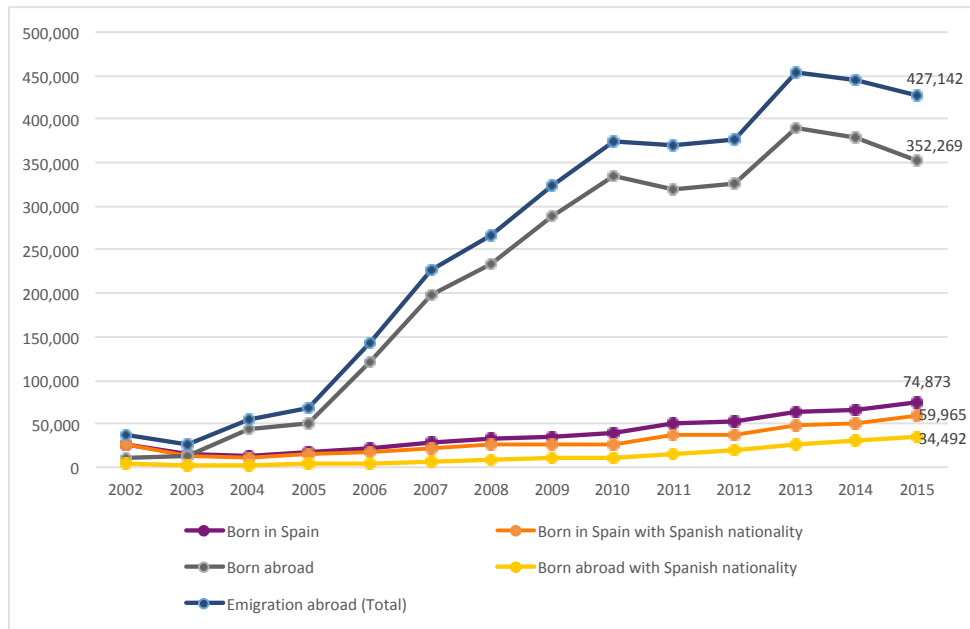
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The 56,000 individuals who emigrated from Spain consisted of Spaniards born in Spain to Spanish and foreign parents and Spaniards born abroad—that is: individuals with Spanish citizenship and possible migrant origins as well as non-immigrant Spaniards.

² This data source contains arrivals and departures from the Municipal Register of Inhabitants, and it must be kept in mind that a single person may account for several arrivals and departures. However, this registry tends to underestimate these processes, especially departures. Since the migrant is the one responsible for registering his or her departure with the municipality, this procedure is often not carried out.

Figure 4 shows a deceleration over the past decade in year-over-year growth of emigration from Spain to other countries by nationality, especially among citizens born abroad (potential returnees). This indicates that a period of intensive return is coming to a close. However, among Spanish citizens growth has remained relatively stable over the past 10 years, with an upward trend starting in 2011. In other words, an effect of the employment crisis in Spain with respect to return migrations starting in 2012 can be observed, but no substantial change can be seen in the quietly growing trend of Spaniards born in Spain who are emigrating.

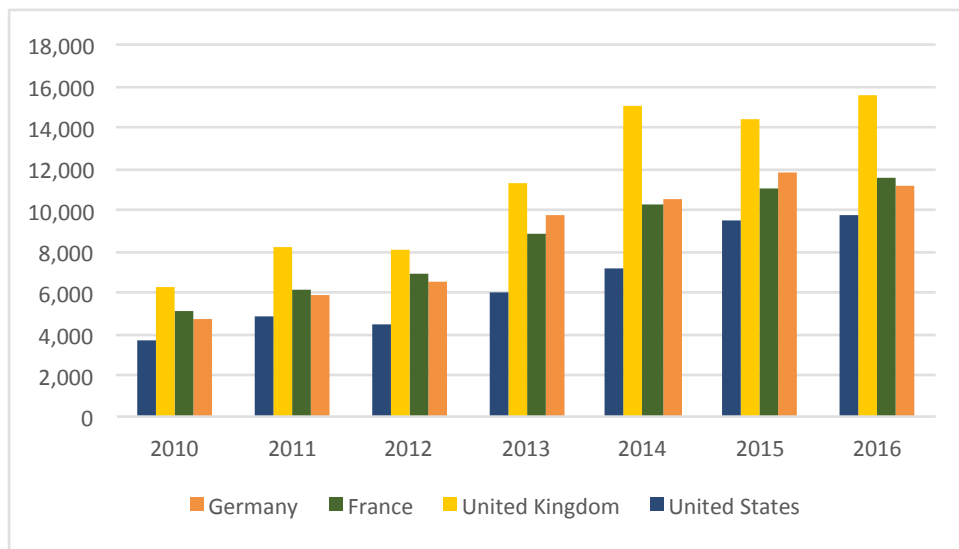
Figure 4. Emigration from Spain to other countries by nationality and country of birth. Source: Residential Variation Statistics, INE.



An interesting fact regarding the flow of emigrants from Spain to the United States is that 88% consist of Spaniards born in Spain, of which 51.2% are women. Therefore, this flow is neither "re-migration" nor return migration. The

United States is the fourth most common destination for Spanish emigrants (Figure 5), and is the number one destination for skilled Spanish professionals (Martin Sampere and Rey Rocha 2003; Aceituno 2017), ranking ahead of Germany between 2002 and 2012.

Figure 5. Destination countries for Spanish arrivals abroad (2002-2016). Source: Residential Variation Statistics, INE.



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As previously mentioned, the early flows of migration to the American continent consisted largely of rural populations. In contrast, the more recent emigrants are predominantly natives of the major Spanish cities Barcelona and Madrid. The autonomous communities of Catalonia and Madrid accounted for 52% of the total emigrants to the United States in 2012.

The major destination cities in the United States are now Miami, Los Angeles, and New York (American Community Survey 2010). Thus, these migrations are occurring between global cities.

2. Changes in the international mobility of Spaniards

Another notable aspect of the trend of Spaniards emigrating to the United States over the past 10 years is that this flow has grown steadily, although not as much as that of the UK, France or Germany, the European countries which have traditionally absorbed Spanish migration. It seems clear then that the growth of this flow far predates the economic and employment crisis that hit Spain in 2008.

However, if rather than taking 2002 as the base year to analyze the growth of Spanish emigration, one examines the rate of year-over-year growth, it can be observed that migration to the United States begins to accelerate in 2014, the same time as migration to countries such as Germany, the UK and France slows. This may denote a change in the patterns of Spanish migration. However, more annual data is required to be able to test this hypothesis and to verify what changes have occurred in the pull factors of these countries.

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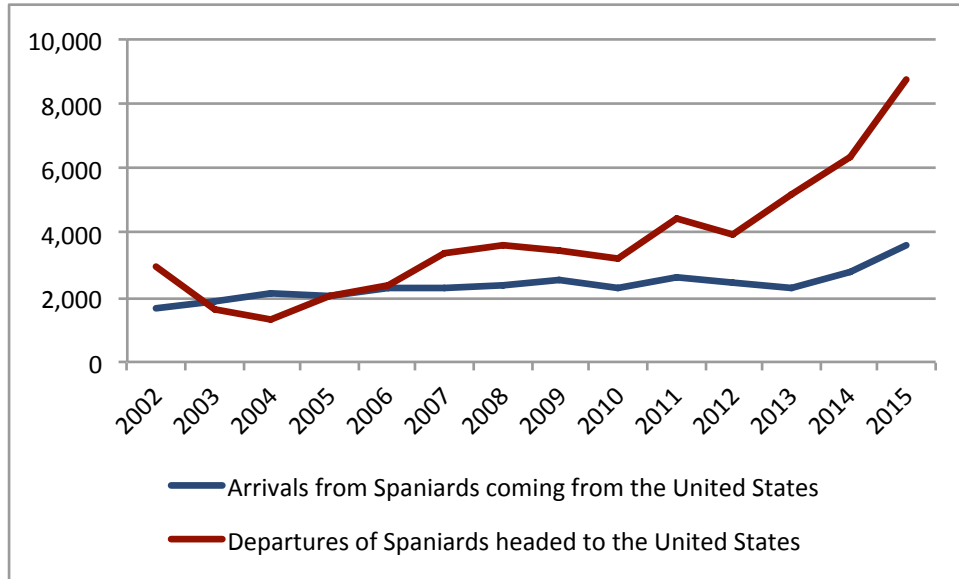
Table 1. Emigration of native-born Spaniards by country of destination (2002-2016).
Source: Developed by the author from the Residential Variation Survey (INE).

