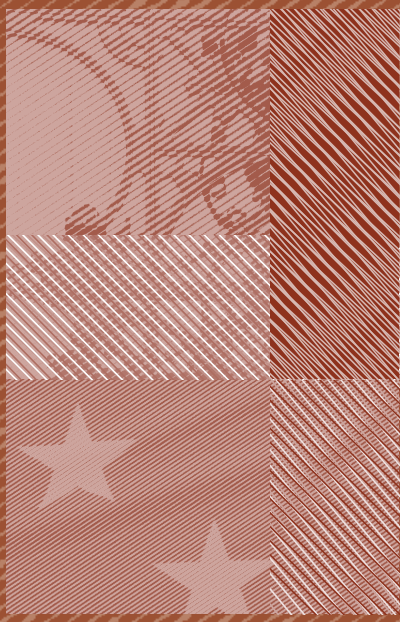
SPAIN: FROM IMMIGRATION TO EMIGRATION?

2015

Mario Izquierdo, Juan F. Jimeno
and Aitor Lacuesta



Documentos de Trabajo
N.º 1503

BANCO DE **ESPAÑA**
Eurosistema

SPAIN: FROM IMMIGRATION TO EMIGRATION?

SPAIN: FROM IMMIGRATION TO EMIGRATION?

Mario Izquierdo, Juan F. Jimeno and Aitor Lacuesta

BANCO DE ESPAÑA

Documentos de Trabajo. N.º 1503
2015

The Working Paper Series seeks to disseminate original research in economics and finance. All papers have been anonymously refereed. By publishing these papers, the Banco de España aims to contribute to economic analysis and, in particular, to knowledge of the Spanish economy and its international environment.

The opinions and analyses in the Working Paper Series are the responsibility of the authors and, therefore, do not necessarily coincide with those of the Banco de España or the Eurosystem.

The Banco de España disseminates its main reports and most of its publications via the Internet at the following website: http://www.bde.es.

Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

© BANCO DE ESPAÑA, Madrid, 2015

ISSN: 1579-8666 (on line)

Abstract

Since the start of the Great Recession the unemployment rate in Spain has risen by almost 18 percentage points. The unemployment crisis is affecting all population groups, including the more highly educated; but it is even more acute for the foreign population, whose unemployment rate is close to 40%. This situation follows a period of very high immigration flows (1995-2007) that set the number of foreigners living in Spain at 11% of the population. This paper documents the characteristics of recent migration flows to Spain and compares how foreign and Spanish nationals are moving abroad and across Spanish regions in response to the unemployment crisis. Building on this comparison, we shed some light on the selection of migrants by educational level and offer conjecture as to the implications of the migration outflows observed in recent years.

Keywords: migration inflows and outflows, unemployment, educational selection of migrants.

JEL Classification: F22, J64, J61.

Resumen

Desde el inicio de la Gran Recesión la tasa de desempleo en España ha aumentado en casi 18 puntos porcentuales. El aumento del desempleo está afectando a todos los grupos de población, incluyendo a los individuos de mayor nivel educativo y, en mayor medida, a la población extranjera, cuya tasa de desempleo es de alrededor del 40 %. Esta situación se ha producido después de un período en el que tuvieron lugar flujos de inmigración muy elevados (1995-2007) que llevaron a la población extranjera residente en España a alcanzar el 11 % de la población total. En este artículo se documentan las características de los flujos migratorios recientes observados en España y se analiza el modo en que la población extranjera, en relación con la población española, está cambiando sus pautas migratorias en respuesta al aumento del desempleo. Con base en esta comparación, se extraen algunas conclusiones acerca de la composición de la población emigrante española por nivel educativo y se conjeturan algunas de sus implicaciones.

Palabras clave: flujos de inmigración y emigración, desempleo, composición de la emigración por nivel educativo.

Códigos JEL: F22, J64, J61.

1 Introduction

The effect of the crisis on migration flows has been remarkable in the EU. According to Eurostat net migration flows to the EU countries close to 1.5 million until 2008, decreased to 700.000 in the years 2009-2011. In the last two year aggregate net migration flows have regained pre-crisis levels but still half of the countries of the EU present net outflows in 2013 (Bulgaria, Czech Republic, Estonia, Ireland, Greece, Spain, Croatia, Cyprus, Latvia, Letonia, Poland, Portugal and Romania). Those changes shape the EUROPOP 2013 population projections that will affect potential output in the future. This paper analyzes the case of Spain, a country that received huge immigration flows during the period 1995-2007 and nowadays has decreasing population through migration.

In the years previous to the Great Recession, Spain received massive migration inflows: an average of 1.4% of its total domestic population each year between 2000 and 2007. In fact, these inflows continued during the first phase of the crisis, at a rate of around 1.2% of the total domestic population per year in the period 2008-2010. By contrast, migration outflows were negligible in the period 2000-2007, and only increased to 0.4% of the total domestic population as an annual average in the period 2008-2010. More recently, there have been remarkable changes: in 2012 inflows fell to 0.8% and outflows rose to 1.2% of the domestic population.

The immigration flows of the expansionary period significantly changed the composition of the Spanish population: by January 2013, foreign nationals amounted to 11.7% and Spanish citizens born abroad to more than 3.3% (see Table 1). The foreign population in Spain is mostly from other EU countries, Latin America and North Africa.[1] Compared to the national population, the foreign population is younger, with a higher share of male workers (see Table 2). Educational levels of foreign nationals largely depend on their country of origin, with the current mix of nationalities yielding an average educational level among immigrants below that of Spanish nationals.

The effects of the Great Recession on the Spanish labour market have also been remarkable. Since 2008 Q1 employment has fallen by almost 18.5%. The average unemployment rate peaked at 26.9% at the beginning of 2013, but unemployment is much higher among the young (over 55%) and the immigrant population (almost 40%). The increase in the unemployment rate has been quite general, affecting all regions and population groups, even those with high educational levels and skills (see Chart 1).

Accordingly, given the high share of recent immigrants and the high unemployment rates for all population groups, it seems likely that Spain is in transition from massive immigration to vast emigration, although the heterogeneity difference in migration costs would definitely affect the composition of migration outflows. In any event, this seems to provide a suitable context to test some of the existing theories about migration, both in respect of return migration and the importance of pull factors on emigration by nationals, which at least in the

1. By country, the figures in 2013 were: Romania (868.6 thousand), Morocco (787 thousand), UK (383.1 thousand), Ecuador (262.2 thousand), Colombia (221.3 thousand), Italy (192.1 thousand), Germany (181.3 thousand), China (180.6 thousand), Bolivia (172.4 thousand), Bulgaria (168.6 thousand), Portugal (128.8 thousand), France (117.5 thousand), Peru (109.7 thousand), Argentina (97.5 thousand), Dominican Republic (91.1 thousand), Brazil (91.1 thousand), Ukraine (88.9 thousand), Paraguay (82.6 thousand) Pakistan (80.7 thousand), Poland (79 thousand).

case of advanced economies is not well documented in the economic literature. Several questions may be addressed in this context. What is the propensity to migrate abroad among recent immigrants and nationals in a severe unemployment crisis? Are the elasticities of migration outflows with respect to unemployment different in a recession from those of migration inflows in an expansion? Is the selection of migrants by educational levels different between the foreign and the domestic population in such a context?

To address these questions this paper builds on the description of migration inflows and outflows in Spain during the Great Recession. We use our findings to draw some conjectures on Spain's "emigration potential" and its consequences in the near future. The paper continues as follows. First, we describe the data sources used to measure migration inflows and outflows. Next, we briefly revisit the history of international migration in Spain since the mid-1900s, to place our analysis of the current situation in a broader historical context. We then focus on the migration inflows and outflows of foreign nationals, and on the outflows of Spaniards born in Spain, to estimate their responses to economic conditions, considering also their socio-demographic composition. We conclude with some comments on the implications of these migration flows for future potential growth.

2 Data

Data on gross migration flows in Spain are quite limited, both in terms of volume and time span. Until recently, data on migration outflows were obtained exclusively from records of passengers leaving the country by sea or air and from information on official bilateral programmes of organised migration to Europe. This is why most of the studies on Spanish emigration had to rely on destination country information.[2] It was not until 1998 that an organised attempt was made to keep records of migration inflows and outflows based on municipal registers, which yielded the migration module of the *Estadística de Variaciones Residenciales,* available since 2002. However, this statistical source has some drawbacks, because although foreign nationals arriving in Spain have an incentive to enrol on the municipal register, they have no incentive to deregister when they leave the country. To correct this, since 2006 foreign nationals (from non-EU countries and who do not have a permanent residence permit) are required to renew their registration every two years; those who fail to do so are considered to have left the country and are dropped from the register. Since 2009, the INE (National Statistics Institute) also uses alternative surveys to obtain information on exits of EU citizens and migrants with permanent residence permits in order to assign an estimated departure date to those exits. This is the basis for the data on outflows at the *Estadística de Migraciones* provided by the INE since 2008. As for migration inflows and outflows of Spanish nationals, they should be better captured by the municipal registers. However, the information on outflows is not free of problems, since it relies on enrolments on Spanish consulates and embassies abroad. In this case, some delay is very likely between the move and the registration, and it is also likely that only permanent moves abroad will be registered.[3]

In this paper, we use a combination of statistical sources. For entries into Spain, we rely on the *Estadística de Variaciones Residenciales,* which provide longer series. For outflows, we use as our source the *Estadística de Migraciones*, which provide better information during the available sample period. Both datasets provide information on gender, age, nationality, country of birth, province of origin (destination) and country of destination (origin) of migrants.[4] In the case of foreign nationals leaving Spain we assume that the country of destination coincides with the country of birth, since available evidence suggests that this is a good approximation of reality. Moreover, by restricting one destination for each place of birth, the empirical strategy is simpler. According to the New Immigration Survey conducted in Spain in 2007, more than 85% of immigrants planning to leave in the next five years reported that they intended to return to their birth country. Moreover, according to the *Estadística de Migraciones*, the great majority of migrants of different origins (more than 70%) report that they return to their birth country (see Table 3).[5]

To analyse the educational composition of inflows, we rely on Labour Force Survey data, which provide information on foreign/Spanish nationals who resided abroad one year ago. To obtain a proxy for exits, we use information, from the same source on household members who are temporarily working abroad. In principle one might expect that, at least for

2. See, for instance, Garcia Fernandez (1965), Nadal (1984), and Spanish Emigration Institute (IEE) (1973).
3. Since 2008 the INE has used alternative statistical techniques to improve the information held by municipal registers and has started to compile statistics on migrations whose microdata are not available to us.
4. We have repeated all our computations using the *Estadística de Variaciones Residenciales*, obtaining qualitatively similar results. Those calculations are available upon request.
5. In any event, information on the destination of departing foreign nationals is quite limited since most of it has to be imputed.

Spanish nationals, when a household decides to emigrate, the head of the household moves first, followed by the other household members. In both cases, the information will be used only to characterise flows in terms of educational attainments of migrants.

Data on the population of foreign nationals in the origin country is obtained from the World Economic Outlook database. Data on the population of Spanish and foreign nationals residing in Spain is obtained from municipal registers (*Padrón de Habitantes*).[6] Information on the stock of nationals residing abroad is taken from the registers of Spanish consulates and embassies gathered by the INE since 2009 (*Padrón de Españoles Residentes en el Extranjero*), which provide information on the country of birth, province of last residence, province of birth and country of destination.[7] Finally data on internal migration are gathered from municipal registers and Labour Force Surveys.

6. To obtain socioeconomic information of the stock we use Labour Force Survey data.

7. To obtain more socio-demographic information on the stock of Spanish emigrants residing abroad, statistics of the main destination countries must be used. Driven by anecdotal evidence and given availability restrictions, we use the French, British and Argentine Labour Force Surveys.

3 Migration flows in Spain since 1950: A brief historical overview

Spain was an emigration country throughout most of the 20th century. At the beginning of the century there were huge outflows to South America, mostly to Argentina. Those moves were triggered by several factors: i) the free movement laws enacted in Spain and in destination countries in the second half of the 19th century; ii) a growing population, due to the decrease in mortality at the end of the 19th century that was followed by a subsequent decrease in fertility (Spain's population almost doubled between 1857 and 1950, from 15 million to 27 million); iii) economic stagnation, with the average annual growth rate of GDP per capita in real terms estimated to have been slightly below 1% between 1850 and 1950; and iv) a turbulent political situation in the period 1898-1939. However migration outflows came to a standstill in the wake of the First World War and the global crisis of the 1930s and after the Spanish civil war (1936-1939) migration from Spain was banned. When migration abroad was freely allowed again in 1946, initially almost 100% of the total outflows went to South America, although they were smaller than those registered at the beginning of the century.

Since 1950, net migration outflows can be clearly split into three different periods.

Early emigration (1950-1989). Early in this period the main destination was South America, which attracted some 50 thousand migrants per year, followed in the 1960s by Europe (mostly France, Germany and Switzerland), with average annual flows of around 170 thousand migrants (see Table 4). In the 1960s some 80% of total emigrants went to Europe, reaching a peak of 7 per thousand of the total population mid-decade. Emigration to Europe was mostly driven by the shortage of unskilled workers to fill jobs in agriculture or manufacturing in the destination countries. From the mid-1960s these emigration flows declined, due first to economic growth in Spain and subsequently to the higher barriers to immigration erected in the destination countries following the oil crisis of the early 1970s. However net positive outflows continued, although at a slower pace, during the first half of the 1980s when Spain was still suffering significant employment losses.

