



**Labor Market Assimilation of Immigrants in Spain:
Employment at the Expense of Bad Job-Matches?**

by

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Abstract

Spain has traditionally been known as a country of emigrants. However, in the last decade, Spain has experienced an unprecedented boom of immigration from three localized areas: Latin America, Africa and East Europe. In this paper, we study the behaviour of recent immigrants in the Spanish labour market identifying the major differences with the native population and tracking whether these differences fade away as their years of residence in Spain increase. With this objective, we focus on four labour market outcomes: labour supply, unemployment, incidence of overeducation and incidence of temporary contracts. Results show that, compared to natives, immigrants face initially higher participation rates, higher unemployment rates, higher incidence of overeducation and higher incidence of temporary contracts. However, five years after their arrival we could broadly say that participation rates start to converge to native rates, unemployment rates decrease to levels even lower than those of natives, and the incidence of temporary contracts and overeducation remains constant: no reduction of the gap with Spanish workers is observed. Therefore, we conclude that the Spanish labour market is managing to absorb the immigration boom but at the expense of allocating immigrants in bad job-matches.

JEL Codes: *J11, J21, J61*

Keywords: immigration, assimilation, labor force participation, unemployment, overeducation, temporary contracts.

1. Introduction

Spain has traditionally been known as a country of emigrants. However, in the last decade, it has experienced an unprecedented boom of immigration. In particular, immigrant population has multiplied by seven in hardly ten years. In 1996, 1.37% of the population had a foreign nationality. In 2005, this percentage had increased up to 8.39%. This rapid increase has posed some questions on the economic assimilation of immigrants in Spain. To what extent is the Spanish labour market able to absorb these flows of immigration? Do the labour market outcomes of these recent waves of immigrants converge to those of natives after a period along which they had to opportunity to integrate and adapt their skills to the expectations in the host country?. These are the questions that we will try to answer in this paper, this is, we investigate whether or not immigrants' behaviour and success in the Spanish labour market is comparable to the one of natives as their residence lengthens.

The assimilation process of immigrants to the labour market of the host country has received a great deal of attention in the economic literature on immigration¹. The time spent in the destination country, often referred to as years since migration, has played a mayor role in the study of the economic adjustment of immigrants.

The earliest studies used cross-sectional data to analyze the effect of the years of residence in the host country. The pioneering work of Chiswick (1978) showed that while immigrants earn less than natives at the time of arrival, immigrant earnings overtake native earnings within 15 years after arrival.

These findings were challenged by Borjas (1985), who pointed out the potential problems of using cross-sectional data to infer dynamic behaviour. He argued that cross-section regressions can yield erroneous insights about the adaptation process experienced by immigrants if there are differences in productivity across immigrant cohorts. Cohort effects may arise as a result of different factors. First, they can arise as a result of changes in immigration policy. For example, if the policy shift generates a less-skilled immigrant flow, the cross-section finding that more recent immigrants earn less than earlier immigrants says little about wage convergence, but instead may reflect innate differences in ability or skills across cohorts. Second, they may also arise as a result of changes in economic or political conditions in the source countries and in the host

¹ For a detailed literature review on this issue, see Borjas (1994, 1999).

country. For example, the changing national origin mix of the immigrant flow generates cohort effects if skill levels vary across countries. Finally, they will be observed when there is non-random return migration (survivor bias). For example, if low-wage immigrant workers return to their source countries, the earlier waves will have relatively higher earnings than more recent waves.

The ideal strategy to overcome these biases would be the use of longitudinal (panel) data, this is, follow the same natives and immigrants over time. However, longitudinal data sets either contain very few immigrants or provide scarce information about them. An alternative strategy, less demanding in terms of data availability, was proposed in Borjas (1985). Borjas (1985) proposed creating synthetic cohorts of immigrants by tracking specific immigrant waves across a succession of cross-sections. This allowed him to construct a synthetic panel dataset. Borjas showed that the skills of successive immigrants' cohorts relative to natives declined during the last decades, and because of these sizeable cohort effects, the convergence between the earnings of immigrants and natives was much lower than was previously believed.

