European Centre of Expertise (ECE) in the field of labour law, employment and labour market policy

Labour Market Policy Thematic Review 2018: An in-depth analysis of the emigration of skilled labour

Spain

Written by Elvira Gonzalez Gago

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Table of Contents

European Centre of Expertise (ECE) in the field of labour law, employment and labour market policy 1
1 Introduction: the demographic and labour market situation in Spain 1
2 Emigration of skilled labour 1
2.1 Migration patterns and key factors of skilled migration 4
2.2 Political and media debate on skilled workers 8
3 Emigration of skilled labour and its impact on domestic economies beyond the labour market 9
4 Emigration of skilled labour and its impact on labour market conditions 10
5 Actions undertaken by Member States to address the outflows of skilled labour . 14
6 Conclusion 16
7 Bibliography 19

1 Introduction: the demographic and labour market situation in Spain

Since 2008, several changes have occurred in the demographic and labour market situation in Spain, clearly in response to the country's economic situation. In 2009, the Spanish economy suffered an economic shock caused by the national and international economic crisis. Sound stimulus packages followed, which later shifted to fiscal consolidation. Several labour market reforms were also passed that helped moderate wages and price growth in Spain compared to the Euro area, resulting in internal devaluation. This improved Spain's competitive advantage via the reduction of unit labour costs, thereby supporting medium to long-term recovery through the consequent growth of net exports. Since 2014, the economy and the labour market have recovered, based, among other factors, on lower salaries. During this period, unemployment rose from 8.2 % in 2007 to a maximum of 26 % in 2013, falling thereafter to 19.6 % in 2016 (last figure of the 3rd quarter of 2017 is 16.8[1] %).

During the economic crisis, unemployment has mainly grown among the young who have faced higher unemployment rates than average. Average unemployment was 11.3 % in 2008, 26 % in 2013 and 19.6 % in 2016, while unemployment for 20-24 year-olds has been at 20.2 %, 51.8 % and 41.4 %, and for those aged 25-29 at 13.3 %, 33.3 % and 25.6 % (LFS, INE). Education has largely protected skilled workers (ISCED 5-8) from unemployment, but their unemployment rate also rose from 6.3 % in 2008 to 16 % in 013; in 2016, their unemployment rate was 11.7 % (which compares to the average national unemployment rate of 19.6 %).

Migration and the impact of an ageing population underpinned the demographic changes between 2008 and 2017. Total population has grown by 0.8 million from 45.7 to 46.5 million. This growth has concentrated mainly on the population over 65 (+1.3 million) and on the population under 18 (+0.3 million). In contrast, population aged 18-64 has fallen by 0.8 million[2].

Demographic projections in the near future point to a stagnation of the total population and an ageing population. Between 2017 and 2030, total population is expected to decrease from 46.5 million to 44.43 million. The share of the population aged 0-18 is expected to decrease from 18.7 % in 2017, to 17.3 % in 2025 and to 15.8 % in 2030; the share of the population aged 18-64 is also expected to decrease from 62.5 % in 2017 to 60.8 % in 2025 and to 59.5 % in 2030. In contrast, the share of the population over 65 is expected to grow from 18.8 % in 2017 to 21.9 % in 2025 and to 24.7 % in 2030. Between 2017 and 2030, a reduction of 1.6 million people of working age (18-64) is expected[3].

2 Emigration of skilled labour

Eurostat migration statistics provide an initial analysis that enables cross-country comparisons. Whereas in 2008, before the economic crisis, net migration flow to Spain (the difference between immigration and emigration) was 310 643 people (with 1 805 Spanish nationals leaving Spain and 312 446 foreign nationals entering), overall net migration from Spain between 2008 and 2015 (latest published data) was 247 712 people. During this time, net emigration of Spanish nationals was 268 692 and net immigration foreign nationals was 20 980.

[1] Seasonally adjusted. Source: Eurostat.
[2] Population Figures. INE.
[3] Demographic Projections. INE.

Foreign nationals responded much better to the economic crisis than Spanish nationals, whose reaction, particularly at the start, appears rather inelastic. The net migration flows of foreign nationals, as a share of foreign employment, has evolved from +11 % in 2008 (positive net flow) to - 11 % in 2013 (negative net flow) and turned positive again to 5.7 % in 2016. The net flow of Spanish nationals, as the percentage of employment, also increased but has stayed at very low levels throughout the period: it was -0.01 % of employed Spanish nationals in 2008 (negative net flow), reaching a peak of -0.27 % in 2013 and was still negative in 2016, although less so at -0.14 %.

Unemployment appears to be aligned with the migration figures, as shown in Figure 1. In 2013, at the worst point of the crisis, net migration flows from Spain were negative and amounted to 251 531 people, while in 2015, net migration flows were positive again, amounting to 1 761 people, in line with economic recovery.

Figure 1. Net migration flows per nationality (left bar) and unemployment rate (right bar), Spain (2008-16)