Immigration: The boom (1990-2007) and recent trends (2008-2012). From the early 1990s, and most noticeably after 1997, Spain became a destination country for immigrants. Inflows increased steadily, from under 30 thousand per year in 1996 to 958 thousand in 2007, when foreign nationals amounted to more than 2% of the total population. Table 5A provides some summary statistics of the country of origin of these immigration flows since 2002. During the expansion, foreign immigrants were mostly Europeans, closely followed by Latin Americans (mostly Peruvians and Bolivians) and Africans (mostly Moroccans). The onset of the crisis brought about a sudden shift in this trend and in 2008 and 2009 European entries came to a sudden standstill, although since 2010 their share has returned to pre-crisis levels. During those years, the number of immigrants from the Americas continued to decline, while the number of immigrants from Africa and Asia rose somewhat as a share of the total.

During the 1980s and the early 1990s most of the inflows of Spanish nationals corresponded to Spaniards born in Spain, which means that this was return migration. However in the 1990s, the big increase in these inflows came from Spaniards born abroad, which should not be considered return migration. Since Spanish nationality is acquired through parental nationality, regardless of the country of birth, it is likely that many foreigners

(in the sense of people who had never lived in Spain before) were immigrating under Spanish nationality. By contrast, inflows of Spanish nationals born in Spain were relatively inelastic to later economic conditions. Also regarding the impact of the crisis, we observe a rise in the number of Spanish nationals returning to Spain from Asia and Africa, while in the case of Spaniards born abroad the most noticeable development is a further increase in the share of immigrants from the Americas.

Table 5A also provides some information on the differences between new entrants before and after the crisis. Particularly noteworthy is that the foreign nationals and Spaniards born abroad are predominantly young males with low educational levels, whereas in the case of Spaniards born in Spain there is less difference by gender and they are older and overwhelmingly more highly skilled.[8] After the crisis, the share of females and older and more highly educated workers increases in each group of migrants. This is not surprising, since the crisis was particularly harsh on young males with low educational levels. Indeed, even after controlling for the country of origin, the percentage of recent foreign immigrants with tertiary education has increased in almost all groups (see Table 5B).

Emigration: The crisis (2008-2012). Migration outflows started to increase in 2007 when GDP growth in Spain started to decelerate. Since 2010, outflows have totalled more than 400 thousand per year (slightly less than 10 per thousand of the total domestic population), which is, both in absolute and relative terms, the highest level of emigration in Spanish history. This is mostly due to the high mobility of foreign nationals. Indeed, they make up the great majority of migration outflows: in 2012 approximately 50 per thousand of foreigners residing in Spain left the country, while less than 1 per thousand of Spaniards born in Spain emigrated. For the latter, migration outflows are still smaller than those registered in the 1960s,[9] although since 2012 outflows have not been offset by inflows, so Spain is now recording net emigration, for the first time since the 1970s (net outflows in 2012 are estimated at around 70 thousand). Preliminary data available for the first half of 2013 point to a further increase in exits: 260,000 emigrants are estimated in 2013 H1. Moreover, since 2007 there is also net emigration of Spanish-born Spaniards; the numbers are low, but migration outflows for this population group are accelerating. Table 6A shows the continent of destination both for foreigners residing in Spain and Spanish migrants. Most foreign emigrants are Europeans and South Americans, whereas Africans represent a smaller share. Spaniards born in Spain overwhelmingly decide to migrate to Europe. Although the crisis has had little impact on the choice of destination countries for foreign migrants, in the case of Spaniards born in Spain it has increased the share of outflows to Europe (mostly Germany and the UK) and the USA (see Table 6B). Also noteworthy is that males are more likely to migrate abroad regardless of their nationality, and that gender differences are higher for foreign nationals. Foreign emigrants are generally older than foreign immigrants, whereas Spaniards born in Spain who emigrate are much younger than returning migrants. This could be because a large proportion of outflows of foreign nationals are return migration, whereas outflows of Spaniards born in Spain are first moves to another country. Lastly, the educational distribution of outflows of Spanish nationals is biased towards the more highly educated, but it is still below the educational attainment of the corresponding inflows.

8. One point that demonstrates that inflows of Spaniards born abroad should not be considered return migration is that their characteristics match those of foreign nationals rather than those of Spaniards born in Spain.
9. When return migration by foreign nationals was nonexistent.

3.1 Inter-regional migration flows in Spain (2008-2012)

Internal migration is a less costly alternative to international migration. During previous decades, the degree of inter-regional mobility in Spain was quite low, despite significant differences in unemployment rates and wages.[10] During the expansion and in subsequent years foreign nationals were much more likely to move within Spain than Spaniards. Indeed, the increase in internal migration since the 1990s can be fully associated with the higher share of foreigners in the population. However, more recently, the percentage of foreign nationals who move internally (some 0.35%) is lower than the percentage of those who move abroad (some 0.8%). In fact, although the percentage of foreigners who move either within Spain or abroad has remained roughly constant, internal moves have decreased while migration abroad has increased considerably. As for Spaniards, they had a clear preference for moving internally (1.1%) rather than migrating abroad (0.17%). However, during the Great Recession internal emigration has remained constant, while migration abroad has increased.

10. See Bentolila and Dolado (1991), Antolín and Bover (1997), Bover and Velilla (2000) and Bover and Arellano (2002).

4 Elasticities of migration inflows and outflows with respect to unemployment

4.1 Methodology

Many factors determine both the decision to migrate from one country to another and the selection of the final destination by the migrant. On top of some exogenous motivations to the state of the economy such as a war, a natural catastrophy and the risk of exclusion for different reasons, many papers concentrate on different economic factors. Following Massey et al (1993) and Dustmann and Weiss (2007), the initiation of international migration might be related to wage differentials, employment conditions and their relationship to migration costs (both pecuniary and cultural). Also, some scholars have incorporate other reasons such as the diversification of risk within family members, differences in relative prices between host and home country, the accumulation of human capital, the improvement of the health status, or the willingness to reach a savings target to overcome capital constraints in the home country. Recently, global value chains have also generated a new sort of temporary movements. On the other hand, the perpetuation of international migration might be also related to other independent factors such as the increase of networks or the support to transnational movement generated by particular institutions in the host and the receiving country.

In this paper we will focus on the differential of employment conditions gathering all other motivations in either pair of countries fixed effects or time dummies (similar to Grogger and Hanson, 2011). Typically the log odds of residing in country *h* for a person from country *s* is thought to be determined by absolute differences in earnings between the two countries and by the cost of migrating that is idiosyncratic to that particular country pair. However, when considering migration to or from Spain, earnings do not appear to be a good proxy for economic opportunities, since high unemployment rates have been prevalent: 8% at the peak of the cycle and currently around 26%. Indeed, changes in unemployment appear to be more appropriate than changes in wages to measure how economic opportunities evolve over time, particularly when, as has happened during the current recession, wages have reacted slowly to the worsening of the economic situation due to significant real and nominal rigidities.[11]

It is also usual to assume that migration flows respond symmetrically to changes in relative economic opportunities, so that the effects on migration flows of a change in relative economic conditions in one particular country should disappear completely when the initial economic conditions are restored. In this regard Chart 2, which relates the share of migrants in the total population to unemployment, shows that this has not been the case in Spain. The sharp drop in unemployment (from around 23% to 11%) between 1995 and 2001 drove up the share of foreigners in the Spanish economy. Subsequently, unemployment remained roughly constant, but the foreign population continued to grow. In 2007 the Spanish unemployment rate headed up again, but the foreign population continued to increase, before declining slightly in 2012.

It seems, therefore, that analysing changes in the stock of foreign nationals in Spain in the current situation needs a more flexible specification than that used by Grogger and Hanson (2011). Accordingly, we analyse the effects of economic conditions on both entries and exits separately (see Chart 3). The sharp decline in unemployment between 1995 and

11. On the adjustment of unemployment and wages across Spanish regions in previous recessions, see Bentolila and Jimeno (1998). Having said that, unemployment figures might be a worse proxy of economic opportunities in other countries. Nevertheless, we preferred to use the same variable in both Spain and other potential origins/destinations.

2001 prompted an increase in the number of inflows of foreigners in Spain. These inflows continued to rise until 2007, even though the unemployment rate was quite steady, probably due to decreasing migration costs as a result of the increase in the stock of migrants in Spain (McKenzie and Rapoport, 2007) or a generalised preference for Spain rather than other alternative destinations (Bertoli, Fernandez-Huertas and Ortega, 2013). As from 2007 inflows decreased as unemployment rose. It is noteworthy that the impact of changes in unemployment on migration inflows is similar to that observed in the 1990s, but at a higher level of unemployment. In turn, in these last four years, outflows of foreign nationals have also increased as unemployment has risen.

This descriptive evidence suggests that even though bilateral inflows and outflows might respond to economic conditions as theory predicts, changes in costs of migration may blur the contemporaneous responses of the stock of migrants to economic conditions somewhat. To test this hypothesis, we follow Bertoli, Brücker and Fernandez-Huertas (2013) and Beine, Bourgeon and Bricongne (2013) and relate the log odds of immigrating (*I*) (fraction of entries from one country of birth to one region divided by the corresponding population residing in that country of origin)[12] or emigrating (*E*) (fraction of exits from one country of birth to one country of destination divided by the corresponding population residing in that region) to unemployment differentials (U) and to the costs of immigration/emigration between origin (*h*) and destination (*s*).[13] Using the superscript *f* to denote foreigners and *e* to denote Spaniards, our regression specifications are:

$$lnI_{hst}^{f} = \alpha_0 + \alpha_1 U_h + \alpha_2 U_s + \alpha_3 S_{hst} + \lambda_t c_t + \lambda_{sh} c_{sh} \quad (1)$$

$$lnE_{hst}^{f} = \beta_0 + \beta_1 U_h + \beta_2 U_s + \mu_t c_t + \mu_{sh} c_{sh} \quad (2)$$

$$lnE_{hst}^{e} = \gamma_0 + \gamma_1 U_h + \gamma_2 U_s + \gamma_3 S_{hst} + \kappa_t c_t + \kappa_{sh} c_{sh} \quad (3)$$

We proxy the cost of emigration (*c*) using a dummy for each origin country and destination region pair. We also include as covariates time dummies (c_t) and, in the case of foreign immigration to Spain (or emigration of Spaniards), the logarithm of the stock of migrants of the same nationality (or who depart from a particular region in Spain) who reside in the corresponding potential destination in Spanish regions (or who reside in the corresponding potential destinations abroad) (S_{hst}).

When running the above-mentioned specification a very high correlation is observed between time dummies, regional unemployment rates and, in the case of foreigners, the stock of migrants in each region. Indeed, all regional unemployment rates decreased until 2009 and rose thereafter, with a very low regional variation since there is a high correlation of regional unemployment rates over time.[14] Therefore it appears difficult to estimate the combined impact of regional unemployment rates, the stock of immigrants and time dummies on migration flows. Accordingly, our preferred estimate includes the unemployment rate in the country of origin, time dummies and country/region fixed effects. As a robustness check, we

12. The corresponding population for foreigners is the country of origin population; for Spaniards of one particular region in one particular country it is the population residing in that country and who are from that particular region.

13. Given the large disparities in unemployment rates across Spanish regions (see Chart 1), we consider the log odds of residing in a Spanish region (we have access to data on 17 regions) for one person of a particular country (we have access to data on some 80 countries).

14. Average correlation is 86% between two regions, with the exception of the Basque Country which has an average correlation with the rest of 68%.

run the same regressions without time dummies and including regional unemployment rates and the stock of immigrants. As indicated above, exits of foreigners from Spain are analysed by country of birth and assuming that they return to their birth country.

The literature has identified two problems with specifications such as (1)-(3): first, the potential bias introduced by the existence of zeros in emigration/immigration rates for a sizeable group of country pairs over time; and second, multilateral resistance to migration that is the correlation between unemployment rates of different alternative destinations[15]. Regarding the first problem, in our database migration is defined by bilateral movements between a country and a Spanish region (*Comunidad Autónoma*) in one particular year during the period 1998-2012 for entries and 2008-2012 for exits. In our database, considering both entries and exits of foreign and Spanish nationals, more than 15% of the cells are zeros. To avoid using Poisson methods to treat the problem of multilateral resistance to migration, which might itself generate problems, we eliminate the cells with smaller flows from the sample.[16]

Regarding multilateral resistance to migration, autocorrelation of residuals in (1)-(3) cannot be ruled out. In consequence, the estimated coefficient of unemployment in the origin country might be upward biased. To solve this problem Bertoli, Brucker and Fernández (2013) add as an auxiliary variable the cross-section (over countries) average of the dependent and independent variables, using monthly observations, to incorporate the changes in the willingness to migrate to alternative destinations (Common Correlated Effect, CCE). In a similar way, we use regional variation to construct the cross-section average (over countries). Our hypothesis is that internal and international migration decisions are different, as foreign nationals first decide to migrate abroad, and then choose which Spanish region to live in. It is noteworthy, as indicated above, that regional unemployment patterns are quite similar over time. Accordingly, once in Spain, migrants do not consider moving between regions as a potential alternative to international migration. Under this assumption, we can apply the CCE correction auxiliary variable, that is, the cross-section average of the dependent and independent variables (by region and year) interacted with country of origin fixed effects, although with this approach only the coefficient of unemployment in the origin country can be identified. When we apply this CCE methodology at the regional level in (1), the autocorrelation disappears for foreign entries.[17]

In order to check the above hypothesis we also estimate equation (1) on internal migrations. The results of the estimate of the impact of unemployment differentials across Spanish regions on the log odds of internal migration for foreign and Spanish nationals are reported in Chart 4. As the first panel shows, Spaniards are less likely to migrate to another region than foreigners, whatever the age/education group; moreover, the log odds decrease with age and they increase with education, but only in the case of older workers. As for foreign nationals, the log odds are more similar across age/education groups and are highest for the youngest age group, whatever the education level. The other two panels of Chart 4 show that these log odds do not necessarily increase with unemployment differentials across regions. The responses of foreign nationals to unemployment differentials are negative and

15. If there is correlation between unemployment rates of alternative destination countries, the estimated coefficient of the impact of unemployment rate in the origin country on migration flows is biased upwards.