These results generated a great deal of debate that motivated that many studies followed these pioneering works. Accordingly, most of them have attempted to measure the earnings differential of immigrants and natives at arrival and how this differential changes over time as immigrants adapt to the host's country labour market. Most of the empirical evidence refers to the US (see, for instance, Chiswick, 1986; Friedberg, 1992; LaLonde and Topel, 1992; Borjas, 1995; Duleep and Regets, 1996, and more recently Blau and Kahn, 2005, and Card, 2005). But a number of studies have also focused on the experience of other immigrant-receiving countries (Baker and Benjamin, 1994, for Canada; Friedberg, 2000, for Israel; Dustmann, 1993, and Pischke, 1993 for Germany; and Longva and Raaum, 2003 for Norway).

Although the empirical literature usually corroborates the immigrant assimilation hypothesis in terms of wages, there is no clear consensus. In particular, a few recent studies that have taken advantage of the availability of some specific panel datasets, reject the immigrant assimilation hypothesis (see, for example, Hu, 2000, for the US; Hum and Simpson, 2000, 2004, for Canada; and Beenstock *et al.*, 2006 for Israel). However, other studies using panel data support the immigrant assimilation hypothesis (see Duleep and Dowhan, 2002 for the US; and Constant and Massey, 2003, for Germany).

Nonetheless, earnings are not the only indicators of labour market assimilation. In fact, some papers have focused on the analysis of immigrants' employment assimilation measured as immigrants' ability to find employment relative to natives as their residence lengthens. Wheatley Price (1999), Bevelander and Nielsen (2000) and Blau and Kahn (2005) are some examples of these studies. In any case, unemployment is a partial indicator of assimilation as it does not reflect the quality of the job found. Therefore, it needs to be complemented by other outcomes that reflect the quality of the match.

Spanish data sets do not simultaneously contain information on the wages and years of residence of immigrants in Spain, which has been an obstacle to study immigrants' earnings assimilation. Some studies (Amuedo-Dorantes and De la Rica, 2006 and Sanromá *et al.*, 2006) have tried to overcome this lack of information using different strategies.

In this paper we will use the Spanish Labour Force Survey over the period 1996-2005 to study immigrant's success in the labor market. Given the characteristics of the recent boom of immigration in Spain, we will focus on three wide groups of immigrants: Non-European, Latin-American and African immigrants. We will investigate immigrants' ability to find a job as well as the quality of the job obtained relative to natives. We will focus on labour force attachment by considering labour supply and unemployment and we will measure the quality of the job via the incidence of overqualification and temporary contracts.

Results show a clear success of immigrants in terms of unemployment: five years after arrival, their probability of being unemployed is even lower than that of their native counterparts. However, the quality of the jobs obtained lies far behind the quality of the jobs obtained by their native counterparts.

In the following section we describe the econometric methodology that we follow. In section 3 we describe the data and in section 4 we present the results. Finally, Section 5 concludes.

2. Methodology

In order to study the assimilation of immigrants to the Spanish labour market we focus on four labour market outcomes: labour supply, unemployment, incidence of temporary contracts and incidence of overeducation. For this purpose, the following regression, *model 1*, is estimated jointly for natives and immigrants by gender:

$$y_{it} = b_0 + b_1 imm_{it} + b_2 ysmigr_{it} + b_2 ysmigr_{it}^2 + b_4 age_{it} + b_5 age_{it}^2 + b_6 yschool_{it} + \sum_{t=1996}^{2004} \alpha_t d_{it} + \sum_{j=1}^{16} \gamma_j c_{ij} + u_{it}$$

where i indexes individuals and t indexes survey year. The variable y stands for the labour market outcome, imm is a dummy variable indicating if the individual is an immigrant, $ysmigr$ gives the number of years an immigrant has been residing in Spain (and is set to zero for natives), age is the person's age in years (a proxy for potential work experience), $yschool$ is an indicator of years of schooling, d is a year effect, c is a region effect and u is the disturbance term². We assume that u is normally distributed and, therefore, we estimate equation (1) as a probit model.