Year	Total	Total				Year-over-year growth rate				
		Germany	France	United Kingdom	United States	Total	Germany	France	United Kingdom	United States
2002	26,102	2,648	2,952	4,741	2,944	118	119	120	121	122
2003	13,870	1,329	2,042	1,957	1,657	53.1%	-49.8%	-30.8%	-58.7%	-43.7%
2004	10,985	955	1,609	1,806	1,315	-109.0%	-28.1%	-21.2%	-7.7%	-20.6%
2005	15,914	1,601	1,874	2,797	2,051	18.6%	67.6%	16.5%	54.9%	56.0%
2006	17,900	1,613	2,180	2,829	2,399	43.5%	0.7%	16.3%	1.1%	17.0%
2007	22,527	2,088	3,056	3,284	3,371	36.9%	29.4%	40.2%	16.1%	40.5%
2008	25,888	2,419	3,309	4,038	3,644	35.5%	15.9%	8.3%	23.0%	8.1%
2009	25,550	2,219	3,016	3,949	3,414	11.7%	-8.3%	-8.9%	-2.2%	-6.3%
2010	26,693	2,458	3,674	4,520	3,169	3.2%	10.8%	21.8%	14.5%	-7.2%
2011	37,928	3,963	4,759	6,706	4,410	46.4%	61.2%	29.5%	48.4%	39.2%
2012	37,675	4,392	5,454	6,351	3,961	29.0%	10.8%	14.6%	-5.3%	-10.2%
2013	47,278	6,342	7,141	7,366	5,222	24.8%	44.4%	30.9%	16.0%	31.8%
2014	50,626	7,640	8,306	9,552	6,339	27.4%	20.5%	16.3%	29.7%	21.4%
2015	59,965	8,917	9,428	11,400	8,726	25.1%	16.7%	13.5%	19.3%	37.7%
2016	56,762	8,803	9,782	13,105	8,529	10.2%	-1.3%	3.8%	15.0%	-2.3%

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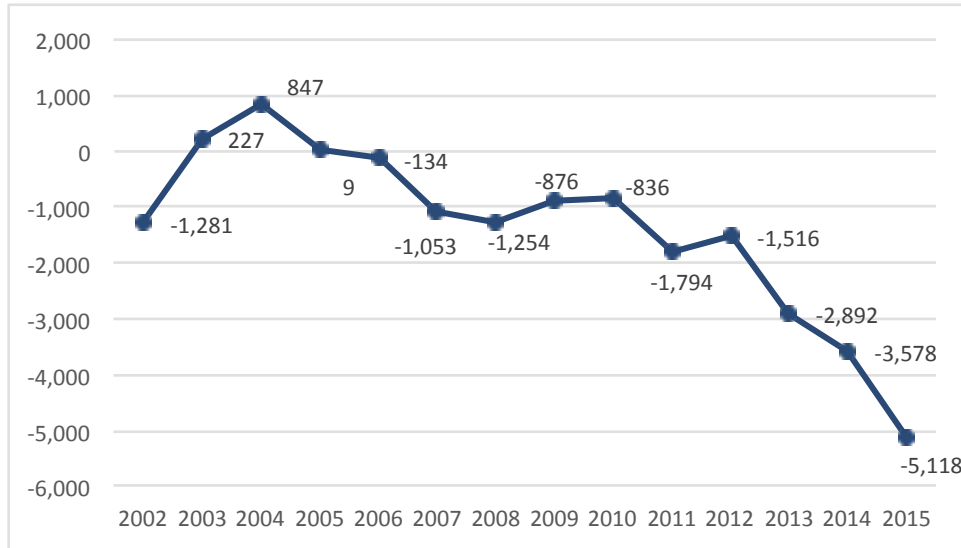
A second element that must be analyzed in order to understand the nature of Spanish emigration to the United States and to other countries is the return. Until 2012, the return of Spaniards had kept pace with the gradual and constant increase in Spanish emigration, indicating a certain degree of circularity and migratory dynamism (Figure 6).

Figure 6. Development of emigration and immigration of Spaniards (born in Spain and abroad) to and from the United States (2002-2015). Source: Residential Variation Statistics, INE.



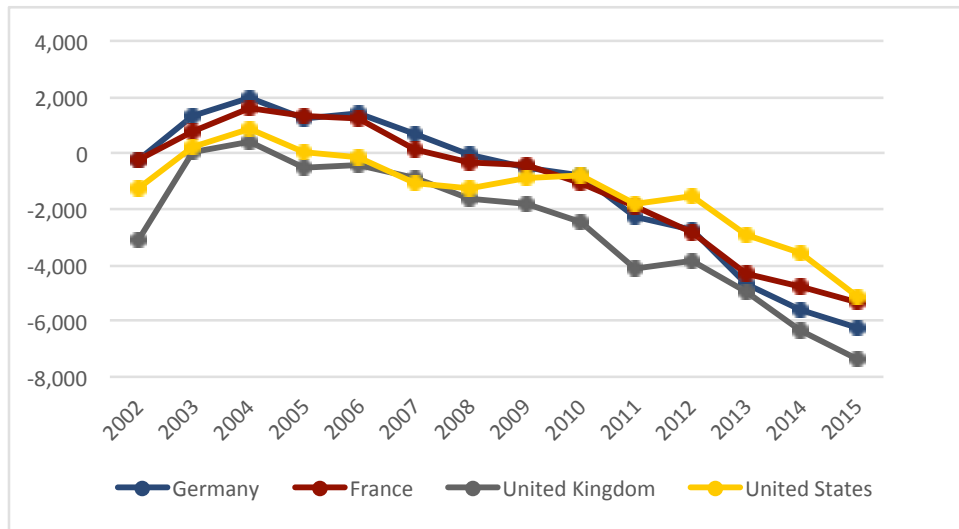
Not until 2011 does emigration to the United States decisively surpass the number of returning Spaniards for the first time since 2002, causing a net loss of Spaniards from Spain to the United States (Figure 7). This can be interpreted as a withdrawal from the pattern of circularity that is noted in the following years.

Figure 7. Net Spanish migration to the United States (2002-2015). Source: Residential Variation Statistics, INE.



A similar but even stronger trend is evident in the migratory flows to European countries that are the major destinations for Spanish migrants (Figure 8).

Figure 8. Net migration of Spaniards (born in Spain and abroad) by country of destination (2002-2015). Source: Residential Variation Statistics, INE.



The data suggests that the employment crisis in Spain affected both emigration and return beginning in 2011 and, consequently, the circular dynamics of these flows.

3. Spaniards in the United States today

An analysis of the data from the United States Census Bureau allows a more detailed view of the demographic characteristics of the flow and stock of Spanish emigrants to the U.S.. This analysis shows that Spanish emigrants have gone from being low-skilled workers to being highly trained and in-demand experts.