16. In the case of foreign nationals, for entries we use a sample of 31 countries of birth out of 80 potential countries, which results in 7,038 observations with less than 2% of zeros in region/country of origin/year between 1998 and 2012, and for departures we keep 37 countries of birth for the period 2008-2012 out of 99 potential countries, which results in 2,703 observations with 5% of zeros. For outflows of Spanish nationals we keep 30 out of 97 potential destinations for the period 2008-2012, which results in 2,380 observations with 5% of zeros.

17. The usual tests cannot be performed for all other flows due to a lack of observations.

barely statistically significant in the case of young migrants with a high level of education and older workers with a medium level of education. The responses of Spanish nationals are positive and statistically significant for most age/education groups, which indicates that, as in the past in Spain, inter-regional migration flows are not contributing to the convergence of regional unemployment rates.

4.2 Results

The first three columns of Table 7 report the results of estimating how the log odds of the bilateral migration rates of foreigners change with respect to unemployment in the origin country. Estimates have been obtained under the specification with fixed effects and time dummies. Column 1 shows that push factors are important and that foreigners decide to migrate whenever unemployment rates rise: an increase of 10 pp in the unemployment rate drives up outflow rates to Spain by 0.5 pp. This is consistent with traditional evidence on international migration (Bertoli, Brücker and Fernandez-Huertas, 2013; Ortega and Peri, 2013). Chart 5 shows the shape of time dummies, reflecting a big increase in the willingness to move to Spain over time. This explains why inflows of migrants have remained high during the Great Recession, despite the sharp rise in Spanish unemployment. Column 2 of Table 7 shows that migration rates increase whenever the stock of migrants is higher. This is a well-established fact (see, for instance, Mackenzie and Rapoport, 2007) that can be interpreted as evidence in favour of a decrease in the costs of migration due to more extensive networks in the host country. Indeed, as Chart 5 shows, part of the increase in migration rates over time appears to respond to the increase in the stock of migrants (blue line in Chart 5). Nevertheless, the inverted U-shape of the time dummies does not disappear, indicating that the good economic opportunities that were acting as pull factors during the housing boom were no longer valid after 2008.[18] In order to check this hypothesis we replace the time dummies with the unemployment rate of the corresponding destination region. Column 3 shows that on top of push factors and network effects, foreigners are attracted to regions with lower unemployment rates. The response of inflows to the unemployment rate in the region of origin is robust regardless of the chosen specification.

Columns 4 and 5 of Table 7 report the results on outflows of foreign nationals from Spain. Column 4 shows that pull factors are important and that foreigners are more likely to decide to leave Spain whenever their origin country records lower unemployment rates: a decrease of 10 pp in the unemployment rate in the birth country drives up migration outflow rates from Spain by 0.4 pp, which is quite similar to the response found for inflows to Spain. In this specification, time dummies show a positive trend since 2008 (Chart 6), which is consistent with the unemployment rate in Spain in the period 2008-2012. Column 5 shows the combined effect of both pull and push factors in the recent emigration episode for outflows of foreigners.

Columns 6 to 8 refer to outflows from Spain of Spaniards born in Spain. Column 6 shows that pull factors are both statistically and economically significant, so Spaniards decided to move to destinations with lower unemployment rates. One interesting question, in view of the above numbers, is whether Spaniards born in Spain have a lower response to unemployment differentials than foreign nationals. When considering only Spaniards born in Spain, a decrease in the unemployment rate of 10 pp drives up outflows from Spain by 0.6 pp. Interestingly, this is not lower than the coefficient observed for inflows or outflows of

18. Bertoli, Fernandez-Huertas and Ortega (2013) analysed a case study of Ecuadorian nationals moving to Spain, showing the importance of changes in future expectations to increase the willingness to move to a country. Those factors may have been valid during the boom period and may have disappeared to some extent during the crisis.

foreigners to or from Spain. The big difference in the observed magnitude of outflows between Spaniards and foreigners is better captured by the constant and the time dummies, so it should be attributed to the different costs of migration of the two groups. Chart 6 depicts the shape of time dummies, reflecting an increased willingness on the part of Spaniards born in Spain to move abroad over time. In contrast to the case of entries of foreigners, the stock of Spaniards born in Spain abroad does not affect the emigration rate (see column 7 of Table 7). This may be because emigration by Spaniards born in Spain is still a quite recent phenomenon and network effects are not yet operating (embassy registers record just under 650,000 Spaniards born in Spain and living abroad in 2012, which is less than 2% of the corresponding population). Column 8 shows that Spaniards from regions with higher unemployment rates are most likely to move abroad, which provides an alternative explanation for the increase in time dummies based on push factors.

Table 8 summarises the results of our three preferred specifications taking into consideration the Correlated Effect (CCE). The main message from these relationships is that Spaniards born in Spain do not seem to have a lower response to economic conditions than foreigners when taking migration decisions.

5 Selection of migrants by education

Even though unemployment has risen across the board and has affected all regions and population groups, the labour market effects of the Great Recession in Spain have been higher for specific groups with close ties to the construction sector (for instance, young and less highly educated workers). In this section we explore whether the selection of migrants in the recent past has changed accordingly.

5.1 Changes in the composition of inflows of foreigners

To access sociodemographic information on inflows of foreigners we use Labour Force Survey (LFS) data, in particular, information on foreigners interviewed in the LFS who report having resided abroad a year earlier. Chart 7 shows a high correlation of these data with the municipal registers used in the previous section (*Estadística de Variaciones Residenciales*). In columns 1 and 2 of Table 9 we compare the characteristics of recent inflows with those of the stock of foreigners who were already residing in Spain. For this purpose we run a linear regression of the dependent variable identifying recent entries[19] by socio-demographic characteristics (age and education) with individual data of all foreigners residing in Spain between 2002 and 2013. We also try to check the changes in the composition of the new entrants post-crisis by running a similar linear regression identifying changes in the characteristics of entries after 2007 compared to entries between 2002 and 2007 (columns 3 and 4).[20]

Column 1 shows that inflows since 2002 have lowered the age and raised the level of education of the foreign population (especially increasing the share of foreigners with tertiary education). Indeed in section 3 we documented a recent increase in inflows of Europeans that could be responsible for this increase in the mean educational level of recent migrants. In column 2 we add country of birth dummies and find that adding in changes in source countries does not affect the selection by age, but it does alter the selection somewhat in terms of education. That is, although recent inflows still include a higher share of foreigners with tertiary education compared to earlier entrants, the weight of secondary education has diminished slightly. Thus, once we control for the composition of entrants by country of birth, the educational attainment of recent inflows has polarised, with a higher bias towards more highly educated immigrants. Columns 3 and 4 compare inflows before and after the crisis. Whether or not we account for changes in the composition of source countries, inflows post-crisis are older and far more likely to have tertiary education. This is consistent with the idea that opportunities for younger and less highly educated individuals have diminished since the onset of the crisis in 2008.

5.2 Changes in the composition of outflows of Spaniards born in Spain

In this case also we use LFS data to obtain information on Spaniards born in Spain who are temporarily working abroad. In principle one might expect that, at least for this group, when a household decides to emigrate, the head of the household will move first, followed by the other household members, so the LFS should record some of these temporary moves. Chart 8 shows a high correlation of the resulting series with the municipal registers used in the previous section (*Estadística de Variaciones Residenciales*), even though the LFS data cover

19. The sample comprises all foreigners in Spain between 2002 and 2013. The dependent variable takes the value 1 for all foreigners entering Spain between 2002 and 2013, and 0 for those entering previous to 2002.

20. The sample comprises all foreigners entering Spain between 2002 and 2013. The dependent variable takes the value 1 for all foreigners entering Spain between 2008 and 2013, and 0 for those entering between 2002 and 2007.

many more moves. Columns 1 and 2 of Table 10 compare the characteristics of recent migration outflows with those of the stock of Spaniards born and residing in Spain. We run the same type of regressions as in the previous subsection, with individual data on all Spaniards born in Spain and residing in Spain between 2008 and 2013. We then check the changes in the composition of outflows after 2011 and outflows between 2008 and 2010. Column 1 shows that recent migrants from Spain (since 2008) are younger and more highly educated than Spaniards who stay in Spain, whether or not we control for differences in the provinces of origin. This is consistent with the hypothesis that there are factors that make migration less likely among less highly educated individuals (Grogger and Hanson, 2011, and McKenzie and Rapoport, 2013). Column 2 compares outflows at the start of the crisis and after 2010. Migrants departing after 2010 have once more become younger and less highly educated, which is consistent with the idea that these are the population groups that have been hardest hit by the crisis.

5.3 Changes in the composition of outflows of foreigners

In this case, we cannot use LFS data since most foreigners migrating abroad will not leave any household members in Spain. Therefore, we analyse how the composition of outflows of foreigners has changed over time indirectly, by measuring the changes in the percentage of foreigners with tertiary education, conditioning for the period of residence in Spain and the entry cohort. For example, there would be positive selection by education of outflows of foreigners if, for a given entry cohort, the percentage of those with tertiary education decreases over time, and negative selection if it increases. We conduct the exercise for different entry cohorts in different periods between 2002 and 2007 and between 2008 and 2013. Keeping the period of the sample constant and moving the entry cohort allows us to analyse the selection of departing migrants at different points in time of their residence (during the first or later years). For instance, keeping the sample constant with the 2002-2007 LFS, when we compare changes in the distribution of characteristics of those new entrants in 2002, we are considering the changes over their first five years in the country. For those new entrants in 2001, we are considering the changes between their second and sixth years, and for those who enter in 2000 the changes between their third and seventh years, and so on. This is important because selective return migration might occur primarily during the first years of residence and become less significant thereafter.

The first panel of Table 11 contains the results for the period before 2008 and shows that the percentage of individuals with tertiary education decreases over time. Although all the cohorts have the same sign, the coefficient is only significant for the first five years of residence. As the second panel shows, these results changed completely for exits in the years 2008 to 2013. In that period, there is negative selection of foreigners migrating abroad, since the percentage of tertiary-educated foreigners increases over time of residence in Spain, although, again, it is only significant for the first five years of residence.

As was the case with Spanish emigrants, foreign nationals leaving after 2008 were less highly educated, which is consistent with the fact that this is the population group that has been hardest hit by the crisis.

6 Concluding remarks

This paper provides a first look at the data on migration inflows and outflows in Spain during the Great Recession. Given the high proportion of recent immigrants to Spain and the high unemployment rates for all population groups and regions, one may expect significant migration outflows and a diverse composition depending on recent immigration status. Our still preliminary results hint at a significant change in the scale and composition of migration inflows and outflows. In terms of scale, Spanish and foreign nationals show quite a similar response to unemployment developments, and the continuing low exit rate of Spaniards born in Spain can only be attributed to the nonexistence of network effects for Spanish emigrants. However, as we learnt from the rapid creation of networks of foreign nationals in Spain that attracted many immigrants to Spain during the housing boom, this is a phenomenon that could develop quite rapidly and independently of future unemployment developments.

The possibility of network effects starting to come into play for Spanish emigrants and of many outflows becoming permanent is a potential threat to Spanish economic output. Moreover, the analysis shows that both Spanish and recent foreign migrants seem to be positively selected on education, even though the crisis has increased the likelihood of less highly educated individuals migrating abroad. This finding hints at 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. This issue needs to be investigated further, since there is also literature pointing to the possibility of a brain gain derived from positive outmigration through several channels: incentives to acquire education (Batista, Lacuesta and Vicente, 2012), remittances (Hanson and Woodruf, 2003), the build-up of scientific networks (Kapur, 2011), or return migration (Ambrosini, Mayr, Peri and Radu, 2011). However, these positive effects have only been detected for developing countries and it remains to be seen which type of mechanisms, if any, could operate through the migration outflows of a developed country.

REFERENCES

AMBROSINI, W., K. MAYR, G. PERI and D. RADU (2011). "The selection of migrants and returnees: Evidence from Romania and its implications", *NBER Working Paper 16912*, March 2011.

ANTOLÍN, P. AND O. BOVER (1997). "Regional Migration in Spain: The Effect of Personal Characteristics and of Unemployment, Wage and House Price Differentials using Pooled Cross-Sections", *Oxford Bulletin of Economics and Statistics*, 215-235.

BATISTA, C., A. LACUESTA and P. VICENTE (2012). "Testing the 'brain gain' hypothesis: microevidence from Cape Verde", *Journal of Development Economics, 97,* 32–45.

BEINE, M., P. BOURGEON and J. C. BRICONGNE (2013). "Aggregate Fluctuations and International Migration", *CESifo Working Paper Series 4379*, CESifo Group Munich.