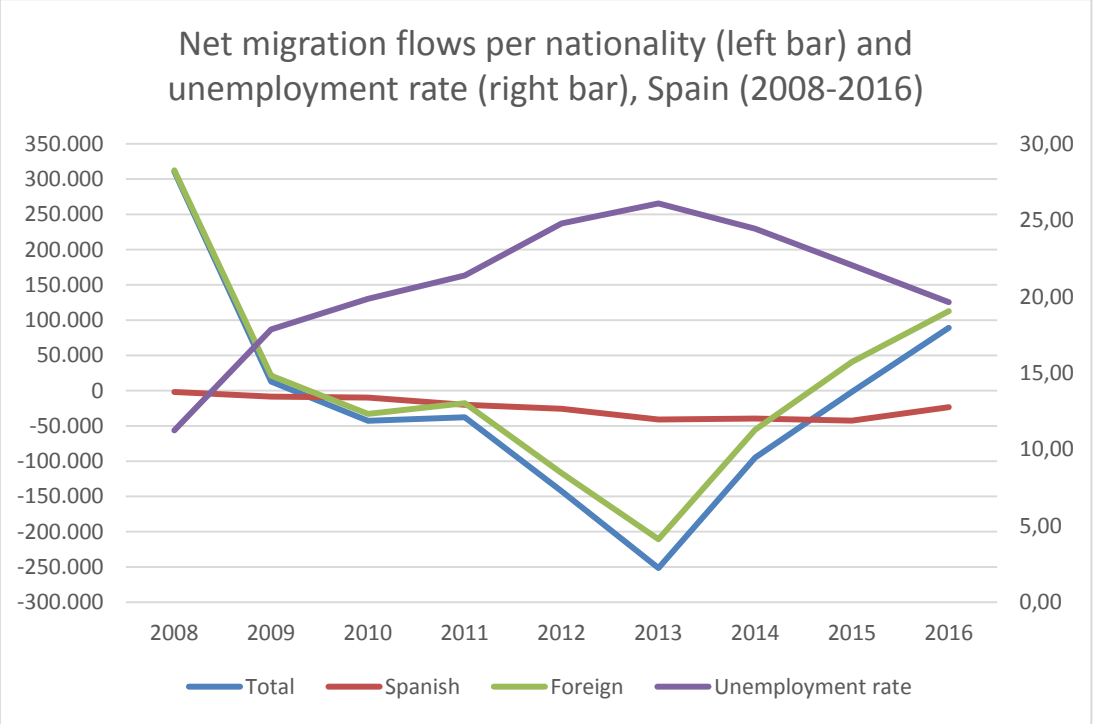
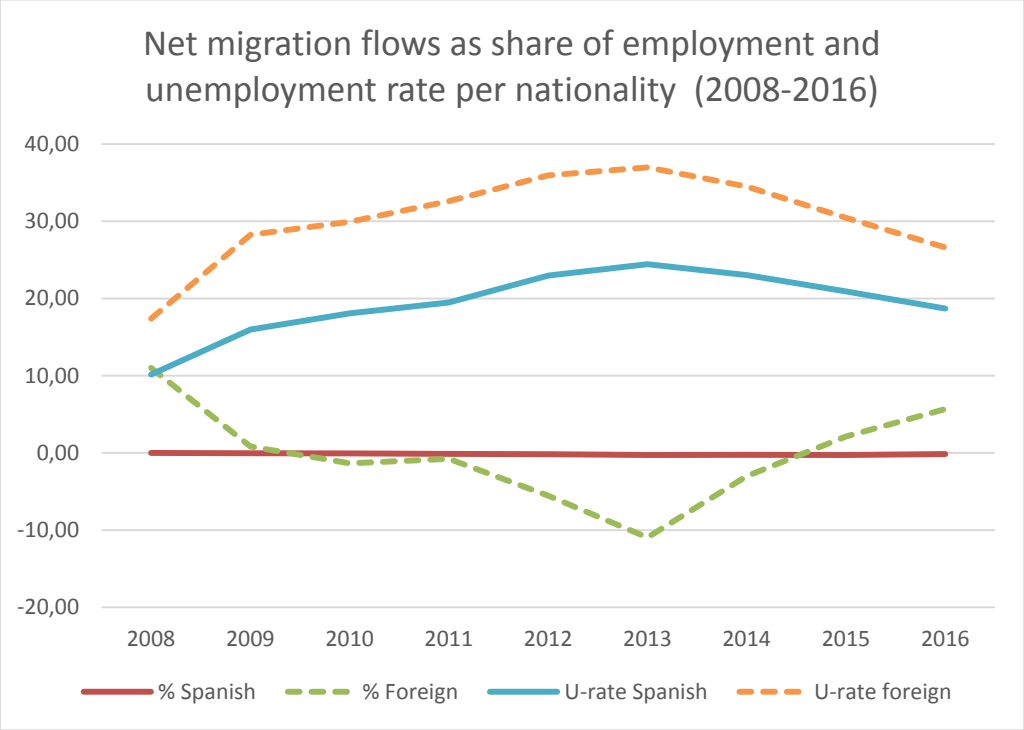


Figure 2. Net migration flows as share of employment and unemployment rate per nationality (2008-16)



Source: Eurostat Migration and citizenship data and INE, LFS.

Eurostat data on migration is not broken down by education level, **so it is not possible to directly analyse emigration of skilled labour.** In Spain, there are several sources for migration data, all published by the Spanish Statistical Institute (INE). Each source has its own limitations regarding the purpose of this study, as explained next.

The first source of information is the **Residential Variation Statistics** (RVS, *Estadística de variaciones residenciales*). This includes 'the information regarding registrations and deregistrations due to residence changes in the Municipal Registers' (INE, 2013). RVS data is broken down by sex, age, nationality and place of birth, but not by education level.

The second source is the **Statistics of Migrations** (*Estadística de Migraciones*). This source has been extended since 2008 by INE based on data from the RVS. It has one methodological limitation; while immigrants in Spain benefit from registering their residence at the municipality (with, for example, access to public education and public health systems), emigrants have no incentive to delist from the register because there are potential benefits of remaining a registered resident (Ramos and Royuela, 2016)[4].

The Statistics of Migrations shows a negative **overall net migration flow of 158 580 people between 2008 and 2016**. By nationality, the source shows a negative net migration flow of 170 770 Spanish nationals and a positive net migration flow of 12 188 foreign nationals. Data from the Statistics of Migrations are disaggregated by age, sex, nationality, country of origin and destiny, but are not

[4] Ramos and Royuela (2016), "Graduate migration in Spain: the impact of the great recession on a low mobility country". IREIA, Research Institute of Applied Economics.

broken down by education level. Therefore, this source does not provide accurate data either for brain drain research.

The third source is the new **Register of Spanish Citizens Living Abroad** (PERE, *Padrón de españoles residentes en el extranjero,* in its Spanish acronym), available since 2009. This source, published by INE, is based on data from Spaniards living abroad who register themselves on the consular post of their country of destination. This source also has some limitations. The registration for Spanish citizens by the consular post is not mandatory and is limited to the Spanish who hold official residence in the destination countries, thereby excluding those who do not hold regular residence permits. The consular posts are also geographically limited, existing only in certain important cities. It therefore looks likely that PERE underestimates the actual number of Spanish people living abroad, meaning it is not a reliable source of information. It is also not broken down by education level. PERE shows an increase of 934 920 Spanish living abroad between 2009 and 2017, from 1 471 691 in 2009 to 2 406 611 in 2017, a large part of which is surely due to the registration of Spaniards who were already living abroad in 2009.

Finally, the **Labour Force Survey** provides detailed information broken down by education level about immigrants, but not about emigrants. The use of LFS microdata does enable longitudinal analysis to identify migration trends among Spanish and foreign nationals broken down by education level, as conducted by Izquierdo et al (2015).

Against this background of limited information within official sources about emigration by educational attainment level, the existing literature provides estimates that are frequently based on primary data. For example, Ramos and Royuela (2016) conducted surveys addressed to Catalan graduates and recent Ph.D. holders[5]. Nelson (2015) has conducted interviews with high skilled Spanish emigrants. As mentioned, Izquierdo et al (2015) performed an interesting analysis based on longitudinal microdata of the LFS. The main findings about migration patterns and key factors of skilled migration are described below.

2.1 Migration patterns and key factors of skilled migration

Several factors have influenced the migration of skilled labour. The main findings are:

- **Unemployment and employment** opportunities are a key push factor for emigration of qualified workers from Spain. The presence of high youth unemployment rates over several years is linked with the phenomenon of brain drain in Spain (Ramos and Royuela 2016; Nelson, 2015[6]). Beyond unemployment, **structural precariousness of jobs** has also been highlighted by Santos Ortega (2013)[7] as the main push factor, which also existed before the crisis. The crisis therefore enhanced already existing factors for migration.

  More specifically, the differential rates of unemployment between Spain and destination countries have been highlighted as key (Izquierdo, Jimeno and

[5] The sample size is 43 530 graduated persons and 3 585 Ph.D. holders from public universities from Catalonia.