Spanish people are identified in the U.S. census as "Spaniards." A "Spaniard" is a person of Spanish origin, which may be of a previous generation, and which is recognized as such. Thus, within this community, it is possible to find both recent

emigrants from Spain and second- and third-generation Spanish-Americans—that is, American citizens who identify as being of Spanish heritage. The 2010 census³ recorded 635,000 residents who identified themselves as Spanish or "Spaniards."⁴ The census data estimated that 36% of these cases were Spanish people who had not been naturalized as United States citizens (some 228,000 people), 29% were born outside the United States to American parents (more than 170,000)—meaning they had acquired Spanish nationality outside the United States—and 35% were Spaniards who had been naturalized as American citizens (almost 229,000 people). It is estimated, therefore, that 71% of the cases are first-generation Spanish emigrants (both naturalized and non-naturalized), or approximately 470,000 people.

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Data from the Municipal Register of Spaniards Abroad (Padrón Municipal de Españoles en el Extranjero, PERE), comprised from consular records, show figures well below the US census figures for non-naturalized Spaniards: in 2010 there were 72,730 Spanish registered in consulates; 94,580 in 2013; and 136,805 in 2017, the most recent year for which the INE has published data at the time this report was being written (PERE, INE). The great disparity between these data sources may be explained by the fact that the PERE tends to underestimate the actual number of Spaniards, given that many people do not register with the consulate for a number of reasons,

³ 5% of the sample, N= 5,714. Data provided by Dr. Amado Alarcón.

⁴ This census records the individual's self-identification with a racial or ethnic group rather than his or her nationality, as the Spanish census does.

such as distance, the American lifestyle (one can only be absent from work on vacation or leave days), or the loss of benefits such as health care, or barriers to voting in Spanish elections (González and Stanek 2014).⁵

In addition, data from the American Community Survey (ACS) indicates that the bulk of the Spanish population residing in the U.S. is between 30 and 47 years of age. In contrast to the image presented by the migratory data, which indicates a much younger age demographic, the ACS data shows a large percentage of the population is over the age of 60, approximately 26%, a figure that includes the population already residing in the U.S. since 1930. A comparison of the data from both sources indicates that the current flow of Spaniards into the U.S. is rejuvenating this group.

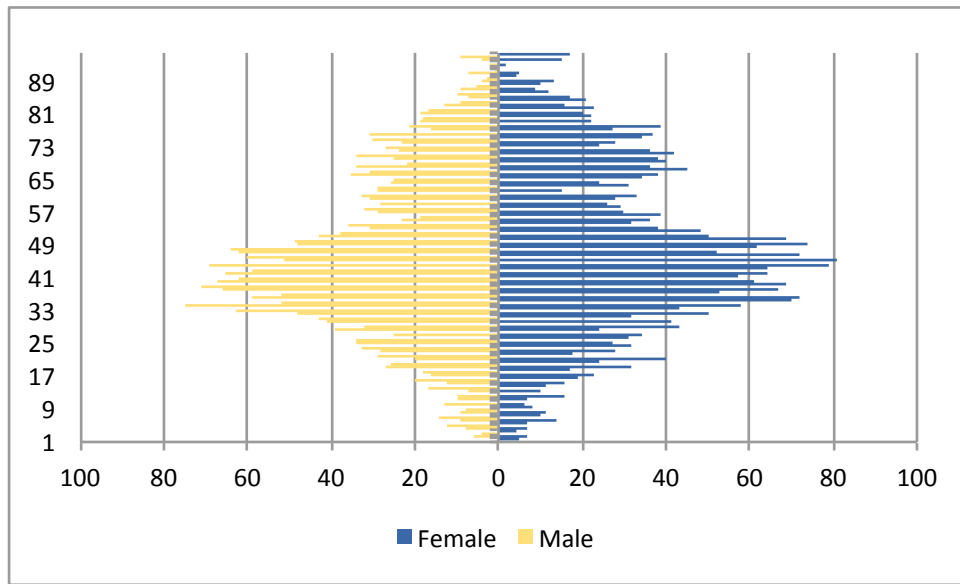
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The population pyramid (Figure 9) reveals two distinct groups: a group aged 36 to 59 and a group aged 60 and older, in other words, the ages corresponding to the more recent and to the earlier phases of migration. A slight feminization of the Spanish population in the United States can also be observed: 47.4% are men and 52.61% are women. The notably feminine character of the current wave of skilled migrants (Dumont *et al.* 2007; Kofman 2000, 2005, 2012), family migration, and the greater longevity of women could explain the feminization of

⁵ The Maroon Tide Association (*La Asociación Marea Granate*) aims to report and resolve some of these problems. More information on www.mareagrante.com

the Spanish community in the United States. However, this would require a more specialized analysis.

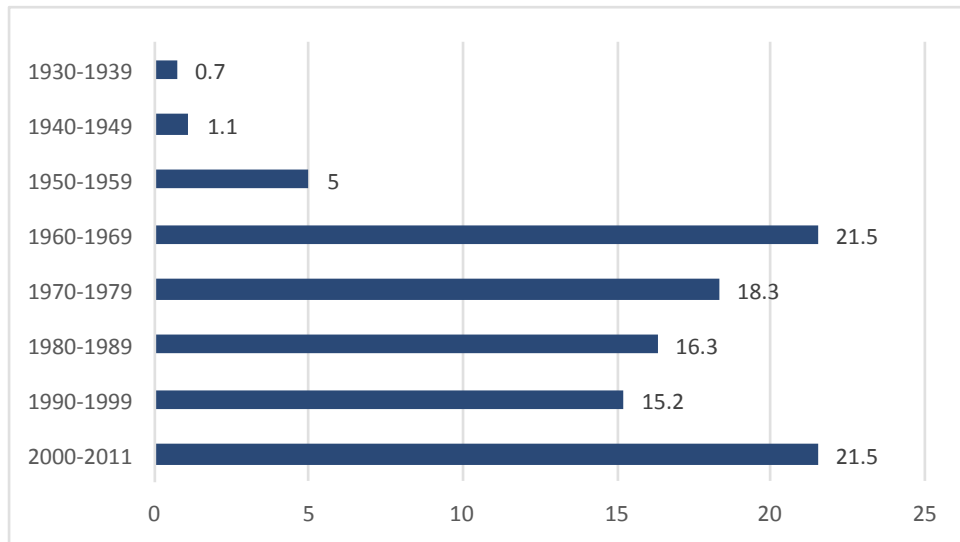
Figure 9. Population pyramid of Spaniards in the United States (2010). Source: American Community Survey.



The ACS data also shows a Spanish population beginning to settle in the United States at the start of the 1960s, corroborating Palazón's study (1998). Confirming that, in effect, 21.5% of the Spaniards residing in the United States in 2010 had arrived during the 1960s. The ACS data (Figure 10) also reveals an increase in the settlement of Spanish migrants during the first decade of the 21st century. It is estimated that 22% of the Spaniards residing in the U.S. in 2010 had arrived over the previous decade.

In short, two decades stand out in contemporary Spanish settlement in the United States: the 1960s and the first decade of the 21st century. Skilled Spanish migration occurred during the latter period.

Figure 10. Decade in which Spaniards entered the United States (as percentages of the total). Source: American Community Survey.