BENTOLILA, S. and JUAN J. DOLADO (1991). "Mismatch and Internal Migration in Spain, 1962-1986", in Fiorella Padoa-Schioppa (ed.), *Mismatch and Labour Mobility*, Cambridge, Cambridge University Press.

BENTOLILA, S. and J. F. JIMENO (1998): "Regional Unemployment Persistence (Spain, 1976-1994)", *Labour Economics* 5.

BERTOLI, S., H. BRÜCKER AND J. FERNANDEZ-HUERTAS (2013). "The European Crisis and Migration to Germany: Expectations and the Diversion of Migration Flows", *IZA Discussion Papers 7170*, Institute for the Study of Labor (IZA).

BERTOLI, S., J. FERNANDEZ-HUERTAS and F. ORTEGA (2013). "Crossing the Border: Self-selection, Earnings, and Individual Migration Decisions", *Journal of Development Economics*, 101, 75-91.

BOVER, O. and PILAR VELILLA (2000). "Migration in Spain: Historical Background and Current Trends", in Klaus Zimmermann (ed.), *European Migration: What Do We Know?*, CEPR and Oxford University Press.

BOVER, O. and MANUEL ARELLANO (2002). "Learning About Migration Decisions from the Migrants", *Journal of Population Economics*, 15, 357-380.

DUSTMANN, C. and Y. WEISS (2007) " Return Migration: Theory and Empirical Evidence from the US", British Journal of Industrial Relations, 45 (2), 236-256.

GARCIA FERNANDEZ, J. (1965). *La Emigración Exterior de España*. Editorial Ariel, Madrid.

GROGGER, J. and G. H. Hanson (2011). "Income maximization and the selection and sorting of international migrants", *Journal of Development Economics*, 95, 42-57.

HANSON, G. and C. WOODRUFF (2003). *Emigration and Educational Attainment in Mexico*, mimeo, UCSD.

INSTITUTO ESPAÑOL DE EMIGRACIÓN (1973). *Panorámica de la Emigración*. Editorial Ministerio de Trabajo.

KAPUR, D. (2010). *Diaspora, Democracy and Development*, Princeton University Press, 2010.

LACUESTA, A. (2010). "A Revision of the Self-Selection of Migrants Using Returning Migrants' Earnings", *Annals of Economics and Statistics 97/98*, January/June, pp. 235-259.

MASSEY, D. J. ARANGO, G. HUGO, A. KOUAOUCI, A. PELLEGRINO, and J.E. TAYLOR (1993) "Theories of International Migration: A Review and Appraisal", Population and Development Review, 19 (3), 431-466

MCKENZIE, D. and H. RAPOPORT (2007). "Network Effects and the Dynamics of Migration and Inequality: Theory and Evidence from Mexico", *Journal of Development Economics*, 84, 1-24.

NADAL, J. (1984): *La Población Española (Siglos XVI a XX)*. Editorial Ariel.

ORTEGA, F. and G. PERI (2013). "The Effect of Income and Immigration Policies on International Migration", Migration Studies, 1, 1-28; Oxford University Press.

Table 1. Population in Spain by nationality, place of birth and gender

		Nationality		
2013 QI (thousands)		Total	Spain	Foreign
Total		47,059.5	41,539.4	5,520.1
	Born in Spain	40,441.4	39,976.8	464.6
	Born abroad	6,618.2	15,626.3	5,055.6

		Spain		Dual		Foreign	
(%)		2008 QI	2013 QI	2008 QI	2013 QI	2008 QI	2013 QI
Total		88.0	87.6	0.9	1.5	11.1	10.9
	Male	88.0	87.9	0.8	1.4	11.2	10.7
	Female	88.1	87.3	1.0	1.7	10.8	11.1

		EU		Rest of Europe-Non-EU		Latin America		Rest of world	
(%)		2008 QI	2013 QI	2008 QI	2013 QI	2008 QI	2013 QI	2008 QI	2013 QI
Total		3.4	3.7	0.5	0.5	4.8	3.7	2.5	3.0
	Male	3.5	3.7	0.4	0.3	4.5	3.3	2.9	3.4
	Female	3.3	3.7	0.6	0.6	5.0	4.1	2.0	2.7

Source: Municipal registers and Labour Force Survey.

Table 2. Population and employment shares by age and gender (differences between foreign and Spanish nationals)

	Population			Employed	
(%)	2008 Q1	2013 Q1		2008 Q1	2013 Q1
All			All		
16-24	4,8	4,2	16-24	2,4	1,9
25-34	19	12,8	25-34	14,8	9
35-44	7,1	10,1	35-44	1,7	6,5
45-54	-4,6	-2,1	45-54	-10,3	-8,8
Over 55	-26,3	-24,9	Over 55	-8,6	-8,5
Males			Males		
16-24	2,9	3,8	16-24	2	2,1
25-34	17,9	8,3	25-34	15,4	6,3
35-44	7,9	11,7	35-44	3,1	8,9
45-54	-4,5	-1,6	45-54	-10,3	-8,3
Over 55	-24,1	-22,2	Over 55	-10,2	-9
Females			Females		
16-24	6,5	4,5	16-24	2,7	1,5
25-34	20,1	16,9	25-34	14	11,4
35-44	6,2	8,8	35-44	-0,2	4,2
45-54	-4,6	-2,5	45-54	-10,1	-9,2
Over 55	-28,3	-27,6	Over 55	-6,4	-7,8

Source: Labour Force Survey.

Table 3. Emigration flows from Spain by nationality and destination region in 2008 and 2012

2008	Total	EU	Rest of Europe	Africa	North America	Central America	South America	Asia	Oceania
Total	100,0	39,0	4,8	12,6	3,9	2,6	31,5	5,4	0,2
Spanish	11,9	**44,5**	6,5	7,2	11,3	3,4	17,7	8,4	0,9
Rest of EU	28,3	**93,6**	1,3	0,7	0,9	0,3	2,7	0,6	0,1
Rest of Europe	4,1	11,6	**79,4**	1,8	1,0	0,4	5,2	0,6	0,0
Africa	14,8	19,6	0,6	**75,7**	0,3	0,3	3,0	0,5	0,0
North America	1,9	14,8	1,3	1,6	**73,6**	0,7	6,0	1,8	0,1
Central America	2,8	12,0	1,2	1,5	10,1	**68,6**	6,2	0,4	0,0
South America	30,4	6,9	0,7	0,3	1,5	0,2	**90,0**	0,2	0,1
Asia	5,7	18,9	1,7	2,2	1,1	0,6	5,3	**70,1**	0,1
Oceania	0,1	24,3	2,0	2,0	1,8	1,3	10,9	1,8	**55,9**
2012	Total	EU	Rest of Europe	Africa	North America	Central America	South America	Asia	Oceania
Total	100,0	39,2	4,0	12,9	2,9	2,9	30,8	7,0	0,2
Spanish	12,8	**44,7**	6,6	7,0	7,5	2,5	22,4	8,3	0,9
Rest of EU	27,9	**95,8**	1,0	0,4	0,6	0,1	1,5	0,4	0,1
Rest of Europe	2,8	9,4	**83,6**	1,0	0,4	0,5	4,7	0,3	0,1
Africa	15,9	21,5	0,7	**73,9**	0,3	0,2	3,1	0,2	0,0
North America	1,5	10,8	2,3	2,0	**76,5**	2,1	4,8	1,4	0,0
Central America	3,1	9,5	0,9	1,3	5,9	**78,4**	3,8	0,2	0,0
South America	28,0	4,7	0,6	0,1	1,0	0,1	**93,4**	0,2	0,0
Asia	7,8	16,7	1,8	1,0	1,3	0,4	5,7	**73,1**	0,2
Oceania	0,1	16,9	13,7	1,8	2,1	1,1	16,2	2,5	**46,1**

Source: Migration Statistics (INE).

Table 4: Immigration and emigration by nationality and country of birth

	Flow (persons)					Ratio respect to population ('000)				
	Total	Spanish nationality		Spanish nationality	Foreign nationality	Total	Spanish nationality		Spanish nationality	Foreign nationality
		Born in Spain	Born abroad	Total	Total		Born in Spain	Born abroad	Total	Total
IMMIGRATION										
1996	29.895	9.359	3.850	13.209	16.686	0,8	0,2	6,8	0,3	28,6
1997	57.877	15.401	6.860	22.261	35.616	1,4	0,3	10,3	0,5	59,2
1998	81.227	15.876	8.156	24.032	57.195	2,0	0,4	13,7	0,6	89,8
1999	127.364	17.494	10.800	28.294	99.070	3,2	0,5	18,2	0,7	132,3
2000	362.468	17.592	13.995	31.587	330.881	8,9	0,5	21,8	0,8	358,1
2001	414.772	9.517	11.207	20.724	394.048	10,1	0,2	16,7	0,5	287,5
2002	483.260	17.826	22.349	40.175	443.085	11,6	0,5	31,7	1,0	224,0
2003	470.010	19.201	21.285	40.486	429.524	11,0	0,5	28,4	1,0	161,2
2004	684.561	19.934	18.783	38.717	645.844	15,8	0,5	23,9	1,0	212,8
2005	719.284	18.468	18.105	36.573	682.711	16,3	0,5	21,9	0,9	183,0
2006	840.844	18.936	18.937	37.873	802.971	18,8	0,5	21,5	0,9	193,8
2007	958.266	18.997	18.735	37.732	920.534	21,2	0,5	19,9	0,9	203,7
2008	726.009	17.044	16.737	33.781	692.228	15,7	0,4	16,1	0,8	131,4
2009	498.977	15.841	13.794	29.635	469.342	10,7	0,4	12,2	0,7	83,1
2010	464.443	15.628	17.481	33.109	431.334	9,9	0,4	14,3	0,8	75,0
2011	454.686	18.617	19.787	38.404	416.282	9,6	0,5	14,8	0,9	72,4
2012	370.515	17.767	16.638	34.405	336.110	7,8	0,4	11,4	0,8	58,6
EMIGRATION										
EARLY EMIGRATION 1960s										
1960	105.420					3,5				
1961	176.821					5,7				
1962	216.381					6,9				
1963	200.539					6,3				
1964	230.124					7,2				
1965	203.609					6,3				
1966	155.093					4,8				
1967	89.484					2,7				
RECENT EMIGRATION										
2002		26.102	3.572	29.674			0,67	5,07	0,74	
2003		13.870	2.120	15.990			0,35	2,83	0,40	
2004		10.985	2.171	13.156			0,28	2,76	0,33	
2005		15.914	3.376	19.290			0,40	4,08	0,48	
2006		17.900	4.142	22.042			0,45	4,70	0,54	
2007		22.527	5.564	28.091		5,0	0,57	5,91	0,69	
2008	288.432	25.461	8.044	33.505	254.927	5,8	0,65	8,25	0,84	44,03
2009	380.118	26.334	9.656	35.990	344.128	6,9	0,64	8,68	0,86	51,03
2010	403.379	29.204	10.953	40.157	363.221	8,0	0,67	8,67	0,90	58,58
2011	409.034	40.150	15.321	55.472	353.562	7,9	0,95	11,19	1,28	55,24
2012	446.606	38.749	18.518	57.267	389.339	8,0	0,94	12,78	1,36	55,90

Sources: Emigration from Spain during the period of early migration is from Nadal (1984) and Garcia Fernández (1965).

It is computed as the sum of emigration to America based on passengers on ships and planes and emigration to Europe based on destination country statistics.

Population in that period is from census data 1960 and 1970. The years inbetween are the result of a geometric interpolation.

Immigration from municipal registers (*Estadística de Variaciones Residenciales*).

Emigration from municipal registers (*Estadística de Variaciones Residenciales*) until 2007 and *Estadística de migraciones* since 2008.

Population since 1996 comes from municipal registers (*Padrón Continuo*).

Table 5A: Characteristics of immigrants 2002-2007 (aged 16-64) by nationality and place of birth

		2002-2007			2008-2012		
		Spaniards born in Spain	Spaniards born abroad	Foreigners	Spaniards born in Spain	Spaniards born abroad	Foreigners
Origin (*)							
	Europe	62,1%	20,9%	40,5%	58,1%	16,7%	34,6%
	America	32,7%	75,4%	38,3%	29,7%	78,4%	34,2%
	Asia	1,8%	1,0%	5,3%	5,8%	1,6%	10,9%
	Africa	2,6%	2,4%	15,8%	5,5%	2,9%	20,2%
	Oceania	0,8%	0,4%	0,1%	0,9%	0,3%	0,1%
Gender							
	Males	50,7%	53,1%	54,2%	51,1%	49,5%	51,9%
	Females	49,3%	46,9%	45,8%	48,9%	50,5%	48,1%
Age structure							
	16-29	18,1%	48,3%	47,5%	18,3%	40,3%	46,5%
	30-44	33,7%	34,6%	36,6%	42,9%	32,0%	37,3%
	45-64	48,2%	17,2%	15,9%	38,8%	27,7%	16,2%
Education (**)							
	Primary	19,7%	30,5%	46,5%	14,1%	16,7%	47,4%
	Secondary	24,9%	46,4%	38,1%	23,7%	41,8%	33,3%
	Tertiary	55,4%	23,1%	15,3%	62,2%	41,6%	19,3%

Source: Municipal registers (*Estadística de Variaciones Residenciales*).

(*) Origin for foreigners is the country of birth.

(**) Education is taken from the LFS using information of individuals who resided abroad 1 year ago in those particular years.