[6] Nelson, Olivia, (2015), "The Social Effects of the Spanish Brain Drain". Social Impact Research Experience (SIRE). Paper 35.

[7] Antonio Santos Ortega (2013), "Brain drain and crisis in Spain: the youth in the spotlight of employers' discourses" (*Fuga de cerebros y crisis en España: los jóvenes en el punto de mira de los discursos empresariales*). Revista Internacional de Ciencias Sociales Nº 32 / 2013

Lacuesta, 2015)[8]. For foreign nationals, according to a model created by Ramos and Rayuela (2016)[9], an increase of 10 pp in the unemployment rate in Spain drives up outflow rates of foreign nationals from Spain by 0.5 pp and a decrease of 10 pp in the unemployment rate in their birth country drives up their outflow rates from Spain by 0.4 pp. The figures estimated for Spanish nationals born in Spain are very similar, an increase in the unemployment rate of 10 pp in Spain drives up outflows from Spain by 0.6 pp.

- **Unemployment differentials between Spanish regions** are also an important factor. According to Izquierdo et al. (2015) 'Spaniards from regions with higher unemployment rates are most likely to move abroad'. However, in 2011, 29 % of Spanish migrants left from Catalonia (Migration Statistics, INE), although this region contained only 16 % of the total population (population census, INE) and a lower unemployment rate than average (Ramos and Royuela, 2016). Although unemployment is a key push factor, **education level is also positively correlated** with the propensity to emigrate (see below) and average education level is higher in more developed regions where unemployment rates tend to be lower. Average income in more developed regions is also higher and thus there is a greater probability of having higher savings to face the emigration challenge.
- A key factor is **economic conditions**. The elasticity of migrants to economic conditions (measured through the differences between the GDP per capita of the destination and of the sending country) is higher for high skilled migrants than for average migrants (Ramos and Royuela, 2016). Moreover, according to this model, the elasticity to economic conditions is higher than it is to unemployment rates.
- No evidence has been found on **how much an increase in wages** is necessary to motivate mobility into a job in another country for which one is overqualified. Earning expectations of emigrants tend to be higher than the salaries they command during the first phase of their integration in the destination country (Nelson, 2015).
- **Networks** lower migration costs and increase the success probability of migration processes (Izquierdo et al., 2015). This would explain that Spaniards have emigrated less than foreign nationals despite the similarity of their elasticities to unemployment. As stated by Izquierdo et al (2015): 'Spanish and foreign nationals show quite a similar response to unemployment developments, and the continuing low exit rates of Spaniards born in Spain can only be attributed to the nonexistence of network effects for Spanish emigrants". These networks are directly influenced by the presence of people of the same nationality in the country of destination. Networks reduce the costs of migration (as shown in for example the research made by Mackenzie and Rapoport, 2007)[10] and increase the probabilities of finding a job in the country of destination. Migration rates of foreign nationals increase when the stock of migrants in the destination country is higher. However, the same relationship

[8] Mario Izquierdo, Juan F. Jimeno and Aitor Lacuesta (2015), "Spain: From Emigration to Inmigration?". Bank of Spain. Working Paper 1503.
[9] Ramos and Royuela (2016), op cit.
[10] "Mackenzie and Rapoport (2007), Journal of Development Economics 84 (2007) 1–24, Network effects and the dynamics of migration and inequality: Theory and evidence from Mexico".

has not been found for Spanish emigrants, probably because there are not enough Spanish emigrants in destination countries to form networks (Izquierdo et al., 2015).

Before the crisis, immigrants quickly created networks in Spain. These networks help explain why during the first years of the economic crisis in Spain (2008-11), the net migration flows of foreign nationals to Spain were positive despite high unemployment (that many people expected the crisis to be shorter than it was probably also played a role). Later, the presence of networks in the countries of origin of foreign immigrants also helps explain why their net migration flows changed quickly when the crisis continued. Other factors, such as the positive economic situation in some of their countries of origin (such as some Latin America countries) also worked as a pull factor.

As networks are created with the accumulation of a stock of migrants in destination countries, it is likely that future Spanish nationals will also form migration networks, **increasing the probability of emigration in the near future**. This issue is considered in the following sections, concerning forecasts and the risk of skill shortages.

- **Education** has been identified in the literature as a key factor explaining migration flows. The current pattern of emigration has changed compared with decades ago. Highly educated people are currently more likely to emigrate than average. Between 1980 and 2010, the total stock of Spanish emigrants in OECD countries with low education level more than halved, the stock of emigrants with medium education level remained almost constant and the stock of emigrants with high education level increased at an annual pace of 3 % for men and 6 % for women (Ramos and Royuela, 2016, based on own calculations from IAB Brain Drain database[11]).

  Consequently, the share of the highly qualified among Spanish migrants living in OECD countries increased from 5 % in 1980 to 29 % in 2010. Theoretically, and as shown in other studies, accumulation of human capital seems to be a variable that encourages mobility, since it offers higher potential gains for migrants compared with less qualified workers (Venhorst et al., 2010)[12]. Spaniards with higher educational levels are more likely to emigrate than those with lower qualifications, but this relationship has weakened throughout the years of crisis and migrants departing after 2010 are younger and less highly educated. In addition, this relationship between education level and the probability of emigration is not as clear for foreign nationals (Izquierdo et al., 2015).

  Graduates with **high grades** also migrate more often than non-graduates and emigration rates are clearly higher for Ph.D. holders than for graduates (Ramos and Royuela, 2016). However, migration rates among graduate and Ph.D. holders have evolved similarly: between 2008 and 2014, both have doubled. The relationship between education and migration is to an extent explained by the fact that the accumulation of human capital usually involves a higher degree of specialisation on certain skills or on concrete fields of knowledge of

[11] Internet: http://www.iab.de/en/daten/iab-brain-drain-data.aspx

[12] Venhorst, V., J. Van Dijk and L. Van Wissen (2010), 'Do the best graduates leave the peripheral areas of the Netherlands?' *Tijdschrift voor Economische en Sociale Geografie*, **101** (5), 521-537.

the highly skilled workers. The higher the specialisation is, the narrower the jobs that match the specialisation. Few matching jobs might exist in concrete locations. Therefore, it is not surprising that Ph.D. researchers, often highly specialised in concrete fields of research, have higher rates of migration to move to the universities or research institutes that are specialised in their field.

The study also shows interesting patterns among graduates. Graduates in **experimental and technical sciences** are more likely to migrate than health graduates (particularly for men), and especially more than graduates in social sciences. This is influenced by jobs in social sciences usually demanding a greater command of the **language** of the destination country compared with jobs in technical sciences. The latter jobs usually demand tasks more related to the use of quantitative, coding and geometrical software (architects, engineers or software programmers) while social science and health jobs are more likely to require better language skills (lawyers, writing of economic reports, presentations, health consultations). **The international transferability of graduates in technical studies is higher** than the case of graduates of other disciplines because their skills are less dependent on language knowledge (de Grip et al., 2010)[13]. Indeed, a **better level of knowledge of foreign languages** is related to a higher migration for Ph.D. holders. Moreover, the probability to migrate is also higher for those **with previous mobility experiences** (Ramos and Royuela, 2016). These findings agree with the work of other authors such as Parey and Waldinger (2011)[14] and Di Pietro (2012)[15], which found a positive relationship between previous migration experiences (such as stays abroad during studies) and migration. This is explained by the language skills and capabilities to live in other cultures acquired during previous migration experiences.