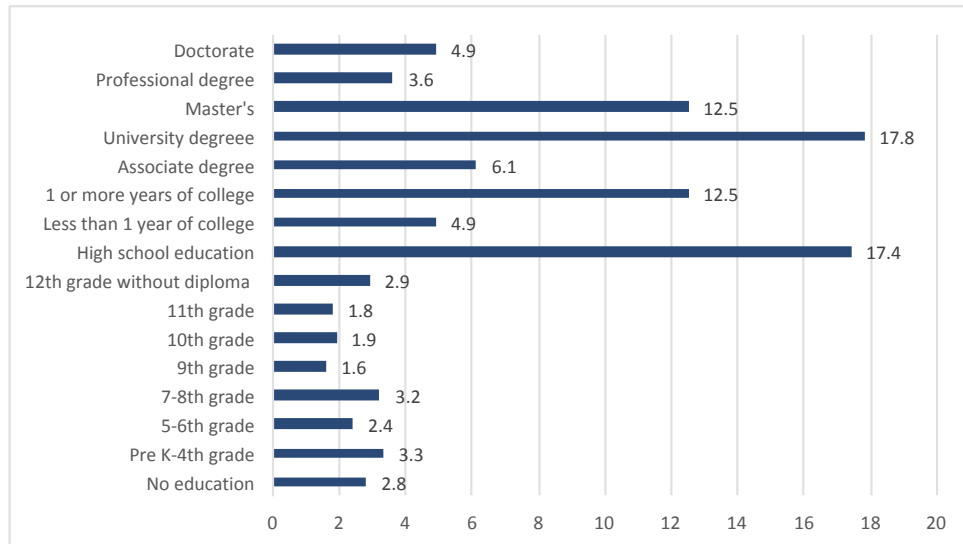


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Skill and employment of Spaniards residing in the United States

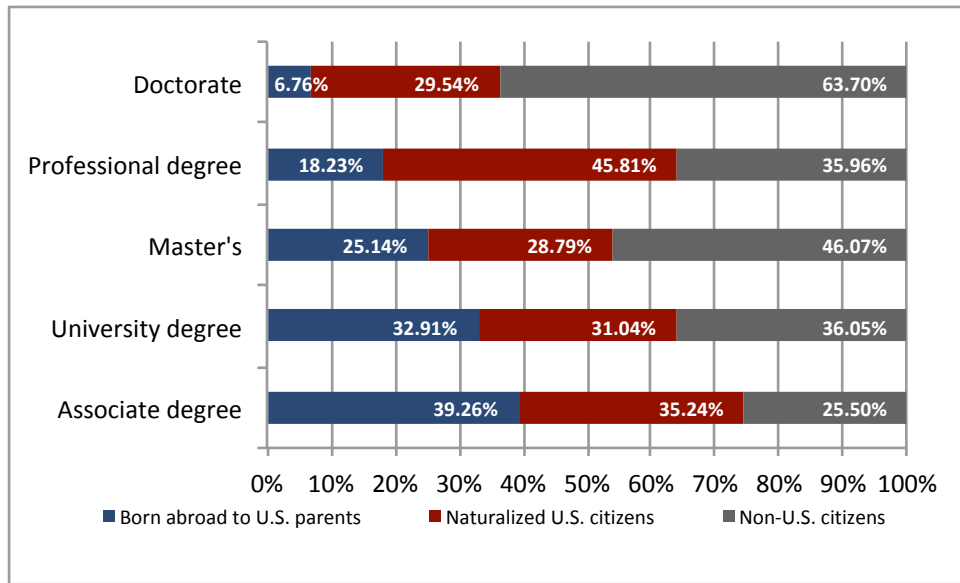
Some of the Spanish nationals who have emigrated or are currently immigrating to the United States are highly skilled professional workers. The ACS data indicates that 45% of Spaniards of all ages residing in the United States have undergraduate or graduate degrees (Figure 11).

Figure 11. Spaniards in the United States by level of education (2010). Source: American Community Survey.



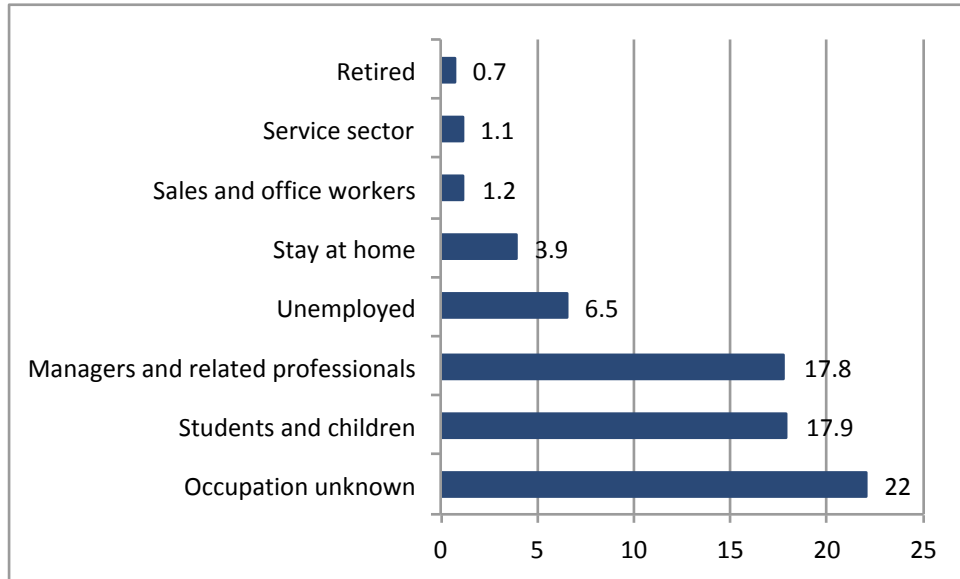
When the level of education of Spaniards is compared to the population as a whole, it becomes apparent that a relatively large number of Spaniards in the United States hold doctorates (Figure 12), indicating that many Spaniards immigrated to the U.S. with advanced degrees or earned their degrees in America, another motive for migration. The specialized literature on the globalization of education highlights that the movement of students in pursuit of more sought-after degrees has intensified the international flow of professionals, scientists and researchers (Iredale 2001; Stalker 2000; Docquier and Marfouk, 2006).

Figure 12. Level of education achieved by Spaniards disaggregated by citizenship status (2010). Source: American Community Survey.



The skill-level of Spanish workers in the United States can also be gleaned from the data pertaining to their access to permanent residency. A close look at Spaniards who were granted permanent U.S. residency in 2013, shows that 18% held professional or executive positions. Unfortunately, the occupation of the remaining 22% is unknown, as can be observed in figure 13.

Figure 13. Spaniards granted permanent U.S. residency in 2013. Source: U.S. Department of Homeland Security.



It is important to note, however, that almost 30% of Spaniards granted permanent residency do not work outside the home. One can conclude that these are primarily students (Figure 13) if we consider the latest figures on the admission of foreign migrants to the United States. With the exception of temporary visas for tourism or business, which account for the majority of visas, the primary method with which Spaniards entered the U.S. in 2015 was on visas for academic students (16, 236) (F1 visa for *students and exchange visitors: academic students*) and visas for exchange students and staff (16,665) (J1 visa for *students and exchange visitors: exchange visitors*). In fact, visas for Spanish exchange students accounted for 1.58% of all visas granted to Spaniards, while they made up 0.67% of the total number of visas given to people of all

nationalities. In other words, this type of visa is overrepresented among Spaniards.

Students abroad constitute a significant portion of the potential migration of skilled Spaniards. Studies by Alisa Petroff (2013) and Villalón de la Isla (2017) provide an excellent overview of the academic literature on this type of migrant. These students, who are generally at the graduate level, often join the labor market in the migrant- receiving countries after earning their degrees (Pellegrino 2008 cited by Petroff 2013), usually as private or academic researchers.

Visas for intracompany transfers (L1) are the second most common type of visa granted to Spaniards (15,503), along with with visas for the spouses and children of L1 visa holders (L2, 7,330). This represents 2.18% of the total visas granted to Spaniards, while these visas represent 1.2% of all visas granted to foreigners. Again, we see an overrepresentation of this visa type among Spaniards.

In third place are the HB1 visas, which represent 0.8% of the visas granted to Spaniards in 2015 (6,397), which is slightly higher than the 0.63% rate among all foreigners. This visa category applies to people who provide services in a specialized field or services of great merit, those who have distinguished talents for development projects or conduct collaborative research with the Department

of Defense (DOD), and those who work as fashion or advertising models.⁶ These are highly selective visas requiring education and skills.