Table 5B: Percentage of recent immigrants with tertiary education. Foreigners by country of origin

	Spaniards born in Spain		Foreigners	
	2002-2007	**2008-2012**	**2002-2007**	**2008-2012**
Europe	**54,3%**	**62,0%**	**19,0%**	**20,8%**
America	**56,4%**	**57,3%**	**15,1%**	**22,0%**
Asia	**96,7%**	**88,1%**	**15,3%**	**19,7%**
Africa	**31,2%**	**44,0%**	**4,8%**	**7,2%**
Oceania	**79,9%**	**73,8%**		

Source: LFS using information of individuals who resided abroad 1 year ago in those particular years.

Table 6A: Characteristics of emigrants 2008-2012 (aged 16-64) by nationality and place of birth

		2008-2012		
		Spaniards born in Spain	Spaniards born abroad	Foreigners
Destination				
	Europe	60,6%	38,8%	41,9%
	America	26,5%	54,7%	36,8%
	Asia	7,3%	2,7%	6,5%
	Africa	4,3%	3,1%	14,8%
	Oceania	1,3%	0,6%	0,1%
Gender				
	Males	52,4%	51,0%	61,6%
	Females	47,6%	49,0%	38,4%
Age structure				
	16-29	29,2%	29,9%	35,2%
	30-44	50,6%	46,9%	46,0%
	45-64	20,2%	23,1%	18,8%
Education (*)				
	Primary	21,9%	46,0%	
	Secondary	22,8%	15,9%	
	Tertiary	55,3%	38,1%	

Source: Estadística de migraciones.

(*) Education is taken from the LFS using information of individuals who resided abroad 1 year ago in those particular years.

Table 6B: Characteristics of emigrants 2008-2012 (aged 16-64) by nationality and place of birth

		2008	2009	2010	2011	2012
		Spaniards born in Spain				
Destination						
	Europe	58,5%	59,0%	61,6%	60,9%	62,2%
	America	29,2%	28,1%	25,6%	25,3%	25,6%
	Asia	6,4%	6,6%	6,9%	8,2%	7,5%
	Africa	4,7%	5,1%	4,6%	4,2%	3,1%
	Oceania	1,1%	1,1%	1,4%	1,3%	1,6%
Gender						
	Males	51,2%	51,6%	52,5%	52,1%	54,1%
	Females	48,8%	48,4%	47,5%	47,9%	45,9%
Age structure						
	16-29	32,2%	29,2%	28,1%	27,3%	29,9%
	30-44	48,2%	50,3%	50,4%	52,3%	50,7%
	45-64	19,5%	20,4%	21,6%	20,4%	19,3%
Education (*)						
	Primary	18,4%	20,1%	28,1%	25,6%	24,8%
	Secondary	25,4%	24,0%	26,8%	24,8%	28,3%
	Tertiary	56,2%	55,9%	45,1%	49,6%	46,8%
		Foreigners				
Destination						
	Europe	42,9%	44,7%	43,2%	37,7%	41,3%
	America	37,6%	36,9%	36,3%	37,6%	36,0%
	Asia	5,1%	5,2%	6,0%	8,2%	7,3%
	Africa	14,4%	13,1%	14,5%	16,5%	15,3%
	Oceania	0,1%	0,1%	0,1%	0,1%	0,1%
Gender						
	Males	61,6%	62,2%	61,6%	61,9%	60,7%
	Females	38,4%	37,8%	38,4%	38,1%	39,3%
Age structure						
	16-29	37,8%	37,2%	35,4%	34,1%	32,7%
	30-44	44,3%	44,6%	45,8%	46,9%	47,7%
	45-64	17,9%	18,2%	18,8%	19,0%	19,6%

Source: Estadística de migraciones.

Table 7: Log odds of immigrating to Spain and emigrating from Spain by nationality and place of birth. Fixed effects

	Model with Fixed effects							
	Foreigner entries			Foreigner exits		Spaniard born in Spain exits		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
U(Country)	0.04948	0.05736	0.05907	-0.04390	-0.02249	-0.05529	-0.07261	-0.08714
	(0.00001)**	(0.00001)**	(0.00001)**	(0.00002)**	(0.00002)**	(0.00289)**	(0.00425)**	(0.00448)**
U(CCAA)			-0.06359		0.02021			0.04083
			(0.00001)**		(0.00001)**			(0.00137)**
log (Stock of immigrants pair country/region)		0.58681	1,06222				-0.01017	-0.00936
		(0.00006)**	(0.00003)**				(0.00528)	(0.00555)
Time dummies	Yes	Yes	No	Yes	No	Yes	Yes	No
Fixed effects pair country/region	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auxiliary regressors	No	No	No	No	No	No	No	No
Constant	-1,041	-1,361	-1,477	1,076	1,048	-0,468	-0,423	-0,480
	(0.00012)**	(0.00034)**	(0.00021)**	(0.00019)**	(0.00021)**	(0.01931)**	(0.04586)**	(0.05652)**
R-squared	0.72	0.75	0.67	0.19	0.10	0.20	0.21	0.12
Observations	7038	7038	7038	2703	2703	2380	2380	2380

Source: (1) to (3) the dependent variable is the logarithm of entries from Estadística de Variaciones Residenciales by country of birth and region of destination in a particular year (1998-2012) over the population in the country of birth in the corresponding year (WEO). In (4) and (5) the dependent variable is the logarithm of exits from Estadística de Migraciones by country of birth and region of previous residence in a particular year (2008-2012) over the population of that particular origin in the corresponding Spanish region (padron). In (6) to (8) the dependent variable is the logarithm of exits of Spaniards born in Spain from Estadística de Migraciones by country of exit and region of previous residence in a particular year (2008-2012) over the population of Spaniards born in Spain in the corresponding region (padron). Unemployment rates of regions in Spain are from the labour force survey and unemployment in origin countries at the WEO. The stock of immigrants of a country of birth in a region is from the padron and the stock of Spaniards from a region in a country of destination is from Spanish embassies (PERE).
Observations are weighted in (1)-(3) by the population of the origin country and in (4)-(8) by the corresponding population of the region. Standard errors in parentheses
* p<0.05; ** p<0.01

Table 8: Log odds of immigrating to Spain and emigrating from Spain by nationality and place of birth. CCE

	Model with CCE		
	Foreigner entries	Foreigner exits	Spaniard born in Spain exits
VARIABLES	(1)	(3)	(6)
U(Country)	0.04450	-0.05266	-0.03396
	(0.00002)**	(0.00003)**	(0.00717)**
log (Stock of immigrants pair country/region)			0.01129
			(0.00500)*
Time dummies	Yes	Yes	Yes
Fixed effects pair country/region	Yes	Yes	Yes
Auxiliary regressors	Yes	Yes	Yes
Constant	-1,395	2,930	-7,831
	(0.00015)**	(0.00587)**	(0.32362)**
R-squared	0.83	0.34	0.33
Observations	7038	2703	2380

Source: (1) to (3) the dependent variable is the logarithm of entries from Estadística de Variaciones Residenciales by country of birth and region of destination in a particular year (1998-2012) over the population in the country of birth in the corresponding year (WEO). In (4) and (5) the dependent variable is the logarithm of exits from Estadística de Migraciones by country of birth and region of previous residence in a particular year (2008-2012) over the population of that particular origin in the corresponding Spanish region (padron). In (6) to (8) the dependent variable is the logarithm of exits of Spaniards born in Spain from Estadística de Migraciones by country of exit and region of previous residence in a particular year (2008-2012) over the population of Spaniards born in Spain in the corresponding region (padron). Unemployment rates of regions in Spain are from the labour force survey and unemployment in origin countries at the WEO. The stock of immigrants of a country of birth in a region is from the padron and the stock of Spaniards from a region in a country of destination is from Spanish embassies (PERE). Auxiliary regressors are time average of the corresponding dependent variable and the unemployment of the country interacted with fixed effects of the country of origin.
Observations are weighted in (1)-(3) by the population of the origin country and in (4)-(8) by the corresponding population of the region.
Standard errors in parentheses. * p<0.05; ** p<0.01

Table 9: Composition of entries of foreigners

	Recent entries 2002-2013 vs stock of foreigners		Entries 2008-2013 vs entries 2002-2007	
30-44 age group	-0.02701	-0.02640	-0.00567	-0.00831
	(0.00082)**	(0.00083)**	(0.01041)	(0.01027)
45-64 age group	-0.03057	-0.02933	0.05603	0.06930
	(0.00102)**	(0.00105)**	(0.01477)**	(0.01477)**
Secondary education	0.00193	-0.00307	-0.04000	-0.02201
	(0.00078)*	(0.00083)**	(0.01046)**	(0.01060)*
Tertiary education	0.01129	0.00667	0.03888	0.03263
	(0.00110)**	(0.00120)**	(0.01382)**	(0.01456)*
Fixed effect country of birth	No	Yes	No	Yes
Time dummies	Yes	Yes	Yes	Yes
Constant	0.090	0.094	0.036	0.037
	(0.001)**	(0.002)**	(0.001)**	(0.001)**
R^2	0.01	0.03	0.00	0.01
N	99,552	98,455	146,391	144,489

Source: Labour Force Survey. The sample comprises all foreigners residing in Spain. The dependent variable in columns (1) and (2) is 1 if foreigners report residing abroad in the last year and 0 otherwise; in columns (3) to (4) it is 1 if they entered after 2008 and 0 if they entered earlier. Omitted variable is 16-29 age group and less than secondary education completed.

* p<0.05; ** p<0.01

Table 10: Composition of exits of Spaniards born in Spain respect to those residing in Spain

	Recent exits 2008-2013 vs stock of Spaniards	Exits 2011-2013 vs exits 2008-2010
30-44 age group	-0.001	-0.001
	(0.000)**	(0.000)**
45-64 age group	-0.001	-0.001
	(0.000)**	(0.000)**
Secondary education	0.000	0.000
	(0.000)*	(0.000)*
Tertiary education	0.002	0.002
	(0.000)**	(0.000)**
Fixed effect country of birth		
Constant	0.001	0.001
	(0.000)**	(0.000)**
R^2	0.00	0.00
N	1,991,712	1,991,465

Source: Labour Force Survey. The sample comprises all Spaniards born in Spain, reporting to be in Spain or working temporarily abroad. The dependent variable in columns (1) and (2) is 1 if they report to be residing abroad and are not from a frontier province, 0 otherwise. In column (2) it is 1 ìf they were abroad between 2011-2013, 0 if they moved abroad earlier. Omitted variable is 16-29 age group and less than secondary education completed.

* p<0.05; ** p<0.01

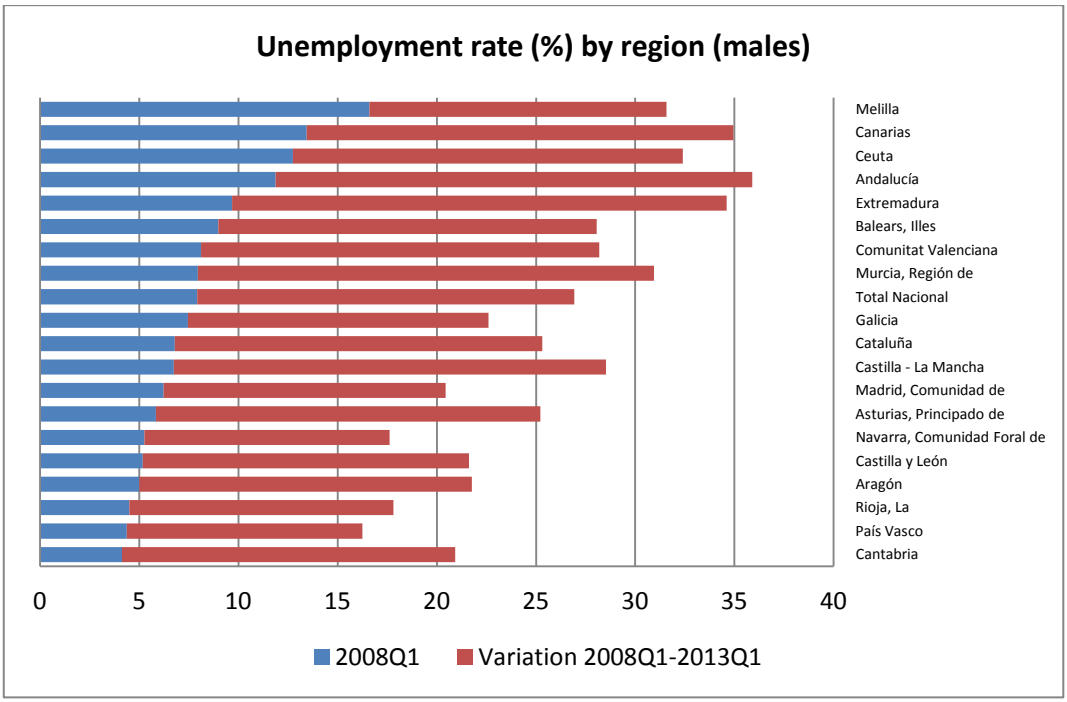
Table 11: Composition of exits of foreigners