The economic context impacts **scientists and workers in academia** differently than average workers. Good economic conditions, rather than causing the retention of local scientists, often provide them opportunities, such as grants, to move to other countries. As mentioned in Salgado (2016)[16]: 'in successful talent attractor countries a large proportion of foreign scientists goes hand in hand with similar proportions of outgoing national scientists'. Thus, there is a culture of mobility among scientists in advanced attractor countries, in contrast with an emigration shaped by lack of opportunities in their home countries. This culture has evolved, reaching a state defined as brain circulation, as opposed to brain drain (Johnson J and Regets M., 1998)[17].

[13] de Grip, A., D. Fouarge, J. Sauermann (2010), 'What affects international migration of European science and engineering graduates?', *Economics of Innovation and New Technology*, 19 (5), 407-421.
[14] Parey, M. and F. Waldinger (2011), 'Studying Abroad and the Effect on International Labour Market Mobility: Evidence from the Introduction of ERASMUS', *Economic Journal*, 121 (551), 194-222.
[15] Di Pietro, G. (2012), 'Does studying abroad cause international labor mobility? Evidence from Italy', *Economics Letters*, 117 (3), pp. 632-635.
[16] Jesús Salgado (2016), "Brain drain / brain gain (with a focus on Spain)" – Biophysics Magazine by SBE - Sociedad de Biofísica de España. May-Aug 20.
[17] Johnson J, Regets M. (1998), "International Mobility of Scientists and Engineers to the United States: Brain Drain or Brain Circulation". National Science Foundation (NSF 98-316), 1998.

Indeed, 92 % of Spanish born scientists were working in Spain and only 8 % of them abroad (GlobSci survey, 2012, shown in Salgado, 2016). Within Spain, 93 % of scientists were Spanish nationals and 7 % foreign. The share of national German scientists working abroad or the share of national UK scientists working abroad was three times higher than the figure for Spanish scientists working abroad (23 % and 25 %, respectively), while the share of foreign scientists working in Germany or in the UK was also greater than the share of foreign scientists working in Spain, at 23 % and 33 % of scientists, respectively.

- Emotional motivations are linked to the 'excitement about the idea of starting a new life in another place, and learning as much as possible about other parts of the world and its people' (Nelson, 2015) and can be an additional push factor. However, similar motivations often play the opposite role. Beyond language barriers, cultural differences, the importance of the family and the psychological effects of living abroad reduce the incentives to leave the country despite high unemployment rates (Gonzalez-Gago and Segales, 2013).

2.2 Political and media debate on skilled workers

The issue of emigration of skilled labour was the subject of **political and media debate**, mainly at the peak of the crisis. But focus on this topic has waned as the unemployment rate falls and the population believe in the prospect of recovery. In the main opinion barometer of Spain, conducted by CIS (Centre of Sociologic Research, *Centro de Investigaciones Sociológicas*) in June 2017, emigration was considered Spain's main problem by only 0.1 % of respondents (0.1 % of respondents considered it the second main problem and 0.1 % the third main problem).

During the worst years of the economic crisis, the issue of emigration of skilled labour was often mentioned in the media from a dramatic point of view. As stated by Nelson (2015), 'the Spanish brain drain is often painted in a negative light, especially when said to be a direct effect of Spain's high youth unemployment rate'. There were frequent comments about brain drain in the media, although with no consensus about its precise meaning (whether it referred to the emigration of leading scientists, of young people with a tertiary degree or to talented people in general) or about the magnitude of the phenomenon (Moreno-Torres, 2017). The severity of the Spanish crisis, plus the lack of confidence in a significant recovery, probably made society more sensitive to the phenomenon of brain drain, generating social alarm to an extent. The approach adopted by the media was often emotive and without critical reasoning, preventing a constructive public debate about the development of economic policies to improve the labour market situation of the young (Santos Ortega, 2013).

A specific debate took place concerning migration of researchers, which raised alarms within academic circles. In December 2012, 50 university rectors warned the government about 'the damage to public R&D will be irreversible (…) leaving thousands of young researchers without professional prospects and seriously weakening the future of the Spanish economy' if budget cuts in education continued (Moreno Torres, 2017). In response, the Spanish government frequently pointed to the positive side of this phenomenon, mentioning that there was confusion between brain drain and labour mobility. However, the opinion among members of the

government was divided and there was criticism from certain representatives[18] (Moreno-Torres, 2017). Business associations and corporations have also sometimes regarded the issue of brain drain positively, as 'labour mobility' or 'talent mobility' (Santos Ortega, 2013), although in certain cases they admitted that the emigration of young people, particularly of young qualified people, may have a long-term negative impact on competitiveness. Trade unions have focused on high unemployment, precariousness and labour market reforms, rather than on emigration. However, their view on emigration has been mainly negative, expressing concern for the 'exiled workers' (Moreno-Torres, 2017).

3 Emigration of skilled labour and its impact on domestic economies beyond the labour market

It is difficult to accurately estimate the impact of emigration of skilled labour on domestic economies since accurate data are not available within official sources. Although no data disaggregated by education level are available, the small number of Spanish nationals having migrated (regardless of their education rate), as described above, leads to the presumption that the impact of emigration of skilled labour on the domestic economy has been very low.

Several findings in the literature are worth mentioning here. These findings suggest both the positive and negative impacts of emigration of skilled labour.

Long-term gains of brain drain for Spain have been highlighted, mainly pointing to the improvement of the quality of human capital (Nelson, 2015), the incentives to acquire education (Batista, Lacuesta and Vicente, 2012)[19], remittance flows (Hanson and Woodruf, 2003)[20], or the creation of scientific networks (Kapur, 2010)[21]. These effects are likely to have positive impact on innovation. However, most of these positive effects have been traditionally detected for developing countries and further research is needed to ensure that they also apply to Spain (Izquierdo et al., 2015).