4. Factors that explain skilled Spanish migration to the United States

The data presented so far support the thesis that contemporary Spanish migration to the United States is highly skilled and does not resemble the previous migratory waves in its composition or in its causes. The increase in skilled Spanish emigration during the first decade of the 21st century is related to the access of Spanish youth, from working class or middle class backgrounds, to college and graduate education and to the development of science in Spain, as well as the emergence of professional sectors with international profiles, intracompany transfers and changes in the immigration laws of host countries, all of which fall within global changes occurring in skilled migration (Mendoza *et al.* 2016).

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Students and scientists

The globalization of education results in students relocating in pursuit of more highly valued degrees, which has intensified the international flow of professionals and of knowledge (Iredale 2001; Stalker 2000); exchange programs for students and researchers, the development of new technologies,

⁶ www.uscis.gov

and less expensive international transportation have also contributed to this intensification. This has all led to a highly internationalized global academic world. Data from the OECD (2002) indicates that the countries that attract most international students are the United States (34%), the United Kingdom (16%), Germany (13%), France (11%) and Australia (8%).

The international ranking of some American universities and the fact that they are leaders in scientific innovation and production attracts undergraduate and graduate students and scientists from Spain and other countries around the world. In addition, earning a degree in the United States can sometimes represent a gateway to long-term residence and employment in that country.

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The mobility, the circulation, and the establishment of networks of knowledge are the driving force behind exchange programs and policies. The recognition of university diplomas and degrees, as well as of master's and doctoral studies, also represents a strong incentive for the mobility of researchers (Peixoto 2001). For Spain:

The movement of doctors and technologists among institutions and between the public and private sectors, both nationally and internationally, is key to improving the capabilities of Spanish science, technology and innovation and becomes, among other aspects, a key vehicle for the creation of channels of communication between research groups in different sectors and countries (Red Euroxarsess Spain 2012: 3).

The United States is the top destination for scientists emigrating from Spain. The data indicates that 45% of the research trips taken by Spaniards in 2000 were to the United States, far outpacing the number of research trips taken to the United Kingdom (17.7%), France (6.8%) or Germany (5.7%) (Martín Sempere and Rey Rocha 2003) –preferred destinations for general Spanish migration. More recent studies, such as that conducted by Aceituno (2017), confirm this finding.

Personal factors are also among causes for migration. These are known as micro-social factors. Among the motivations mentioned by the scientists interviewed for this study, two stood out: the desire or expectation to improve one’s CV by adding an international credential, and the expectation of employment that would guarantee stability and allow individuals to continue their scientific career.

There is a persistent belief among Spanish scientists who have immigrated to the United States that international experience is key to their training and to the advancement of their scientific career. It is understood that experience abroad is a requirement for science, given that travel and contact with other institutions and researchers is essential to the production of scientific knowledge. Along this same line of thought, studies such as that of Woolley and Turpin (2009) argue that temporary visits to other research centers are crucial to the formation of scientific and technical human capital, understood as the sum of intellectual and social capital and the scientific skills of the researchers (Bozeman 2008; Martín-Sempere *et al.* 1999). Authors such as Martín-Sempere and Rey-Rocha (2003)

also emphasize the importance of temporary stays abroad for scientific progress. Furthermore, De Filippo *et al.* (2009) illustrate the connection between international research visits and membership in international networks of collaboration and scientific production (Cañibano, Otamendi and Solis 2010).

However, following the reasoning of De Hass (2011), people migrate when they have both the desire and the means to do so. The large educational capital possessed by this type of migrant also affords them more opportunities for international mobility and greater access to what Merton (1959) termed "opportunity structures" (Parra 2016).

The mobility of Spanish scientists as undergraduate or graduate students enables them to acquire professional knowledge and skills; however, it also produces a form of capital that favors migration to the United States or to any other foreign country. It is assumed that one *should* migrate to advance one's scientific career and that *one knows how* to migrate because one has acquired mobility as a form of capital during one's undergraduate and graduate study. These scientists possess what some authors call cosmopolitan capital.

The researchers who emigrate from Spain to the United States are characterized precisely by a high mobile capital accumulated over the course of their education. They have years of experience with mobility and cosmopolitan career paths. Most have had international migration experiences in more than one country including

the United Kingdom, France, Ireland, Belgium, Canada and Australia. Many were also familiar with the United States through prior stays or travel. Thus, they have a large stock of human capital. The human capital approach was first incorporated into the neoclassical cost-benefit analysis of migration by Sjaastad (1962), and it has proven very useful for understanding the migration decisions of this type of professional. This approach insists that human capital makes people more mobile (Parra 2016), which corresponds with the reality of this group.

According to Parra (2016), cosmopolitanism has been conceptualized as cultural capital by authors such as Kim (2011), Igarashi and Saito (2014) and Weenink (2008). Bourdieu (1984) defines cultural capital as the acquisition not only of academic degrees (institutionalized cultural capital) but also of internalized and incorporated cultural traits (values, skills, attitudes and knowledge). These traits are what Bourdieu terms *habitus*.

The employment and professional reasons mentioned by Spanish scientists as reasons for emigrating reveal not only pull factors from the U.S., but also push factors from the Spanish scientific system. Among these factors, the difficulty of advancing an academic career in Spain stands out as a cause and incentive for emigrating. The difficulty of securing funding to conduct research in Spanish universities and centers, low salaries, professional uncertainty, and the lack of job security are the main macro-social push factors that cause Spanish scientists

to emigrate. The economic crisis and cuts in public funding in Spain have further aggravated this situation; this has resulted in drastic cuts to research budgets starting in 2008 and has especially worsened after 2010, which places Spain 18th out of 28 EU countries with respect to research and development (R&D) spending. The official data indicates that 2.23% of the overall Spanish federal budget was allotted to civilian research in 2008 and just 1.29% in 2015 (Spanish Foundation for Science and Technology, *Fundación Española para la Ciencia y la Tecnología*, FECYT 2015).

It is worth noting that it is not the lack of employment per se that causes Spanish scientists to emigrate but rather the grim career prospects offered by Spain at the moment. In fact, contrary to popular belief the employment situation in Spain was not mentioned by our interviewees, for the most part, as a decisive "push" factor for those who left the country between 2006 and 2014, or at least not directly. This factor was more often cited as a reason for not returning to Spain rather than as a motive for leaving the country.

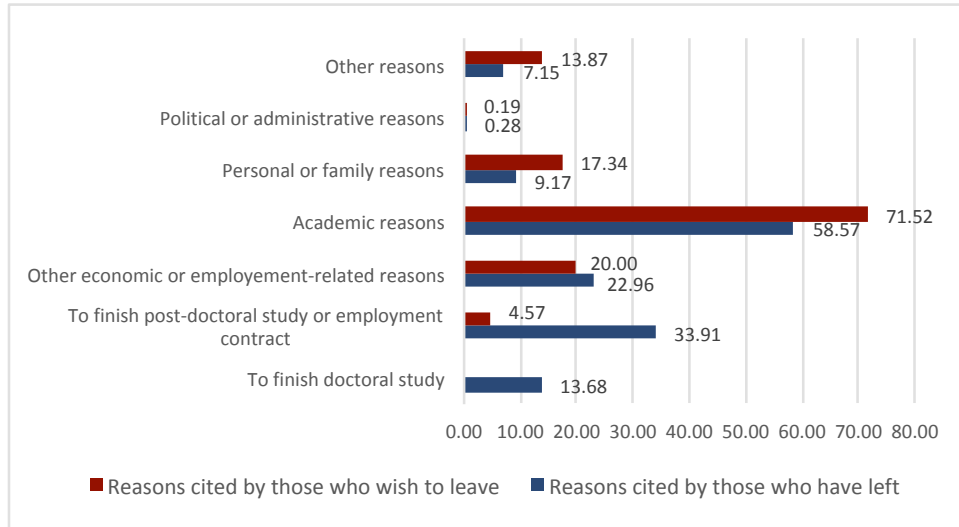
Finally, it should be noted that although extrinsic reasons were the most common explanations offered by Spanish scientists, reasons of an intrinsic nature were also mentioned. These were intertwined with rational explanations and related to the experience of migration and life abroad. For the majority of the people interviewed, mobility has become part of their lifestyle starting as undergraduates or even earlier, in the form of travel to learn languages. For others, the American

experience and the opportunity to live in the U.S or in a particular American city was part of a desire and of an image of a cosmopolitan lifestyle. In short, the investment in human capital, the skills, age and the stage in one's life and academic career help determine who migrates and who does not. From a neoclassical analytic approach to international migration, it might be argued that the Spanish scientists who immigrate to the United States are making a rational decision in terms of cost-benefit. They migrate not to the country but rather to the research center or university that can best ensure their education and investment in human capital, while improving their resume with the act of mobility and cosmopolitanism.