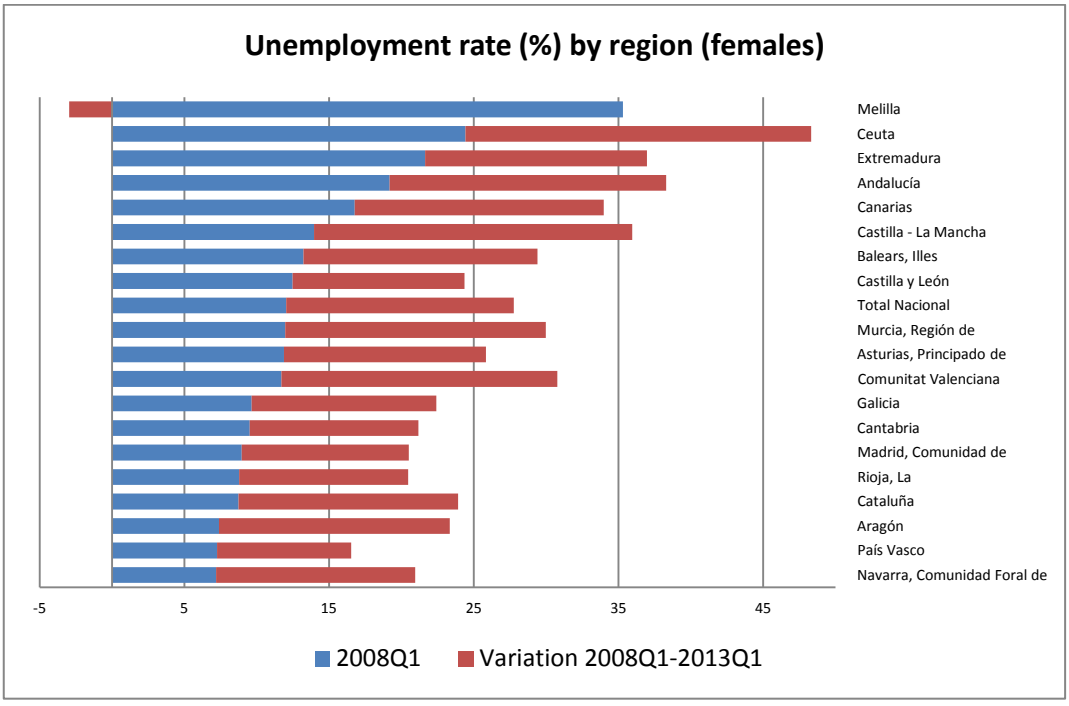
	Sample 2002-2007			
	Entries in 2002	Entries in 2001	Entries in 2000	Entries in 1999
Years in Spain	-0.019	-0.013	-0.004	-0.010
	(0.007)**	(0.010)	(0.011)	(0.020)
Years in Spain^2	0.003	0.001	-0.000	0.001
	(0.001)*	(0.001)	(0.001)	(0.002)
Constant	0.140	0.137	0.094	0.107
	(0.008)**	(0.012)**	(0.019)**	(0.029)**
N	12,927	14,153	12,361	6,706
	Sample 2008-2013			
	Entries in 2008	Entries in 2007	Entries in 2006	Entries in 2005
Years in Spain	0.016	0.005	0.014	0.006
	(0.007)*	(0.008)	(0.009)	(0.011)
Years in Spain^2	-0.003	-0.002	-0.002	-0.001
	(0.001)*	(0.001)	(0.001)	(0.001)
Constant	0.140	0.138	0.101	0.116
	(0.008)**	(0.012)**	(0.019)**	(0.029)**
N	12,571	16,727	15,835	15,564

Source: Labour Force Survey. The sample comprises all foreigners residing in Spain. The dependent variable is 1 if they have tertiary education, 0 otherwise.

* p<0.05; ** p<0.01

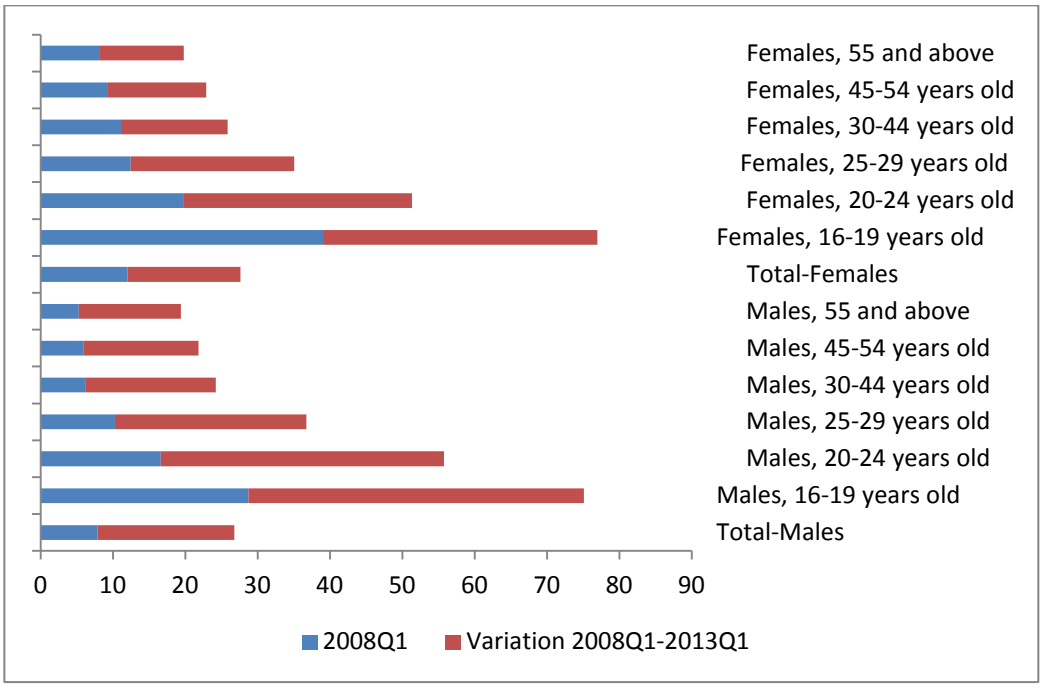
Chart 1. Unemployment rates

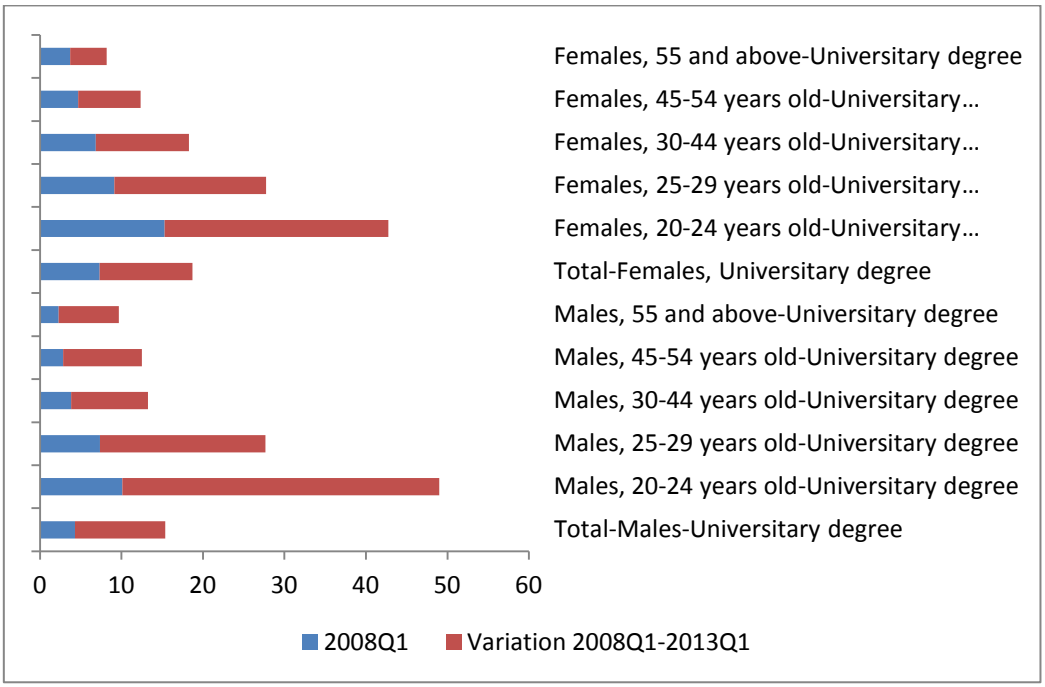




Source: Labour Force Survey.

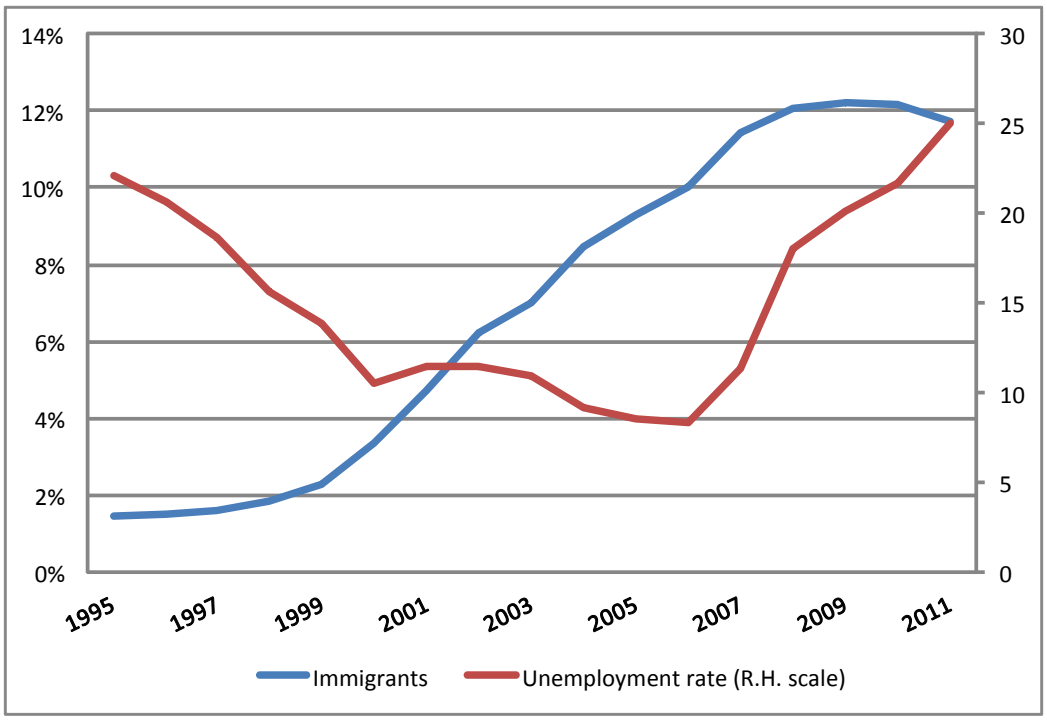
Chart 1 (cont.)





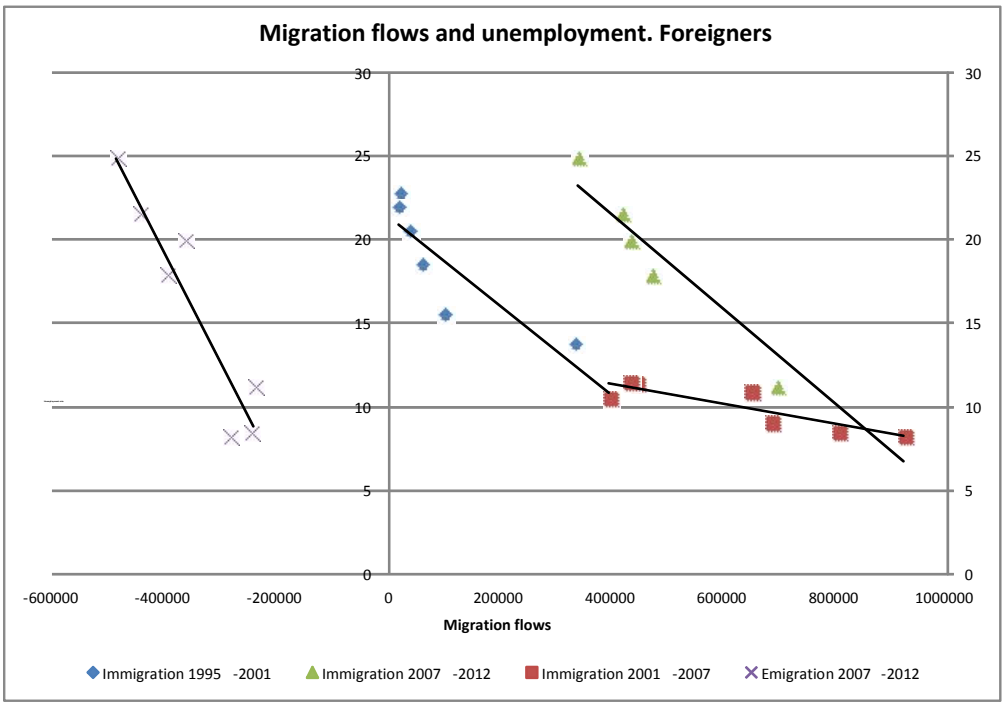
Source: Labour Force Survey.