The immigrant dummy variable captures the economic performance of immigrants relative to natives. The number of years since migration reflects the assimilation of immigrants to natives as their residency lengthens.

Given that most immigrants living in Spain arrived within the last decade, we can expect the cohort effects not to be very important. It seems reasonable to think that the cohorts do not differ substantially in their average productivity level. Nonetheless, we will take into account this potential problem by incorporating a group of variables that control for the different characteristics of the cohorts. Then, in a first alternative specification, *model 2*, we augment equation (1) by replacing the immigrant dummy variable with a set of dummy variables that represent the cohort to which immigrants belong. We define three cohorts: 1996-1999, 2000-2004 and 2005. The years 1996, 2000 and 2005 are the years in which an amnesty process took place. We choose these years because the processes could have affected the characteristics of immigrants.

² In the regressions of the probability of having a temporary contract, we also include a group of dummy variables that measure job tenure (less than a year, between one and three years and more than three years). In this case, due to changes in the definition of job tenure in the survey, the sample covers only the period 1999-2005.

In a second alternative specification, *model 3*, we augment equation (1) by replacing the immigrant dummy variable with a set of indicators for the immigrant region of origin. The region of origin variables refer to Non-EU, Africa and Latin America. We also allow the effect of the years of residence in Spain to vary depending on the region of origin. In all regressions, we use the LFS sampling weights.

Several assumptions are made in these estimations. First, we assume that education plays the same role on immigrants and natives behaviour. Second, we assume that natives and immigrants of the same age behave in a similar way. And third, we are also assuming that period effects influence the labour market outcomes of immigrants and natives by the same relative amount.

3. The data

We use data from the Spanish Labour Force Survey (Encuesta de Población Activa) for the period 1996 through 2005. This survey is carried out every quarter on a sample of around 60,000 households. Every quarter, one sixth of the sample is renewed, but the dataset does not include a variable that allows us to identify individuals along the six consecutive interviews they are answering³. That's why, in order to avoid repeated observations, we only pool second quarters⁴.

The survey provides detailed information on personal characteristics (such as age, education and region) and job characteristics (such as work status and type of contract) for all individuals, either immigrants or natives.⁵ In addition, for immigrants, the survey collects information on their country of origin as well as on the number of years of residence in Spain.

At the beginning of 2005, the data from the 2001 Census of Population allowed the Spanish National Institute of Statistics (INE) to

³ The microdata is available in two different formats: (i) a panel dataset (*epa de flujos*) and (ii) a cross-section dataset (*epa trimestral*). On the one hand, the panel dataset provides the identification number assigned to each respondent that would allow us to follow the same individual along the six consecutive interviews. However, it does not provide information on nationality and years of residence in the host country. On the other hand, the cross-section dataset does provide information on nationality and years of residence of the immigrant but does not report the identifier to track his quarterly interviews.

⁴ We are aware we do not avoid completely the issue of repeated observations but, at least, we minimize it. We have also pooled second quarters of even years and results hold.

⁵ Unfortunately, information on wages is not collected.

update the weights of the quarterly LFS series from 1996 to 2004, applying the new total population figures that take into account the recent immigrant flows. This change improves substantially the representativeness of the survey in relation to immigrants. However, the survey only includes immigrants living in registered households. Moreover, in 2005 the LFS experienced other important methodological changes.⁶

We define an immigrant as a person that does not have the Spanish citizenship. Therefore, we are excluding Spanish citizens with double nationality and Spanish citizens born abroad from our definition of immigrants since information about years of residence in Spain is not available for them. In addition, we exclude immigrants coming from western countries and focus on immigrants coming from Non-EU countries⁷, Africa⁸ and Latin America⁹, which constitute the bulk of the Spanish immigration boom in the last decade. We exclude from our analysis immigrants coming from Asia because of their reduced presence in the sample.

We select males and females aged between 16 and 64 years old. However, since males and females behave differently in the labour market, the empirical analysis is made separately by gender. As immigration flows to Spain have accelerated during the second half of the 1990s, we focus on immigrants arriving to the country after 1995. The short time period considered allows us to assume equal quality of immigrants across cohorts, although we will test this hypothesis (*model 2*).