The 2009 Survey on Human Resources in Science and Technology (INE) also found this sentiment among people with doctorates in Spain who migrated or wanted to migrate. This survey found that the primary motives for emigration were academic in nature (Figure 14), clearly indicating that this group migrates for academic rather than strictly economic reasons.

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Figure 14. Doctorate-holders' reasons for living outside of Spain for at least three months between 2000 and 2009 (2009). Source: Survey on Human Resources in Science and Technology, INE.



The data from the same survey also indicates that 21% of Spanish doctoral students lived outside of Spain for some period of time during the first decade of the 21st century, while at the end of 2009, only 13% planned to go abroad. That is, after the Spanish crisis began, there was a significant reduction in the number of scientific professionals planning to emigrate.

This leads to an examination of the real impact of the crisis on the mobility of Spaniards with doctoral degrees and, consequently, on professionals in the sciences. In this sense, the crisis may be acting to inhibit the emigration of doctoral degree holders, as these types of professionals rely on scholarships and financial aid for their mobility. To the extent that this aid has diminished as a result of public spending cuts in this field in Spain (FECYT 2015), the structural

conditions for migration have been undercut, affecting the circulation of these professionals and, more disturbingly, possibly having an impact on Spanish scientific production.

Despite budgetary constraints, Spain accounted for 10% of the science produced by the 28 European countries. In 2011, Spain represented 5% of the total OECD scientific production and 3.37% of global production. Surprisingly, Spain continues to be in tenth place in global scientific production. However, it was scientific productivity in terms of publications per researcher that experienced the largest growth between 2003 and 2007 and between 2004 and 2011, while productivity in terms of the ratio between publications and R&D spending dwindled from 2003 to 2008, beginning to grow again in that year precisely when research budgets were being cut (FECYT 2015). What can explain this phenomenon? What are its potential or actual effects on the reduction of flow among Spain's most educated?

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As in other OECD countries, the scientific production in Spain grows faster than R&D spending as a percentage of the GDP (68.22% and 28.79%, respectively) (FECYT 2015). Moreover, more than 80% of the Spanish scientific production in 2011 was directed by Spanish institutions, while 35% was produced in collaboration with foreign institutions (FECYT 2015). In this regard, the rate of growth of international collaboration in Spain during the period from 2003 to 2011 approached 24%, which is one of the highest in the OECD. Collaboration is

therefore key to the development of Spanish science, although such production is most often a collaborative effort and rarely based on a leadership role. Ultimately, the improved performance of Spanish scientific research has to do with its capacity for international relations, largely based on exchanges with research centers and universities. Among the top 10% of the world's most-cited scientific studies, half are the result of these exchanges (FECYT 2015). Thus, it is to be expected that a reduction in the mobility of Spaniards engaged in science would be accompanied by a reduction in the country's scientific production.

Mobility of skilled personnel between companies

The mobility of Spanish workers between companies reflects the global phenomenon of the expansion of transnational corporations. Multinational and transnational corporations are the main employers of highly skilled labor and have a special interest in being able to recruit and deploy their work force in any country in the world (as long as they meet the required qualifications). This type of professional relocation creates a large number of visas for spouses and children, indicating that personnel transfers also entail family migration.

The expansion of transnational corporations is one of the main factors accounting for the migration of skilled labor. In fact, the majority of professionals travel under the auspices of transnational corporations. They provide evidence of the institutionalization of migration of highly skilled workers (Iredale 2001; Mahroum 2001; Edstron and Galbraith 1977). In this case, the presence of American

companies in Spain, mainly in the automotive and pharmaceutical sectors, is one example. American companies produce almost half of the medications (40%) and a third of the cars manufactured in Spain. Moreover, it is estimated that some 600 American multinationals have invested in Spain, including some of the largest companies (Chislett 2005). In contrast, the global presence of Spanish products, although growing, is still smaller than that of Italian and French products (Nova, Rodríguez and Ruiz 2008). This phenomenon is of great importance given its impact on the mobility of Spanish workers.

In 2011, the Statistics of Subsidiaries of Foreign Companies in Spain (INE) indicated the existence of 8,986 such subsidiaries in the country. American companies accounted for 11% of these. The most recent published data at the time this report was written indicate that the number of subsidiaries had risen to 10,932 in 2014, of which 11% were headquartered in the United States.

There are also large Spanish companies with subsidiaries in the United States that engage in this exchange of professionals. Examples include the insurance company Mapfre and the construction company Acciona and Consentino, the manufacturer of Silestone. There are also small and medium-sized companies wishing to branch out to the American market.

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This form of mobility usually involves executives or highly educated and specialized technicians, as indicated by Alarcon *et al.* (2006) in their analysis of skilled migration. It is important to note that this relocation is not usually required by the company; instead, employees are offered the opportunity to relocate. The latest available data show that 648,611 L1 visas were issued to Spaniards for intracompany transfers, many of them (44%) to employees who were accompanied by their families (U.S. Department of Homeland Security 2013).

Intracompany transfers provide great advantages to employees with regard to validation of their degrees, since the company's internal selection processes consider their qualifications. Transfers not only fill posts in other countries but can also serve as paths to promotion for employees with executive potential who may be experiencing obstacles to career advancement in their home countries (Petroff 2013). In this way, relocation allows the employee to advance professionally. Intracompany transfers also benefit the company indirectly, as they provide greater knowledge of professional networks and the likelihood that new contacts will bring additional information to the entire organization (Edstrom and Galbraith 1977, cited by Petroff 2013: 76).

With respect to family migration, time spent in the United States is also seen as a valuable investment in the human capital of the employee's children, particularly the opportunity to learn English. Professional reasons are more evident in the group of professionals transferred within companies, although

there are also personal reasons to immigrate to the United States. The destination country and city play a more important role as a pull factor in this group than among scientists; Chicago, San Francisco, Miami, New York, Los Angeles and Washington are the top destinations. These professionals usually have little prior experience of mobility and therefore less cosmopolitan capital than the group of scientists. This group also differs notably from the group of scientists with respect to their family situation at the time of emigration. Although both groups have average ages of between 30 and 40, married couples and couples with children are comparatively more common in the group of company transferees, thus the decision to emigrate involves additional family members. In the case of couples without children, both partners often share the desire for life and professional experience, while among families with children, the opportunity for their children to become fluent in English can be a decisive motivation.

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Employed Spanish professionals

The growing importance of information-related economic activities has made knowledge a sought-after commodity for national economies. This has resulted in greater freedom of movement for holders of diplomas and degrees, who have easier access to developed countries than do unskilled workers, who are subject to more strict regulations (Iredale 2001).

Moreover, growth in the international activities of professional associations (Iredale 2001) and the emergence of new skilled sectors, along with the U.S.'s

role in attracting a growing number of skilled immigrants has also invigorated the mobility of professionals.