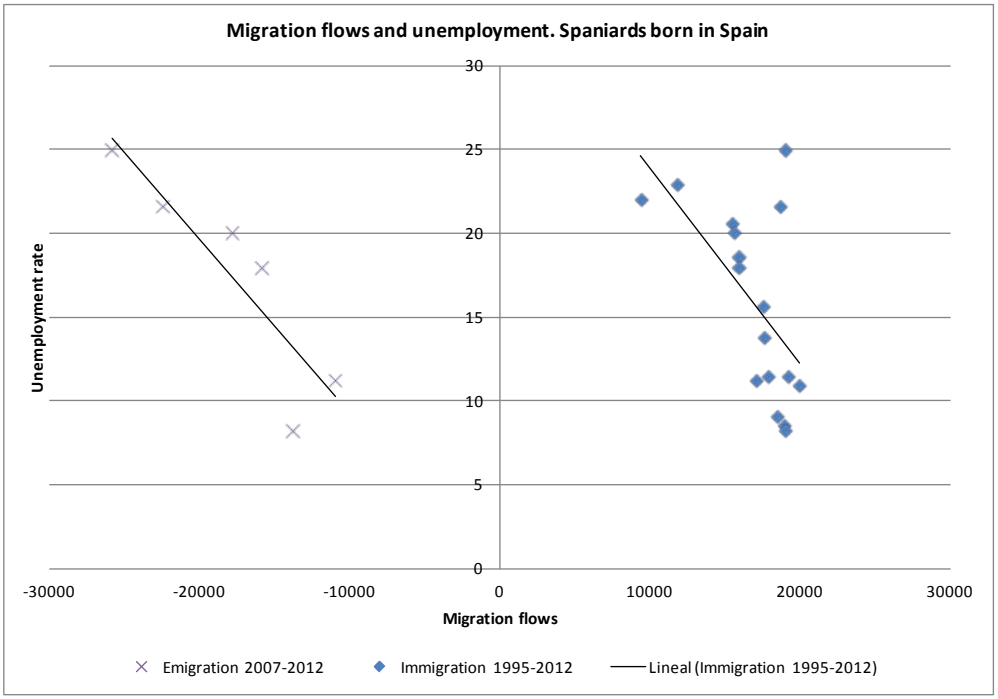
Chart 2: Share of foreigners in Spain and evolution of unemployment rate



Source: Labour Force Survey.

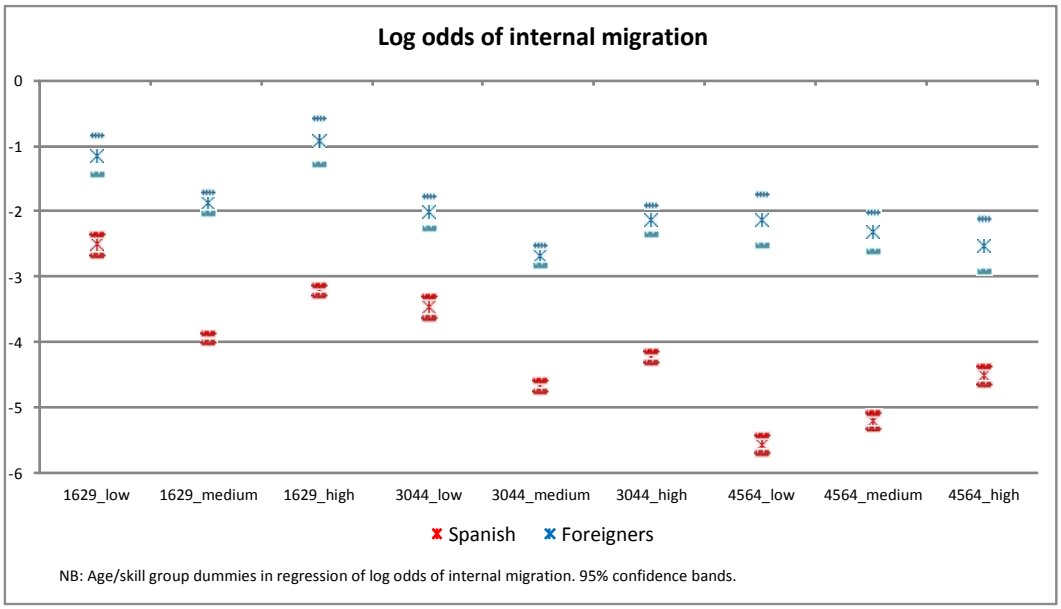
Chart 3: Migration flows and unemployment rate





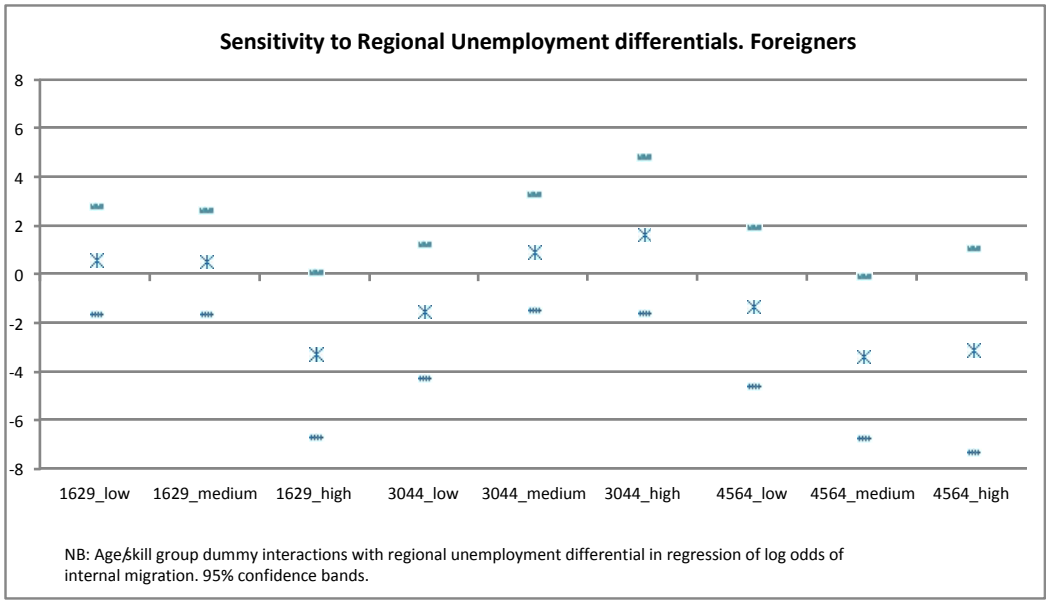
Source: Labour Force Survey and Estadrística de Variaciones Residenciales.

Chart 4: Constant on a regression of log odds of internal migration by nationality representing costs of emigrating internally

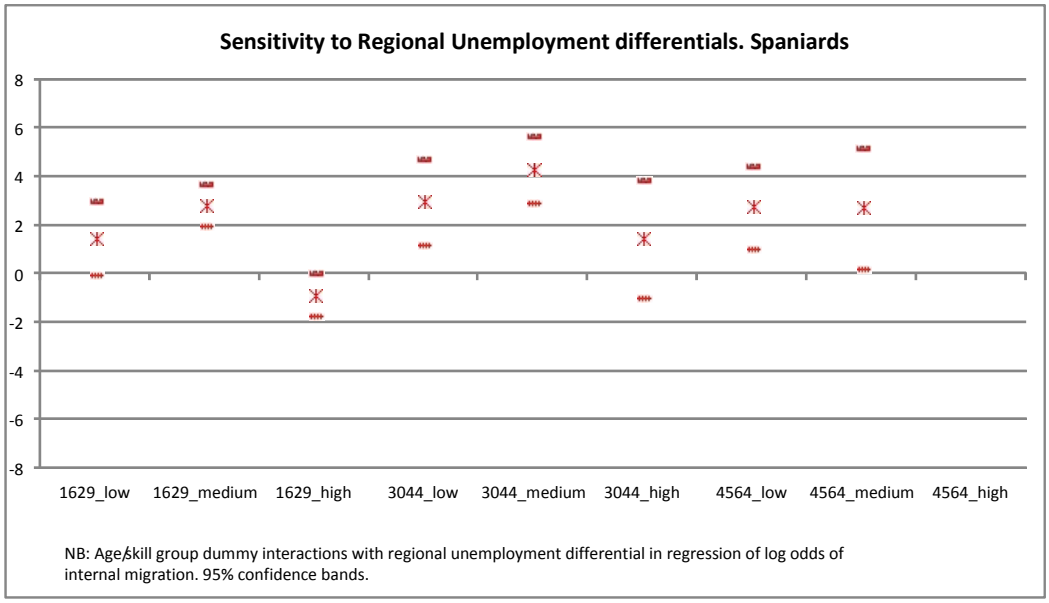


Source: Labour Force Survey.

Chart 4 (cont.): Sensitivity of log odds of internal migration to unemployment differentials by nationality

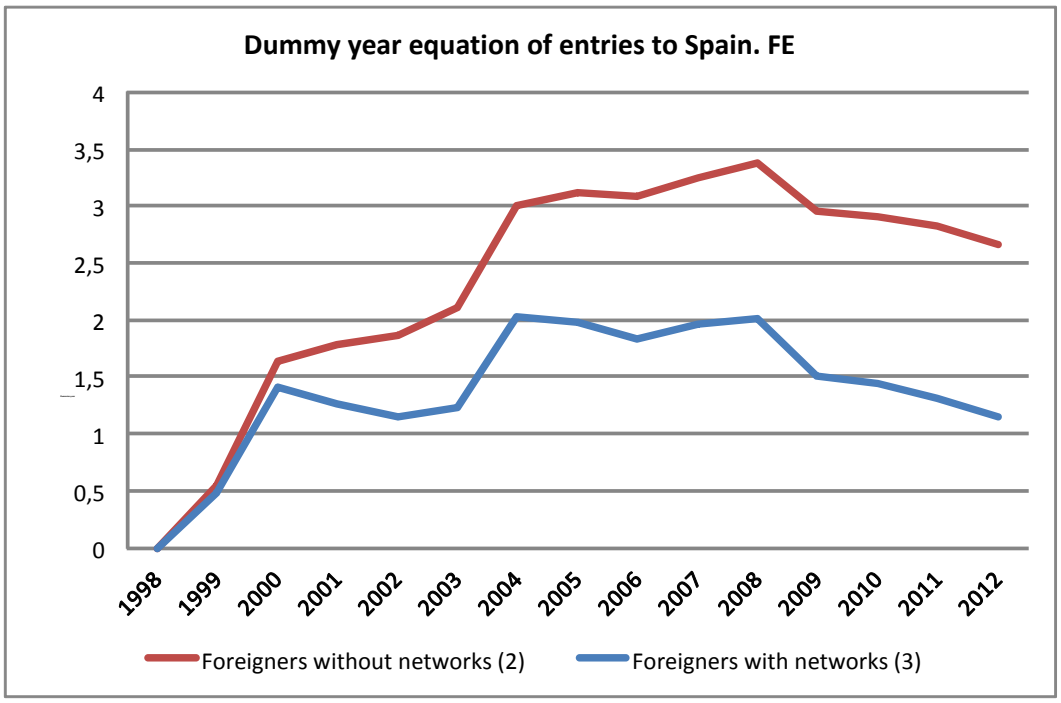


NB: Age/skill group dummy interactions with regional unemployment differential in regression of log odds of internal migration. 95% confidence bands.



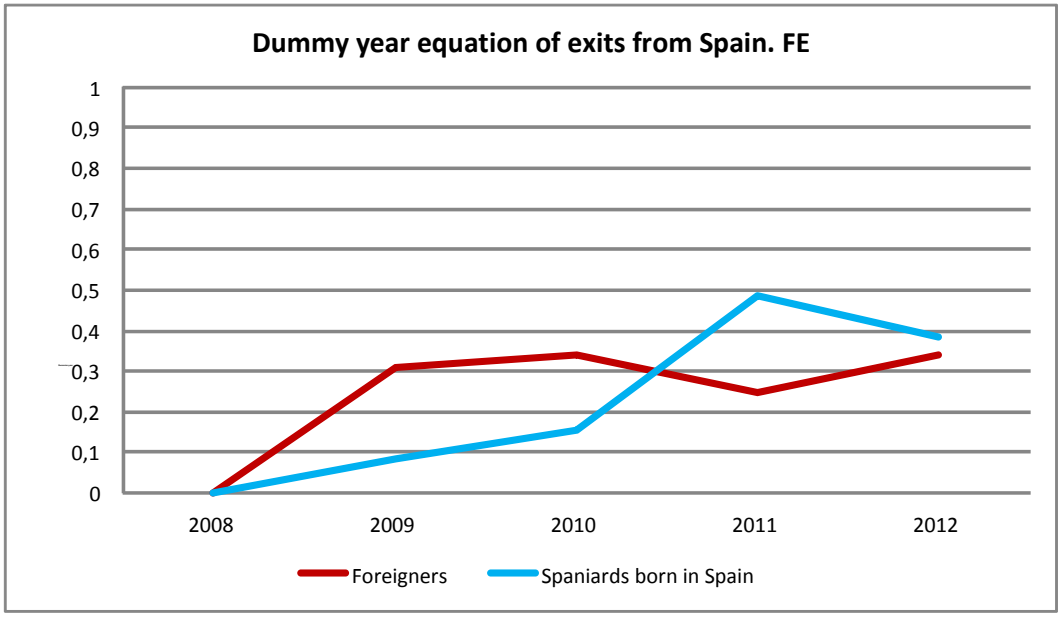
NB: Age/skill group dummy interactions with regional unemployment differential in regression of log odds of internal migration. 95% confidence bands.