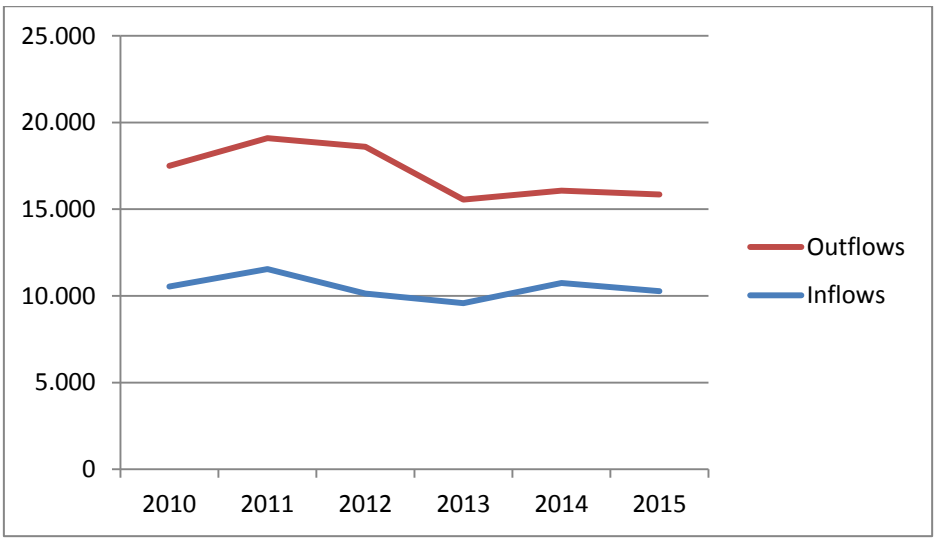
No significant positive or negative impacts on GDP have been accounted for or highlighted. However, there was concern that emigration flows affected negatively the potential output of the Spanish economy if they persisted, due to its negative effects on intangible assets, such as innovation and knowledge diffusion, which play a key role in economic growth and competitiveness (Moreno-Torres, 2017). Since migration flows have been limited and have eventually come to an end, this risk can also be disregarded.

Theoretically, emigration of labour, particularly of skilled labour (with average higher salaries) can contribute to **increased inflow remittances**. Nelson (2015) states that most of the Spanish emigrants (high skilled) interviewed in her research mentioned that they send a portion of their earnings back home to support their families and friends. However, the data for Spain on remittances from the World Bank do not show significant changes in inflow remittances between 2010 and 2015. In contrast, a

[18] For example, the Secretary of State for Research, Development and Innovation, Mrs Carmen Vela, declared in September 2013 that the Government was aware of the difficulties that Spain would suffer in the future if the loss of talent was not controlled.
[19] Batista, C., A. Lacuesta And P. Vicente (2012), "Testing the 'brain gain' hypothesis: microevidence from Cape Verde", *Journal of Development Economics, 97,* 32–45.
[20] Hanson, G. And C. Woodruff (2003), *Emigration and Educational Attainment in Mexico*, mimeo, UCSD.
[21] Kapur, D. (2010), *Diaspora, Democracy and Development*, Princeton University Press, 2010.

decrease of outflow remittances is observed between 2011 and 2013, in line with the emigration of foreign nationals. Between 2010 and 2015, net remittances fell from EUR 5 799 million to EUR 4 645 million (a net increase of EUR 1 182 million). This figure equals around 0.1 % of Spanish GDP, so its macroeconomic impact was moderate.

Figure 3. Inflow and outflow remittances, Spain, 2010-15.



Source: World Bank. Bilateral Remittances Matrix.

No evidence has been found in the literature regarding the **impact of brain drain on the sustainability of the social security system** during the economic crisis. Again, given the small number of migrants, arguably, this impact has been small or even nil. When unemployment was high, if migrants had stayed in the country they would probably not have been employed and not paid social security contributions. It is worth noting the potential long-term impact on the sustainability of the social security system, given the ageing population context. There could have been severe impact if negative migration flows had been prolonged, if young people predominated in emigration and if emigrants remained in the countries of destination instead of returning. This would have increased the dependency ratio of the pension system, augmenting the fiscal pressure on taxpayers to maintain pensions at its current level. This situation could also easily increase the public debt worsening fiscal problems. In the long-term, emigration of skilled labour involves a country investing in education but no fiscal income is generated for that country by the educated skilled worker (Moreno-Torres, 2017).

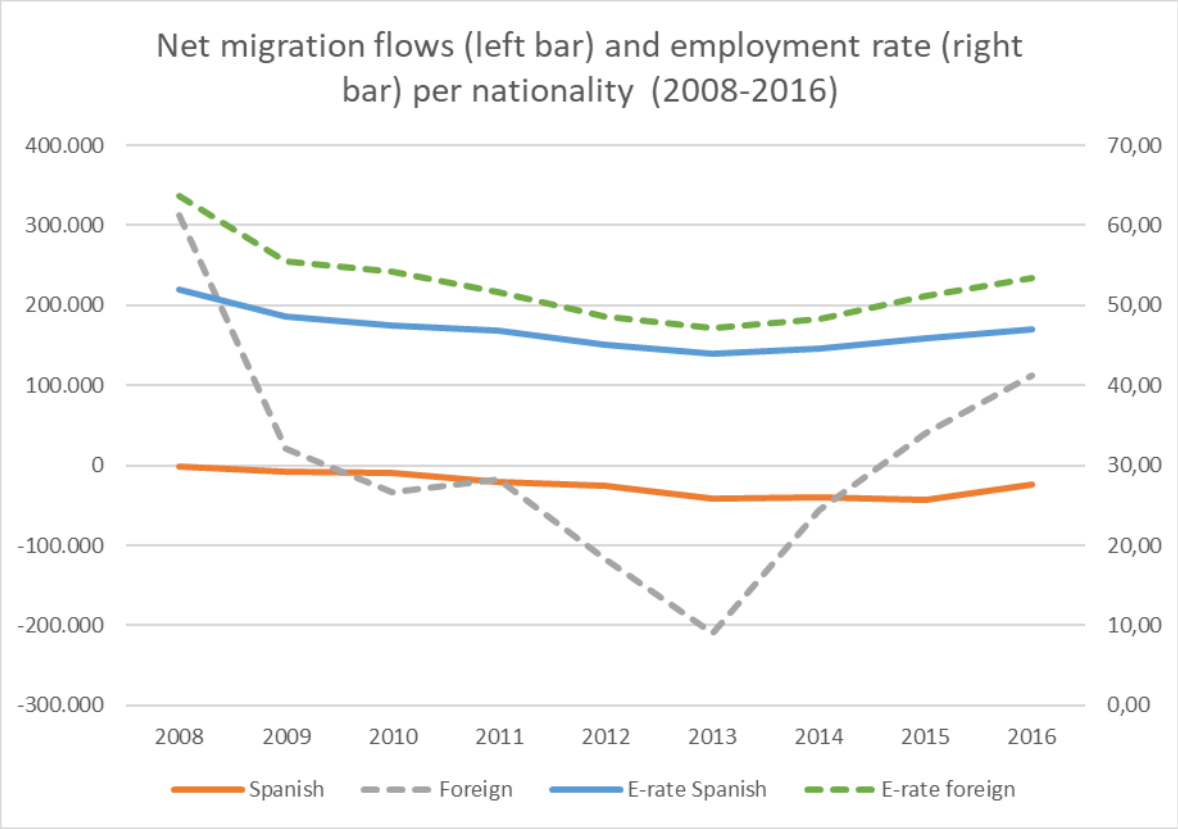
4 Emigration of skilled labour and its impact on labour market conditions