The group discussed subsequently has some elements in common with Spanish scientists, such as linguistic and cosmopolitan capital, which favor emigration. These professionals are also attracted by American science and technology. However, intrinsic motivations such as the desire to have an "American" experience are more common among this group.

Spanish workers employed in the United States fall into two groups: those who initially migrated to study and were then offered employment in the U.S. after finishing their degrees, and those who migrated with an offer of employment or were transferred between multinational corporations headquartered in Spain.

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Among the first group of professionals, those who migrated to study and stayed to work in the U.S., the main and original motive for migration was scientific and technological training in prestigious American centers, at both the undergraduate and graduate levels. While the original purpose for migration was to study, the opportunity to continue professional training at leading American companies in the sector was a decisive factor for remaining in the country. Thus, the initial migration, which was intended as a short-term project, was prolonged indefinitely. The professional benefits, salaries, and opportunities to acquire greater knowledge and innovation act as major incentives to remain in the United States,

while the professional and employment crisis in Spain creates a disincentive to return. One can conclude, therefore, that the motivations to emigrate and not to return are essentially practical in nature.

The second group of employed skilled professionals are those who migrated with an offer of employment or were transferred within their companies. In these cases, too, the motivations for migration are primarily based on a desire to improve career opportunities, but above all to experience an "American adventure." For these workers, the grim prospects offered by the Spanish labor market also had a notable effect on their decision to migrate. However, it is important to note that despite the precarious employment situation in Spain, all the interviewees fitting this profile were working in their professional fields at the time they emigrated; thus, it was not the search for employment that prompted their emigration but the prospect of improving their careers and strategically avoiding a possibly unfavorable employment situation (extrinsic motivation) together with the desire to experience life in America (intrinsic motivation).

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Therefore we confirm what other studies on the subject have found: a larger percentage of skilled emigration is not due to economic motives. Economic motives are more important to low-skilled workers than to high-skilled workers. Some studies indicate significant differences in the motivations for migration according to the skill levels and education of Spanish emigrants. Thus, while the economic factor carries greater weight among low-skilled workers, high-skilled

workers are also motivated by opportunities for professional, personal, and cultural growth (Alaminos, Albert and Santacreu 2010).

Cosmopolitan capital, or cosmopolitanism, also acts to promote migration within this group, as gleaned by the interviews. A majority of these professionals had prior experiences of moving to foreign countries, including France, Austria, Belgium, Cuba, the United Kingdom, Poland, Croatia, Bosnia-Herzegovina, Chile, Japan, Chile and Sweden, for study, business or employment. A large number had also visited the United States prior to moving there.

In summary, the main reasons for Spanish professionals to move to the United States are professional opportunities and an uncertainty about the job outlook in Spain. Their level of education and linguistic capital give highly skilled Spanish workers access to a structure of opportunities to emigrate abroad that is not available to other less educated workers.

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American immigration law as a facilitator of skilled Spanish migration

The United States plays an ever greater role in the recruitment of skilled immigrants (Koser and Salt 1997; cited by Petroff 2013:71). The opening of borders to this type of migrant occurs in different ways, whether through national legislation or bilateral/multilateral conventions, or through regional or international laws and regulations. The United States and Canada are the countries with the longest tradition of targeted policies to attract skilled

migrants. There are also national initiatives to attract highly skilled migrants such as the creation of regional blocks including the North American Free Trade Agreement (NAFTA) and the European Union (Iradale 2001; cited by Petroff, 2013:73).

In the case of the United States, the immigration laws of 1952 and 1965 explicitly highlight the intention of attracting skilled migrants who bring the skills and qualifications that are in short supply in the destination country. A revision of these laws in 1990 reinforced the selective criteria for immigration, enlarging the quotas for the admission of skilled workers. The United States draws a distinction between immigrants and non-immigrants, classifying foreign skilled workers as non-immigrants. This is a selective model of immigration. The number of different work permits and residency permits for students and skilled workers greatly stimulates the recruitment of these types of migrants.

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The American immigration system is governed by a system of quotas for the admission of skilled professionals. Specifically, starting in 1990, the H-1B visa (temporary workers and trainees: specialty occupations) has a quota of 65,000 applications, which multinational companies in the field of technology consider to be low, given the size of their demand for qualified personnel. In fact, this quota was raised to 195,000 in 2001 (Martin 2005). As mentioned above, this visa category applies to people who want to provide services in a specialized field or

services of great merit, those who have distinguished talents for development projects or conduct collaborative research with the Department of Defense (DOD), and fashion or advertising models. Many of these authorizations, 62% in 2017, go precisely to the same large technology companies that report shortages of skilled labor in the sector. All these visa types require the American company to first certify the employee's qualifications and the hiring need to U.S. Citizenship and Immigration Services (USCIS), a division of the Department of Homeland Security; thus, visas are highly selective with regard to training and qualifications⁷.

Wicramasecara's (2005) analysis of migratory policies describes the United States' practices as a model that fosters circulation. Taking into account diverse situations, distinct temporary work permits have been developed for skilled workers that allow them to be hired on a temporary basis, fostering exchange and international experience. Martin (2005) recognizes that the process for hiring skilled temporary workers is much less costly and time-consuming than for other types of immigration.

However, at the time this report was being written, there is controversy over regulations on these visas as announced by President Donald Trump. These measures will affect Spanish workers who, as so many other highly qualified

⁷See <https://mx.usembassy.gov/es/visas-es/> [Accessed on 08/31/2017].

professionals from around the world, are recruited by American universities, research centers, and companies. In 2015 alone, 6,397 H-1B visas were issued to Spanish citizens. In the case of Spain, it is important to consider that the United States is the primary destination for Spanish scientists, which has a clear impact on Spanish scientific production through the high level of cooperation between both countries in joint publications. Since it appears the American president is more concerned with the use of H-1B work permits by companies than by universities, which have thus far not been subject to a numerical limit, attention should be paid to how this may affect scientists who apply to have their student visas (F or M visas) or exchange visas (J visas) converted to temporary work permits (H-1B visas).

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It is important to take into consideration that all of the Spanish researchers studied in this investigation arrived in the United States with a pre- or post-doctoral scholarship or a teaching or research contract, which is very different from the condition of those individuals who arrive in the country without a job. There appear to be few cases in which students, teachers and researchers are out-of-status, although the occasional case may exist.

Most of the interviewees reported that the administrative process for the visa was easy, because it was generally the universities, institutes, or research centers that took care of the formalities.

Spanish researchers typically enter the United States on J-1 exchange visas for non-immigrants. There are several types of exchange programs, including programs for teachers, university professors and researchers, and for scholarship holders and temporary university students (professor and research scholar programs, respectively).

The stability of these positions also allows them to renew their resident permits. As they rise in their employment and are promoted to positions of greater responsibility, Spanish researchers are able to convert their permits from student visas to work visas and, ultimately, to the permanent residency permit known as a green card.

Employees who are transferred by their companies are issued a non-immigrant L-1 or intracompany transferee visa, which allows an employee who has worked for an American company at least a year abroad to be transferred to the United States. The company manages the process, which goes quickly. The most recent data available showed that 15,503 L-1 visas had been issued to Spaniards in 2015.

All the intracompany transferees interviewed for this study reported having no problems with the visa process as the companies themselves handled the process and costs. The Culpepper Trends Survey indicates that 77% of companies pay the entire cost of securing a visa. The costs associated with the

visa process can amount to \$3,000 (Ministry of Employment and Social Security 2007).

Workers in a specialized profession who are not transferred as employees of an American company are often issued H1-B visas for non-immigrant temporary workers. The H-1B visa is intended for specialized work and requires the prospective employer to apply for the H-1B on behalf of the prospective H-1B employee.

However, the field work found other strategies of applying for visas that were issued more quickly and served as a bridge to the H-1B visa, although this entails having to leave the United States for a short period of time to request authorization again. These strategies undoubtedly involve significant economic resources and a high degree of flexibility.