Chart 5: Time dummies of regressions with FE for inflows of foreigners



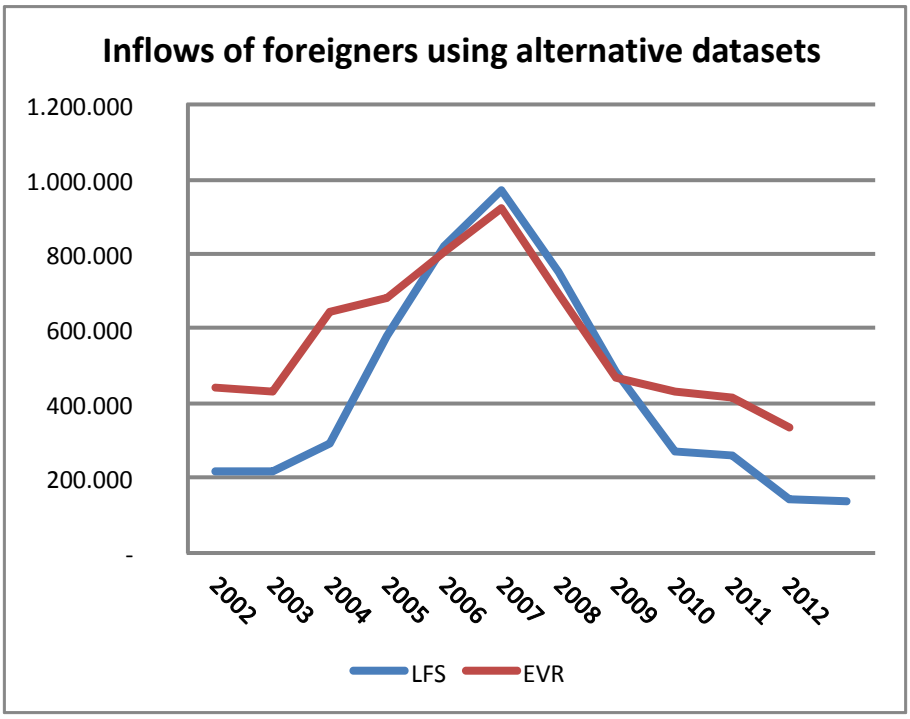
Source: see Table 7.

Chart 6: Time dummies of regressions with FE for outflows of foreigners and Spaniards born in Spain



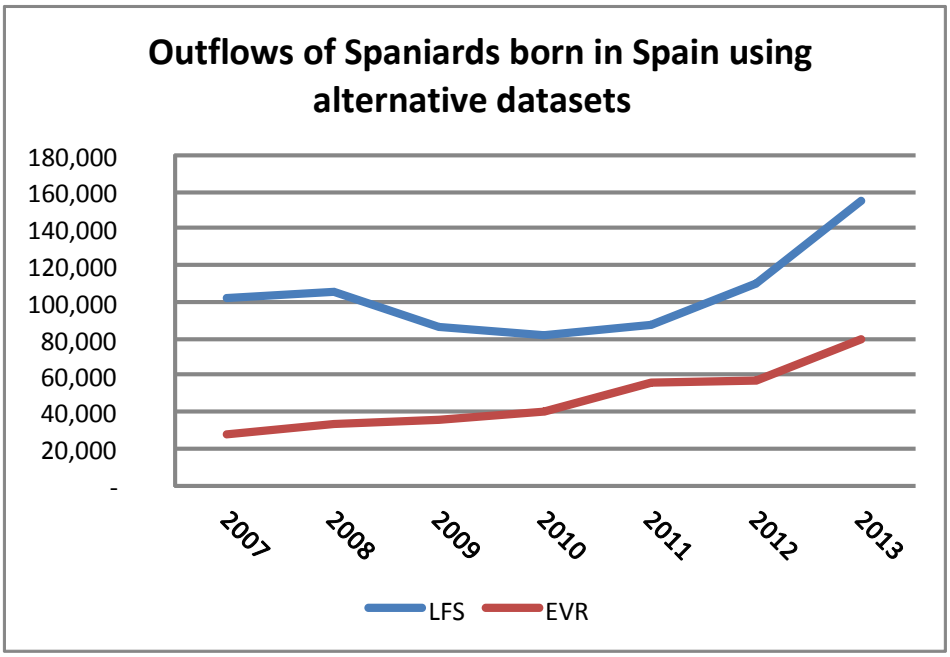
Source: see Table 8.

Chart 7: Inflows of foreigners using Labour Force Survey (LFS) and municipal registers (EVR)



Source: Labour Force Survey and Estadística de Variaciones Residenciales.

Chart 8: Outflows of Spaniards born in Spain using Labour Force Survey (LFS) and municipal registers (EVR)



Source: Labour Force Survey and Estadística de Variaciones Residenciales.

BANCO DE ESPAÑA PUBLICATIONS

WORKING PAPERS

1301 JAMES COSTAIN and ANTON NAKOV: Logit price dynamics.
1302 MIGUEL GARCÍA-POSADA: Insolvency institutions and efficiency: the Spanish case.
1303 MIGUEL GARCÍA-POSADA and JUAN S. MORA-SANGUINETTI: Firm size and judicial efficacy: evidence for the new civil procedures in Spain.
1304 MAXIMO CAMACHO and GABRIEL PEREZ-QUIROS: Commodity prices and the business cycle in Latin America: living and dying by commodities?
1305 CARLOS PÉREZ MONTES: Estimation of regulatory credit risk models.
1306 FERNANDO LÓPEZ VICENTE: The effect of foreclosure regulation: evidence for the US mortgage market at state level.
1307 ENRIQUE MORAL-BENITO and LUIS SERVEN: Testing weak exogeneity in cointegrated panels.
1308 EMMA BERENGUER, RICARDO GIMENO and JUAN M. NAVE: Term structure estimation, liquidity-induced heteroskedasticity and the price of liquidity risk.
1309 PABLO HERNÁNDEZ DE COS and ENRIQUE MORAL-BENITO: Fiscal multipliers in turbulent times: the case of Spain.
1310 SAMUEL HURTADO: DSGE models and the Lucas critique.
1311 HENRIQUE S. BASSO and JAMES COSTAIN: Fiscal delegation in a monetary union with decentralized public spending.
1312 MAITE BLÁZQUEZ CUESTA and SANTIAGO BUDRÍA: Does income deprivation affect people's mental well-being?
1313 ENRIQUE ALBEROLA, ÁNGEL ESTRADA and DANIEL SANTABÁRBARA: Growth beyond imbalances. Sustainable growth rates and output gap reassessment.
1314 CARMEN BROTO and GABRIEL PEREZ-QUIROS: Disentangling contagion among sovereign CDS spreads during the European debt crisis.
1315 MIGUEL GARCÍA-POSADA and JUAN S. MORA-SANGUINETTI: Are there alternatives to bankruptcy? A study of small business distress in Spain.
1316 ROBERTO RAMOS and ENRIQUE MORAL-BENITO: Agglomeration matters for trade.
1317 LAURA HOSPIDO and GEMA ZAMARRO: Retirement patterns of couples in Europe.
1318 MAXIMO CAMACHO, GABRIEL PEREZ-QUIROS and PILAR PONCELA: Short-term forecasting for empirical economists. A survey of the recently proposed algorithms.
1319 CARLOS PÉREZ MONTES: The impact of interbank and public debt markets on the competition for bank deposits.
1320 OLYMPIA BOVER, JOSE MARIA CASADO, SONIA COSTA, PHILIP DU CAJU, YVONNE MCCARTHY, EVA SIERMINSKA, PANAGIOTA TZAMOURANI, ERNESTO VILLANUEVA and TIBOR ZAVADIL: The distribution of debt across euro area countries: the role of Individual characteristics, institutions and credit conditions.
1321 BRINDUSA ANGHEL, SARA DE LA RICA and AITOR LACUESTA: Employment polarisation in Spain over the course of the 1997-2012 cycle.
1322 RODOLFO G. CAMPOS and ILIANA REGGIO: Measurement error in imputation procedures.
1323 PABLO BURRIEL and MARÍA ISABEL GARCÍA-BELMONTE: Meeting our D€STINY. A Disaggregated €uro area Short Term Indicator model to forecast GDP (Y) growth.
1401 TERESA SASTRE and FRANCESCA VIANI: Countries' safety and competitiveness, and the estimation of current account misalignments.
1402 FERNANDO BRONER, ALBERTO MARTIN, AITOR ERCE and JAUME VENTURA: Sovereign debt markets in turbulent times: creditor discrimination and crowding-out effects.
1403 JAVIER J. PÉREZ and ROCÍO PRIETO: The structure of sub-national public debt: liquidity vs credit risks.
1404 BING XU, ADRIAN VAN RIXTEL and MICHIEL VAN LEUVENSTEIJN: Measuring bank competition in China: a comparison of new versus conventional approaches applied to loan markets.
1405 MIGUEL GARCÍA-POSADA and JUAN S. MORA-SANGUINETTI: Entrepreneurship and enforcement institutions: disaggregated evidence for Spain.
1406 MARIYA HAKE, FERNANDO LÓPEZ-VICENTE and LUIS MOLINA: Do the drivers of loan dollarisation differ between CESEE and Latin America? A meta-analysis.
1407 JOSÉ MANUEL MONTERO and ALBERTO URTASUN: Price-cost mark-ups in the Spanish economy: a microeconomic perspective.
1408 FRANCISCO DE CASTRO, FRANCISCO MARTÍ, ANTONIO MONTESINOS, JAVIER J. PÉREZ and A. JESÚS SÁNCHEZ-FUENTES: Fiscal policies in Spain: main stylised facts revisited.

1409 MARÍA J. NIETO: Third-country relations in the Directive establishing a framework for the recovery and resolution of credit institutions.
1410 ÓSCAR ARCE and SERGIO MAYORDOMO: Short-sale constraints and financial stability: evidence from the Spanish market.
1411 RODOLFO G. CAMPOS and ILIANA REGGIO: Consumption in the shadow of unemployment.
1412 PAUL EHLING and DAVID HAUSHALTER: When does cash matter? Evidence for private firms.
1413 PAUL EHLING and CHRISTIAN HEYERDAHL-LARSEN: Correlations.
1414 IRINA BALTEANU and AITOR ERCE: Banking crises and sovereign defaults in emerging markets: exploring the links.
1415 ÁNGEL ESTRADA, DANIEL GARROTE, EVA VALDEOLIVAS and JAVIER VALLÉS: Household debt and uncertainty: private consumption after the Great Recession.
1416 DIEGO J. PEDREGAL, JAVIER J. PÉREZ and A. JESÚS SÁNCHEZ-FUENTES: A toolkit to strengthen government budget surveillance.
1417 J. IGNACIO CONDE-RUIZ, and CLARA I. GONZÁLEZ: From Bismarck to Beveridge: the other pension reform in Spain.
1418 PABLO HERNÁNDEZ DE COS, GERRIT B. KOESTER, ENRIQUE MORAL-BENITO and CHRISTIANE NICKEL: Signalling fiscal stress in the euro area: a country-specific early warning system.
1419 MIGUEL ALMUNIA and DAVID LÓPEZ-RODRÍGUEZ: Heterogeneous responses to effective tax enforcement: evidence from Spanish firms.
1420 ALFONSO R. SÁNCHEZ: The automatic adjustment of pension expenditures in Spain: an evaluation of the 2013 pension reform.
1421 JAVIER ANDRÉS, ÓSCAR ARCE and CARLOS THOMAS: Structural reforms in a debt overhang.
1422 LAURA HOSPIDO and ENRIQUE MORAL-BENITO: The public sector wage premium in Spain: evidence from longitudinal administrative data.
1423 MARÍA DOLORES GADEA-RIVAS, ANA GÓMEZ-LOSCOS and GABRIEL PÉREZ-QUIRÓS: The Two Greatest. Great Recession vs. Great Moderation.
1424 ENRIQUE MORAL-BENITO and OLIVER ROEHN: The impact of financial (de)regulation on current account balances.
1425 MÁXIMO CAMACHO and JAIME MARTÍNEZ-MARTÍN: Real-time forecasting US GDP from small-scale factor models.
1426 ALFREDO MARTÍN OLIVER, SONIA RUANO PARDO and VICENTE SALAS FUMÁS: Productivity and welfare: an application to the Spanish banking industry.
1427 JAVIER ANDRÉS and PABLO BURRIEL: Inflation dynamics in a model with firm entry and (some) heterogeneity.
1428 CARMEN BROTO and LUIS MOLINA: Sovereign ratings and their asymmetric response to fundamentals.
1429 JUAN ÁNGEL GARCÍA and RICARDO GIMENO: Flight-to-liquidity flows in the euro area sovereign debt crisis.
1430 ANDRÈ LEMELIN, FERNANDO RUBIERA-MOROLLÓN and ANA GÓMEZ-LOSCOS: Measuring urban agglomeration. A refoundation of the mean city-population size index.
1431 LUIS DÍEZ-CATALÁN and ERNESTO VILLANUEVA: Contract staggering and unemployment during the Great Recession: evidence from Spain.
1501 LAURA HOSPIDO and EVA MORENO-GALBIS: The Spanish productivity puzzle in the Great Recession.
1502 LAURA HOSPIDO, ERNESTO VILLANUEVA and GEMA ZAMARRO: *Finance for all:* the impact of financial literacy training in compulsory secondary education in Spain.
1503 MARIO IZQUIERDO, JUAN F. JIMENO and AITOR LACUESTA: Spain: from immigration to emigration?

BANCO DE **ESPAÑA**
Eurosistema

Unidad de Servicios Auxiliares
Alcalá, 48 - 28014 Madrid
E-mail: publicaciones@bde.es
www.bde.es