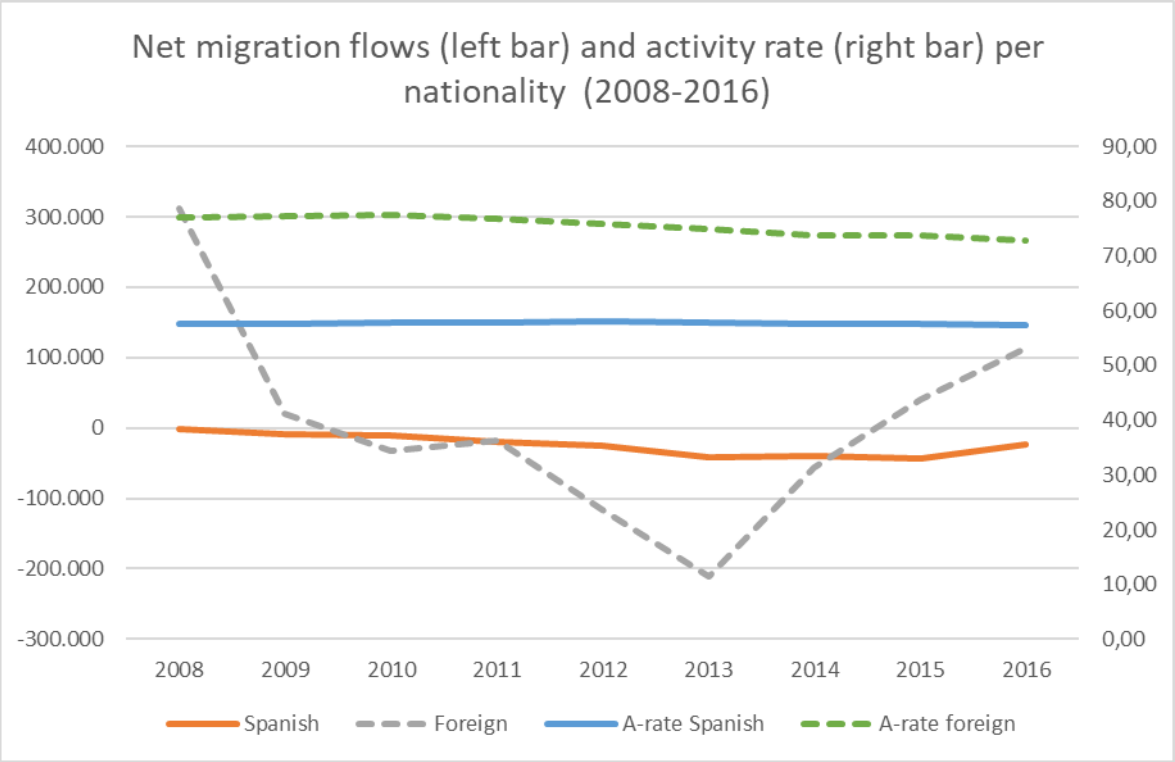
It is difficult to assess accurately the impact of skilled labour emigration on unemployment, employment and inactivity rates considering the scarcity of migration figures broken down by education level. The following charts illustrate the evolution of net migration flows (irrespective of their level of education) and the employment and activity rate by nationality. Given the very low share of net migration flows as a percentage of employment among Spanish nationals described in section 2 (which reached a maximum peak of 0.3 % of employment of Spanish nationals in 2013), the impact of Spanish migration on unemployment, employment and activity rate has been very low indeed. Although no data disaggregated by education level are

available, it can be assumed that the impact of emigration of skilled labour on unemployment, employment and inactivity rates has been negligible.

As argued above, the responsiveness of foreign nationals has been much larger, with emigration flows equal to up to 11 % of foreign employment in 2013, but no detail for skilled foreign nationals is available. As shown in Figure 2 above, the unemployment rate among foreign nationals is highly correlated with their net migration flows, so that it can be argued that outflows of foreign migrants may have contributed to a lower unemployment rate than if they had stayed. In Figure 4 below, the employment and activity rate for foreign nationals are displayed, showing a decrease of around 10 pp and 5 pp respectively during that time. Whereas the foreign employment rate could have been affected negatively by the outflow of foreign nationals, particularly in 2012-14, the decrease in the activity rate appears quite unconnected.

Figure 4. Net migration flows and employment and activity rates per nationality (2008-16)





Source: INE, Migration statistics and LFS

It is unlikely, therefore, that emigration of skilled workers has significantly impacted skills shortages in Spain. Apart from the limited amount in absolute and relative terms, the **general abundance and availability of skilled labour** has compensated for potential skilled labour shortages. Indeed, although much lower than average, the unemployment rate for skilled workers in Spain has been high during the hardest years of the crisis and even during the current economic recovery phase.

According to Eurostat, the unemployment rate among skilled workers (ISCED 5-8) was 11.7 %, which compares to 5.1 % in EU-28 (and with an average of 19.6 % and 8.6 %, respectively). Moreover, an important share of high skilled workers has been **employed below their qualification level** (22.4 % of employed workers (OECD, 2015))[22] and Spain also has the highest share (37 %) of tertiary graduates working in occupations considered as not requiring university education[23] (EC, 2017). Finally, the **economic recovery has already reversed migration trends:** in 2016, the Migration Statistics showed a positive net migration flow of 89 127 persons, composed of 112 666 foreign nationals' inflow and 23 540 Spanish nationals' outflow. This latter figure is almost half the record in 2015 of 42 535 Spaniards.

Literature includes many **warnings about the potential risk of skill shortages**. These warnings were mainly issued in a context of the economic crisis, which seems to have been overcome. In 2015, Izquierdo et al (2015) warned against 'the possibility of **network effects** coming into play for Spanish emigrants and of many outflows becoming permanent is a potential threat to Spanish economic output', stating also

[22] OECD Statistics. Qualification mismatch arises when workers have an educational attainment that is higher or lower than that required by their job. If their education level is higher than that required by their job, workers are classified as over-qualified; if the opposite is true, they are classified as underqualified.

[23] 37 % of tertiary graduates worked in occupations classified under ISCO categories 4-9 (EU: 23 %), considered by ILO (2007) as not requiring a tertiary degree (LFS).

that 'the possibility of the start of a significant brain drain, which could exacerbate the effects of the crisis on potential output if it were to last too long'. Gonzalez-Gago and Segales (2013) also warned about the risk that emigration, combined with negative demographic trends (the reduction in the number of people aged between 15 and 34) **could undermine the potential for economic growth** long-term. Nelson (2015) also mentioned the possibility of imbalances of labour supply in the future, **pointing to the risk of skill shortages**.

Shortages in specific sectors and occupations have been reported. One example is the emigration of world-leading scientists, due to the lack of opportunities to continue their research in the country, eroding the scientific base. This is not clear-cut, since most developed countries have a higher share of scientists living abroad than Spain, but this emigration also needs to be compensated by immigration of high skilled scientists. In other sectors, skills shortages have been reported in education and human health, specifically in the occupations of secondary school teachers, nurses and doctors (Moreno-Torres, 2017).