When the visas require an application from the company, the costs are incurred by the employer. In this regard, there are studies in the U.S. based on the Culpepper Trends Survey that indicate that the H-1B visa is a strategy used by companies to hire less expensive skilled foreign labor (Miano 2017). The Spanish scientists interviewed mentioned this argument about low-paid skilled foreign workers. However, this is not a topic that was raised during the interviews with those employed by American companies.

Conclusions

There is no doubt that changes have occurred over the past 40 years in the composition of migratory flows from Spain to the United States, as they have occurred in Spanish society itself. Whereas Spanish emigrants to the United States in the past century were largely unskilled workers, they are now distinguished by their high level of education and professional, scientific, and technological skills.

This modern migration is also circular in nature, with Spanish professionals moving back and forth, contributing greatly to the transnationality and internationalization of knowledge. These migrations, which began to take shape starting in 2000, have had a significant impact on the production of knowledge in Spain, especially scientific knowledge. However, the Spanish crisis may be jeopardizing this model of circulation, which is essential for the creation of transnational networks of knowledge. This contact is fundamental for the development of science in Spain, as it allows a trans-Atlantic exchange of knowledge. In fact, much of Spain's scientific production depends on this link, just as American science and technology depends on foreign talent (Stephan and Levin 1999).

In light of the results of this study, it seems clear that the new highly skilled migration to the United States is made up of workers with access to a structure of professional opportunities lacked by other migrant workers. Their cosmopolitan

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capital and command of English gives them an advantage in anticipating changes in the Spanish labor market, a market that, simultaneously, is becoming increasingly globalized as a result of the internationalization of professions and universities. In this regard, the academic world is a leading participant in internationalization. Access to mobility and linguistic capital is key to gaining access to the structures of professional opportunity offered by skilled migration. In other words, obtaining a degree is not enough. It is essential to have acquired mobility capital during one's education.

Skilled migrants move because they have the desire, knowledge, and ability to do so. However, it is useful to distinguish between different profiles of skilled workers and the different factors that cause them to emigrate. On the one hand, the migration of scientists primarily reflects a desire and need for education in foreign universities. A "love" for science, as romantic as it may sound, motivates many of these individuals to migrate to the world's leading universities and research centers. The ability to conduct well-funded research in a secure job is much more important to these professionals than the salaries and nostalgia they leave behind in Spain. Spanish scientists understand they should migrate in order to advance their careers and base their migration plans on this rationale. That is, their motivations are extrinsic in nature. These are migrants who have learned how to move among foreign universities and research centers through extensive experience with international mobility. They are "well-traveled" and have a sufficient command of English to allow them to venture to complete their

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education in the United States. In this manner, they accumulate cosmopolitan capital. However, although the United States is the first country to which they move, these scientific professionals are not attracted by the American state, society, and culture per se. Its universities and research centers are the main reason for this type of migration. Migration for them, at least symbolically, represents transferring to another university or research center rather than to another country. Their goal is to be at the world's foremost research centers.

The skilled employees of companies in the United States have in common with scientific professionals a high degree of mobility, enabling them to prevail over insecurity and unemployment in Spain. Nevertheless, the desire to obtain experience living in a foreign country and in leading cities such as New York, Miami or Los Angeles carries much more weight in this group. Among professional intracompany transferees, migration represents an opportunity for career advancement and an investment in human and cosmopolitan capital for themselves and for their children.

Although the crisis did not appear to have a significant impact on the scientific sector in Spain during the years covered by this study, it is reasonable to assume that it will in coming years. It is known that the exchange of scientific knowledge particularly benefits scientists in Spain due to factors such as the transfer of information about job openings in the United States, collaboration on the development of scientific articles, and participation in congresses. It is also a fact

that most of the researchers who travel to research centers abroad are funded by domestic resources (contracts, scholarships). Thus, as budget cuts cause funding for academic personnel and the number of travel and study scholarships for pre-doctoral and post-doctoral scientists to decline, the circulation of scholars, and consequently the exchange of knowledge, will also diminish. The development of policies aimed at mobility shows how well Spain understands this phenomenon as being crucial to its economy; thus, in this new context, Spanish policies are beginning to face the need to manage the scientific diaspora abroad.

For transnational corporations, this takes the form of a high volume of Spanish migrants. In fact, intracompany transfers represent the third-largest flow of Spanish travel to the United States, after tourism and study. Spanish companies attempting to expand into the United States have great potential in terms of the exchange of knowledge, methodology, and technology for the Spanish economy. American investment in Spain has been crucial during the recent years of crisis, at times amounting to 50% of foreign capital inflows. The data indicates that, in recent years, fewer small and medium-sized Spanish companies have established themselves in the U.S., while the number of large multinationals with greater capacity for recruiting skilled labor is growing. This situation, specifically this type of entrepreneurship and its impact on the exchange of technology and knowledge, merits more detailed examination.

The United States, for its part, is a giant that attracts brains, developing very specific programs, postgraduate degrees and scholarships that lure millions of students from around the world. Attracting students generates a high probability of their subsequent recruitment into the science and technology sector of the American market. The American research sector places a high value on the education, the versatility, and the work ethic of Spanish university students. In addition, these academics provide an essential scientific link with Europe.

In addition, American immigration law facilitates the recruitment and hiring of international brains, though sectors such as new technologies represented by large multinational companies call for more work permits to be issued for this type of professional. American scientific and technological development cannot be explained without the migration of science and technology human resources from OECD and non-OECD countries. For decades, the United States has been a leading competitor worldwide for skilled labor, implementing many initiatives for the recruitment and retention of brains. This is because, among other things, the United States has a severe shortage of doctors and highly trained technologists.

As previously mentioned, a troubling aspect of the crisis in Spain, and the resulting flow of emigrants to the United States, is the impact this could have on circular migration and the networks through which knowledge is exchanged. The type of information shared through these networks includes the following:

- a. Dissemination of formal knowledge: joint scientific articles, conferences in Spain, teaching and training.
- b. Information about job openings, scholarships, study and research grants.
- c. Research projects.
- d. Information about travel, getting settled, the administrative process.
- e. Exchange of researchers.
- f. Transfer of knowledge about the results of American research.
- g. Contacts for seeking employment.
- h. Mentoring.

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Almost all the scientific professionals interviewed for this study reported contacts with other Spanish scientists, generally in their home universities and research centers. The exchange of knowledge and cooperation between Spanish and foreign research centers is a common, but not pervasive, practice in Spain. Specifically, 41% of the people with doctorates interviewed in the Survey on Human Resources in Science and Technology (INE 2009) mentioned having cooperated with foreign research groups. This high rate of participation likely explains why Spain ranks tenth in the world in scientific production. Reducing the emigration of brains could therefore damage Spanish scientific production.

Moreover, the Spanish crisis also seems to have affected the return of scientists and workers. Analysis of the knowledge networks in this study indicated that there is a relationship between intending to return to Spain and maintaining these networks of exchange between Spain and the United States. The intensity and durability of the knowledge exchange seems to be closely correlated with the intention of returning to Spain. The networks remain in existence, in part, because one of their main purposes is to link professionals to Spain and to facilitate professionals' return and reintegration; thus, as the return to Spain is put off, the exchanges lose intensity. However, a one-sidedness to the exchange has been noted. It is almost always the person in the United States who takes the initiative to maintain the network in Spain. Furthermore, the exchange structures are fairly informal; that is, there is rarely a plan for collaboration between research centers. These two elements represent a threat to the consolidation of networks for the exchange of knowledge.

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In other words, as Spaniards settle into the American scientific structure and lose their incentive to return to Spain, the lack of formal collaboration and the one-sidedness of efforts to maintain the networks inhibit the desire for cooperation.

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