In Table 1 we present the summary statistics of the sample we are using. We observe that, on average, the immigrant population is younger than the native population and that depending on the country of origin (see Non-EU and Latin-American figures), immigrants present, on average, higher levels of education than natives. The descriptive information also confirms the recent pattern of the immigration flows since the average years of residence in Spain is 2.7.

⁶ In principle, the 2005 year effect should be capturing these methodological changes. In any case, the results presented below do not change significantly if we exclude 2005.

⁷ Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Chipre, Croatia, Slovenia, Estonia, Georgia, Hungary, Latvia, Macedonia, Malta, Moldova, Poland, Czech Republic, Slovak Republic, Romania, Russia, Ukraine, Yugoslavia.

⁸ All African countries

⁹ Central America, the Caribbean and South America

Regarding the labour market outcomes, the descriptive statistics in Table 1 indicate first that, on average, immigrants have a labour force participation rate 15 percentage points higher than natives. This difference in labour force participation rates is larger for women (18 percentage points) than for men (12 percentage points). By region of origin, Non-EU and Latin American immigrants have the highest labour force participation rates, while African immigrants have the lowest.

Second, we observe that on average, immigrants' unemployment rate is similar to natives' rate. However, this gap varies noticeably by gender. Immigrant male unemployment rate is 2.2 percentage points higher than that of natives, while immigrant women unemployment rate is 3.5 percentage points lower than that of natives. Among immigrants, those coming from Non-EU and Latin America show the lowest unemployment rates. The opposite is true for those coming from Africa.

Third, immigrant men and immigrant women are 23 percentage points more likely to be overeducated¹⁰ in their current jobs than natives. Nonetheless, this difference shows substantial variation by region of origin. On the one hand, for Non-EU and Latin American immigrants this gap reaches 35 and 23 percentage points, respectively. On the other hand, this gap is much lower for immigrants coming from Africa. Note that Non-EU and Latin American immigrants present also, on average, higher levels of education than the rest of the groups, including natives.

Finally, immigrants bear a higher incidence of temporary contracts than natives: 31 percentage points higher. This difference is larger for men (37 percentage points) than for women (24 percentage points). It is also especially large for immigrants coming from African and Non-EU countries.

¹⁰ We use a statistical measure of job mismatching comparing the level of education attained by each worker with the mean of the years of education within each occupational category (Verdugo and Verdugo, 1989, Oliver et al., 2003 and Fernández, 2004). We consider that a worker is overeducated when his/her level of education is above the mean plus one standard deviation of their occupational category.

Table 1. Summary Statistics

MALE AND FEMALE					
	Natives	Immigrants	East-Europe	Africa	Latin America
Years of residence		2.67	2.57	3.24	2.52
		<i>1.94</i>	<i>1.92</i>	<i>2.17</i>	<i>1.83</i>
Age	38.25	32.34	32.70	30.49	32.80
	<i>13.53</i>	<i>9.56</i>	<i>9.38</i>	<i>8.59</i>	<i>9.86</i>
Years of education	9.21	9.79	10.85	7.21	10.23
	<i>3.86</i>	<i>3.89</i>	<i>3.67</i>	<i>3.38</i>	<i>3.76</i>
Labour force participation	65.80%	80.95%	84.20%	69.88%	83.36%
Unemployment	9.31%	11.73%	9.77%	17.01%	10.74%
Overeducation	14.55%	37.62%	49.45%	16.34%	38.00%
Temporary contract	30.40%	62.19%	68.05%	72.07%	57.38%
Number of observations	1136582	10439	2337	2143	5959
MALE					
	Natives	Immigrants	East-Europe	Africa	Latin America
Years of residence	-	2.72	2.67	3.28	2.49
		<i>1.93</i>	<i>1.90</i>	<i>2.12</i>	<i>1.80</i>
Age	38.04	32.28	33.20	30.55	32.63
	<i>13.47</i>	<i>9.31</i>	<i>9.38</i>	<i>8.13</i>	<i>9.67</i>
Years of education	9.25	9.59	10.59	7.41	10.10
	<i>3.82</i>	<i>3.87</i>	<i>3.69</i>	<i>3.50</i>	<i>3.73</i>
Labour force participation	79.41%	91.72%	93.94%	90.55%	91.23%
Unemployment	10.43%	12.74%	8.52%	20.50%	11.29%
Overeducation	14.98%	37.54%	49.44%	17.05%	39.90%
Temporary contract	28.81%	66.49%	69.30%	75.14%	61.55%
Number of observations	562399	4910	1142	1254	2514
FEMALE					
	Natives	Immigrants	East-Europe	Africa	Latin America
Years of residence	-	2.63	2.46	3.18	2.55
		<i>1.95</i>	<i>1.93</i>	<i>2.22</i>	<i>1.86</i>
Age	38.47	32.39	32.18	30.42	32.94
	<i>13.58</i>	<i>9.79</i>	<i>9.37</i>	<i>9.21</i>	<i>10.01</i>
Years of education	9.18	9.98	11.13	6.91	10.33
	<i>3.90</i>	<i>3.90</i>	<i>3.64</i>	<i>3.18</i>	<i>3.77</i>
Labour force participation	52.11%	70.89%	74.04%	40.24%	77.26%
Unemployment	19.87%	16.60%	15.69%	36.73%	14.35%
Overeducation	13.81%	37.72%	49.46%	13.49%	36.20%
Temporary contract	32.96%	56.85%	66.22%	60.36%	53.54%
Number of observations	574183	5529	1195	889	3445