The conclusion of the data analysis is that **the impact of skilled migration on the economic output, the innovation potential and the labour market has probably been low**. Should the economic recovery continue as expected, the risks of labour market shortages *due to brain drain* will be much lower than previously thought. Conversely, the learning of new skills, competencies and capabilities from working experiences in other countries could positively affect skills provision (Nelson, 2015). This improvement of human capital and international experience has a positive impact on the employability of emigrants when they return. Cosmopolitanism, or the willingness to experience different cultures, is a plus when hiring (Mol et. al, 2009)[24].

There are also cultural benefits to exposure to other cultures, which improve personal capabilities and cultural sensitivity and intelligence (Nelson, 2015, Crowne, 2013). It is therefore more likely that emigration has helped reduce the high unemployment rate at home recently through a reduction of the active population, although, as mentioned, to a limited degree. It is also likely that emigration has contributed to the preservation of skills among skilled emigrants as well as the acquisition of new ones. If they had stayed in the country, they may have experienced a loss in human capital through being unemployed.

Networks have developed with the growth of the stock of Spanish migrants abroad. This network effect, if combined with weak and sluggish labour market conditions, could boost brain drain in the future (Moreno-Torres, 2017). Similarly, the probability to bring high skilled emigrants back to Spain without an improvement of the labour market situation and conditions is low (Gonzalez-Gago and Segales, 2013). The migrations statistics show an accumulated outflow of about 200 000-250 000 Spanish nationals (accumulated inflow of about 50 000 foreign nationals). Therefore, if economic recovery does not generate an **improvement of working conditions**, the risk for brain drain could be real. The labour market is recovering, but continued wage moderation and labour market segmentation, often involving poor working conditions, remain important features of the Spanish labour market. If labour conditions do not start improving, then emigration of skilled workers would not be motivated by high unemployment, but by pull factors as the differential in labour conditions (wage levels

[24] Mol, S.T., M.P. Born, M.E. Willemsen, H.T. van der Molen, and E. Derous. (2009) When selection ratios are high: predicting the expatriation willingness of prospective domestic entry level job applicants. *Human Performance*, 22 (1): 1-22.

and working conditions) together with the availability of networks in destination countries that reduce migration costs and increase the probabilities of success for migrants.

No recent evidence has been found on the **effects of brain drain on wages** in Spain. Most studies highlight that emigration usually increases wages in sending countries due to a reduction in labour supply. But, short-term, this effect tends to focus on high skilled workers who have not emigrated and have skills similar to those of emigrants, who see their salaries increase due to skill shortages. In contrast, non-emigrants with different (complementary) skills may lose in wage terms. Long-term, a general reduction in wages might occur as a result of brain drain due to productivity loses (Elsner, 2015)[25]. Skill shortages following brain drain do not seem to have occurred in Spain in general terms, although exceptions in certain occupations could have taken place. Accordingly, its impact on wages must have been limited. The increase of wages in the occupations of 'Technicians and scientific professionals' and 'Workers in human health and care' was lower than average between 2008 and 2015[26] (1.2 % and 0.6 % in nominal terms compared to 5.6 % average respectively). It could be argued instead that austerity policies, i.e. reduction of budget in R&D activities and public health and care, are behind this evolution.

In summary, the impact of skilled emigration on labour market conditions, including skills shortages, has presumably been low. Since skilled labour was available in Spain despite emigration, it is difficult to argue that the competitiveness of the country has been affected. It is much more likely that emigration has helped moderate the reduction of wages through a reduction of idle labour supply. A further issue is that **under-qualification of employed workers** in Spain, which was 19.2 % in 2015[27], co-exists with over-qualification, at a rate of 22.4 % in the same year. The contrast among both figures responds to skills mismatches, to the scarcity of qualified workers in certain areas and to the lack of capacity of the education system in some fields to provide the skills needed by the labour market.

5 Actions undertaken by Member States to address the outflows of skilled labour

There is no general strategy to address the outflows of skilled labour or to promote the return of emigrants, although strategies and plans do exist at regional and local level. Also various initiatives have been launched in the last few years to promote mobility and emigration of young workers to third countries. These initiatives can be found in several ESF 2014-20 regional Operational Programmes and in actions within the Youth Guarantee Framework, such as Integral Program for Qualification and Employment (*Programa Integral de Cualificación y Empleo, PICE*) of the Chambers of Commerce.

The Ministry of Employment and Social Security edits the **Guide for Coming Back** (*Guía de Retorno*)[28]. This extensive guide is written for Spanish people living abroad who are considering returning or have just returned to Spain. It provides **general**

[25] Benjamin Elsner (2015), "Does emigration increase the wages of non-emigrants in sending countries?" IZA World of Labor 2015: 208

[26] INE, Earnings Structure Survey

[27] Source: OECD. Underqualification refers to workers with a lower education level than the required by their job.

[28] This guide is available at: www.ciudadaniaexterior.empleo.gob.es/es/pdf/guia-retorno.pdf

information on different areas: residence, moving of furniture or vehicles, updating legal documents issued in their countries of residence (such as marriage, driving license, etc.), pensions, unemployment benefit, validation of education diplomas acquired in foreign countries, as well as guidance on bureaucratic procedures to access the Spanish welfare state once they return (education, healthcare, dependency care, care for the elderly, etc.).

The guide also includes information about **support measures for the Spanish emigrants who return to Spain**. For example, returned workers can enjoy the contributory unemployment benefit once they return if they have worked at least 360 days anywhere in the previous six years. There is also a specific subsidy for returned emigrants[29] who have worked at least 12 months in countries other than the EU, EES, Australia or Switzerland, or any other country with agreements with Spain on unemployment benefit. The subsidy requires registering at the PES for at least one month and the income of the recipient must be below a certain threshold (EUR 530.78 per month in 2017). This subsidy can be extended to workers over 55 years old under certain conditions.

There is also a **specific income support scheme** to respond to situations of extraordinary need of returned persons[30]. This scheme was approved in 2007, before the emigration trends described in this report began. This scheme funds extraordinary expenditures as a consequence of returning to Spain and is delivered to former emigrants if they can prove lack of resources. The support is limited to Spaniards who have lived abroad continuously for at least five years and must be applied in the nine months after return. The Social Services or Provincial Delegations of the Ministry of Employment and Social Security are responsible for the programme. This extraordinary income support is limited to EUR 6 454.03.

There are other income schemes that also pay special attention to returned emigrants. RAI (Active Income for Insertion (Renta Activa de Inserción))[31] is an income scheme conceived for unemployed people no longer entitled to contributory unemployment benefit in situations of need. Among potential beneficiaries, the income considers returned emigrants. RAI provides EUR 426 per month during 11 months to emigrants that have returned in the 12 months before the application, have worked at least six months abroad and are over 45 years old. The income can be received for three years.

In reality, these measures are social inclusion measures for people living in or at-risk-of poverty who have worked abroad and returned to Spain. They do not aim to promote the return of emigrants but to avoid the risk of poverty of returned emigrants. Other initiatives also exist at regional and local level, targeted at the return of migrants.

[29] Source: National PES (SEPE). Internet: https://www.sepe.es/contenidos/personas/prestaciones/quiero_cobrar_paro/subsidio_para_emigrantes_retornados.html

[30] Royal Decree 1493/2007, of 12 November, that approves the norms of support to attend extraordinary needs of returned persons (Real Decreto 1493/2007, de 12 de noviembre, por el que se aprueban las normas reguladoras de la concesión directa de ayudas destinadas a atender las situaciones de extraordinaria necesidad de los españoles retornados).

[31] Royal Decree 1369/2006, of 24 November, that regulates the active income for insertion for unemployed with special economic needs and difficulties to find a job (Real Decreto 1369/2006, de 24 de noviembre, por el que se regula el programa de renta activa de inserción para desempleados con especiales necesidades económicas y dificultad para encontrar empleo).

At regional level, the government of Madrid Region is currently developing a **Strategy of Support to Emigrants and their Return to Madrid Region 2017-20** (*Estrategia de Apoyo a la Emigración y al Retorno Comunidad de Madrid 2017-20*)[32]. The strategy aims to facilitate the provision of information for those who have returned, promote integration, employability, social and labour insertion, health and improve the knowledge and research about emigration and the situation of those returning. As mentioned, the strategy is currently at development stage and is open to public consultation and participation before approval.

One example at local level is the **Plan for Return of Talent** (*Plan de Retorno del Talento*) **of Valladolid City Council**. This is part of the Local Employment Plan and aims to facilitate the return and labour market insertion of skilled people with personal links to the city of Valladolid. The plan includes economic support for returned entrepreneurs who start-up new economic activities in the city that promote local and social development. The plan also supports research and development institutions, companies and entrepreneurs that hire qualified professionals who are living in foreign countries and regions to be employed in innovation, internationalisation, circular economy, culture and creativity industries or research projects. The plan also includes support for potential return costs, such as learning Spanish for relatives who accompany the returner, travel expenditures or provisional housing. The plan has a budget of EUR 720 000 for 2017-18[33]. The actions above do not include any involvement by non-governmental stakeholders, particularly Social Partners.

6 Conclusion

Official data on brain drain are scarce in Spain. Existing migration statistics do not include data on migration broken down by education level. Only the exploitation of longitudinal LFS microdata and the use of primary sources, as produced by some researchers, have shed light on the phenomenon. The lack of information is related to the lack of incentives for emigrants to report their situation. Government can therefore improve the system for data collection by creating an adequate system of incentives. Telecommunication companies, banks and internet service providers (such as Google) also currently hold accurate information on migration trends. Cooperation with these entities could clarify existing data, although privacy issues need to be considered. There is also a share of migrants who currently live in several countries during the year, making it wrong to say that the person is living in one country only.

General **migration patterns (of workers of all education levels) have fluctuated in line with the economic situation**. The economic crisis and unemployment pushed emigration flows up until economic recovery arrived. In 2016, a positive net migration flow was registered by the Statistics of Migrations after six years of negative migration flows. **Unemployment seems to be the main factor** that explains migration, although it is not the only one. **Network effects** play a role in reducing the costs of migration and increasing the probabilities of a successful migration. In Spain, network effects help explain the migration differences between foreign and Spanish nationals. Specifically, network effects have played an important role in attracting foreign migrants to Spain during the first phase of the crisis, in boosting the emigration of foreigners during the hardest years of crisis; and the lack

[32] More information at: https://participa.madrid.org/content/estrategia-apoyo-emigracion-al-retorno-comunidad-madrid-2017-2020

[33] Source: Local Bulletin of Valladolid, 22nd of May of 2017 Internet: https://bop.sede.diputaciondevalladolid.es/boletines/2017/mayo/22/BOPVA-A-2017-02170.pdf) and http://www.valladolidadelante.es/node/12318.

of networks in destination countries has limited the emigration of Spanish people to third countries.

A **change of emigration pattern regarding education** is clear over the past three decades. The share of highly qualified people among Spanish migrants living in OECD countries increased from 5 % in 1980 to 29 % in 2010. There are several factors behind this change, including that expected wages in destination countries for educated workers were higher, creating the incentive to migrate. However, increasing mobility has also been recorded among skilled workers in all developed economies. During the first years of the crisis, the most qualified workers migrated more (Ramos and Royuela, 2016, Izquierdo et al, 2015), although from 2010 onwards, emigrants were younger and less qualified (Izquierdo et al, 2015).

It can therefore be stated that there has not been substantial emigration of qualified workers over the past few years and that the relatively small outflow has not substantially threatened the competitiveness of the Spanish economy. One reason is the relative abundance of a qualified population in Spain, as unemployment for workers with high education has remained high during the whole crisis. Skills shortages could have developed in certain specialised occupations, such as doctors, nurses or teachers.

Acknowledging these shortages, the conclusion of the data analysis is that the impact of skilled migration on the economic output, the innovation potential and the labour market has probably been low. Should the economic recovery continue as expected, the risks of labour market shortages *due to brain drain* will be much lower than predicted several years ago. Quite the opposite, the potential improvement of skills and cultural intelligence that may have occurred among skilled emigrants due to their professional and personal experiences abroad would largely offset the impact on skills shortages, if they return to Spain.

Although no evidence for massive brain drain has been found, **society and media debates have highlighted serious concern about the issue**. There are several reasons for this mismatch, such as the lack of expectations for recovery during the hardest years of the crisis, the general preoccupation for the evolution of the Spanish economy by then, or the possibility that a high share of Spanish educated migrants felt pushed to leave the country against their will during strong pressure on economic governance and perceived lack of opportunities at home. No significant measures have been adopted to prevent brain drain; instead, actions to promote mobility were more frequent. However, in the last months, because of economic recovery, initiatives to promote the return of migrants have been found at the regional and local level.

Brain drain plays a limited role in a broader **context of macroeconomic and social challenges for Spain**. The internal devaluation strategy adopted since 2010 has generated a new pattern of growth, resulting in positive net exports, in contrast with the high external deficit that existed before the crisis, although at high social cost with precarious employment following the devaluation strategy.

The competitiveness of the new model is largely based on lower salaries. But lower salaries and precarious labour conditions incentivise brain drain, which in turn may erode competitiveness long-term and damage net exports. The combination of the absence of networks, lack of language competences, the attachment of part of the Spanish society to their culture, language, families and friends, and the abundance of high skilled labour has probably prevented massive loss of talent and thus of competitiveness in an age of free movement of workers. However, once a certain stock of Spanish migrants accumulates in destination countries, network effects could

begin to work. If labour market conditions do not improve along with the economic recovery and if labour precariousness remains a major feature of the Spanish labour market, there could be a higher risk that brain drain actually occurs.

A sustainable macroeconomic growth strategy for Spain requires increasing wages and improving labour conditions to retain talent and enabling a competitive economy, while keeping the current account balanced.

A final comment relates to the progressive development of ICT and the implementation of telework that could shape a different scenario in the coming years. Many skilled occupations can be performed remotely with a computer located anywhere, creating dispersed teams across space and possibly changing the future rules of the brain drain game.

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