Note: Standard deviation reported in italics

4. Results

We begin by examining labour force attachment measured by labour supply and unemployment. Then, we focus on the quality of the job by considering overeducation and the incidence of temporary contracts.

Labor supply and unemployment

Table 2 shows probit regression results. The first panel presents the results when we consider immigrants as a whole and do not distinguish them by arrival cohort or region of origin (*model 1*). The second panel shows the regression results when controlling for immigrant arrival cohorts (*model 2*). Finally, the third panel presents corresponding results for the specification that controls for area of origin (*model 3*).

To assist in the interpretation of the regression results, Figures 1 and 2 show the implied assimilation profiles for immigrants. Outcomes are evaluated at the sample mean for age and education and at the references of Madrid and the year 2005 for the region and year dummies respectively.

Upon arrival, the labor supply of immigrants is higher than that of similar natives (see first panel of Table 2 and Figure 1). In particular, when arriving to Spain male and female immigrants are, respectively, 7 and 3 percentage points less likely to be in the labor force than natives with similar characteristics.

Labor force participation rate shows an inverted U-shaped relationship with the time of residence in Spain, reaching its maximum between the second and fourth year after migration.

After five years of residence in the country immigrant women increase their labor force participation noticeably compared to the native reference group, raising the gap between them to almost 13 percentage points. In the case of men, five years after migration the labor supply gap remains roughly constant. Thus, at least within the first five years of residence in Spain, we do not find assimilation of immigrants to the native's labor force participation rate.

Turning now to the case when controlling for the immigrant arrival cohorts, we see that, although arrival cohort dummies are, in general, statistically significant, the assimilation profiles for immigrants are similar

to those obtained above (see second panel of Table 2). Only one change is worth to be mentioned. Labour force supply seems to decrease with years since migration for men, although at a very low rate.

However, the results described above uncover considerable differences across immigrant groups (see third panel of Table 2 and Figure 1). In the case of men, the labor supply of new immigrants arriving from Non-EU and Latin America is higher than that of similar natives, with gaps of around 13 and 7 percentage points, respectively. In contrast, the labour supply of new immigrants arriving from Africa is a bit lower but very closed to that of similar natives, with a gap of around -1 percentage point. In the case of women, only the labour supply of new immigrants arriving from Latin America is higher than that of similar natives, with a gap of around 10 percentage points. In contrast, the labour supply of new immigrants arriving from Non-EU and Africa is lower than that of similar natives, with gaps of around 3 and 25 percentage points, respectively.

Labor force participation rate shows an inverted U-shaped relationship with time of residence in Spain for African men and Non-EU women. In contrast, this relationship is downward sloping for Non-EU men and upward sloping for African and Latin American women.

After five years of residence the labor supply gap for male Non-EU immigrants closes by more than 8 percentage points, decreasing to 5 percentage points. In contrast, within five years of residence male African immigrants increase their initial negligible labor supply gap with natives, reaching values closed to 8 percentage points. Finally, five years after migration male Latin American immigrants display a labor supply gap similar to the initial one. In the case of women, after five years of residence in Spain Non-EU and Latin American immigrants' labor force participation rates are, respectively, 14 and 18 percentage points higher than that of similar natives, which means that the gaps have increased considerably. In contrast, female African immigrants increase their labor supply after five years of residence, closing the gap with natives.

We now turn to the results for unemployment assimilation. During their first year in Spain, immigrants face a much higher unemployment rate than comparable natives (see first panel of Table 2 and Figure 2). The immigrant-native difference tends to be larger for men (11 percentage points) than for women (5 percentage points).

Unemployment rate shows a U-shaped relationship with time of residence in Spain, reaching its maximum around the fourth year after migration. However, unlike our results for labor supply, after five years of residence in the country, the unemployment gap between immigrants and natives not only decreases but virtually disappears. In sum, these results indicate that the initial unemployment gap falls considerably with time in Spain, taking place substantial assimilation.

Again, controlling for the immigrant arrival cohorts does not significantly alter the assimilation profiles for immigrants (see second panel of Table 2).

Regardless of their area of origin, during their first year in Spain, immigrants face a much higher unemployment rate than comparable natives (see third panel of Table 2 and Figure 2). The immigrant-native differences are largest for African immigrants (15 percentage points) and lowest for Non-EU immigrants (4 percentage points for men and 2 percentage points for women).

Unemployment rate shows a U-shaped relationship with time spent in Spain, except for female Non-EU and African immigrants for which it is not significant.

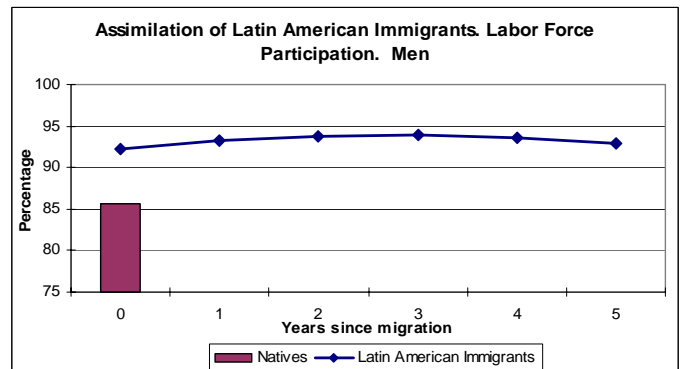
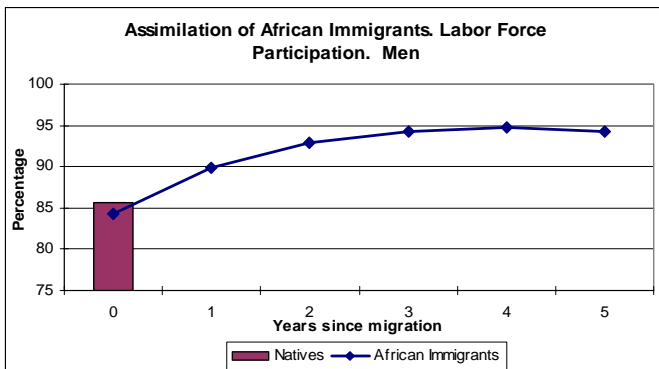
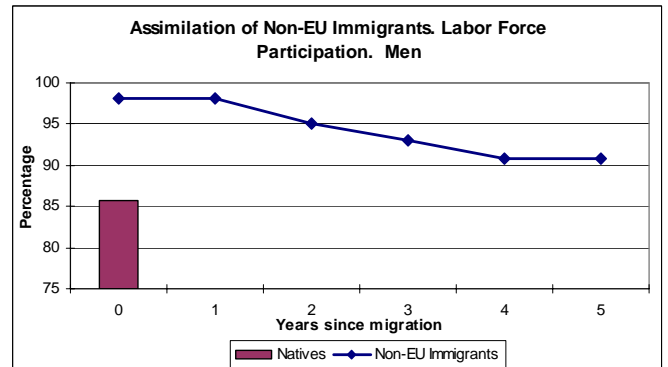
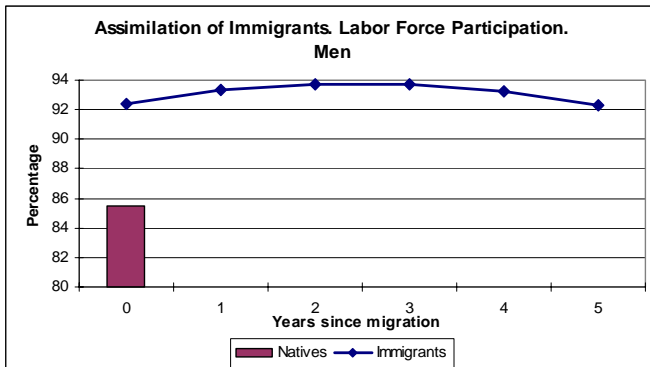
After five years of residence in Spain, the unemployment gap between immigrants and natives decreases substantially for all immigrant groups. In particular, for Non-EU and Latin American immigrants the unemployment gap turns around, becoming negative. Only African immigrants still face an unemployment rate greater than that of natives five years after migration, though the magnitude of the gap is considerably lower (5 percentage points for men and 8 percentage points for women).

Table 2. Probit regressions (coefficients)

	Labor Force Participation		Unemployment	
	Men	Women	Men	Women
Model 1				
Age	0.3425 <i>0.000</i>	0.1691 <i>0.000</i>	-0.1001 <i>0.000</i>	-0.0482 <i>0.000</i>
Age squared	-0.0042 <i>0.000</i>	-0.0022 <i>0.000</i>	0.0010 <i>0.000</i>	0.0003 <i>0.000</i>
Years of studies	0.0039 <i>0.000</i>	0.0861 <i>0.000</i>	-0.0301 <i>0.000</i>	-0.0435 <i>0.000</i>
Immigrant	0.3770 <i>0.000</i>	0.0793 <i>0.122</i>	0.6240 <i>0.000</i>	0.2561 <i>0.000</i>
Years since migration	0.0829 <i>0.092</i>	0.1520 <i>0.000</i>	-0.2772 <i>0.000</i>	-0.1803 <i>0.000</i>
Years since migration squared	-0.0170 <i>0.016</i>	-0.0203 <i>0.000</i>	0.0342 <i>0.000</i>	0.0258 <i>0.000</i>
Constant	-5.0621 <i>0.000</i>	-3.4442 <i>0.000</i>	0.8908 <i>0.000</i>	0.4209 <i>0.000</i>
% correctly predicted	82.73	67.4	89.32	79.5
Model 2				
Age	0.3426 <i>0.000</i>	0.1692 <i>0.000</i>	-0.1001 <i>0.000</i>	-0.0482 <i>0.000</i>
Age squared	-0.0042 <i>0.000</i>	-0.0022 <i>0.000</i>	0.0010 <i>0.000</i>	0.0003 <i>0.000</i>
Years of studies	0.0039 <i>0.000</i>	0.0861 <i>0.000</i>	-0.0301 <i>0.000</i>	-0.0435 <i>0.000</i>
1996-1999 cohort	0.6973 <i>0.000</i>	-0.0284 <i>0.724</i>	0.7898 <i>0.000</i>	0.3700 <i>0.000</i>
2000-2004 cohort	0.3941 <i>0.000</i>	0.0651 <i>0.230</i>	0.6054 <i>0.000</i>	0.2313 <i>0.001</i>
2005 cohort	0.1497 <i>0.434</i>	0.2813 <i>0.071</i>	0.7505 <i>0.000</i>	0.4467 <i>0.008</i>
Years since migration	0.0691 <i>0.174</i>	0.1646 <i>0.000</i>	-0.2752 <i>0.000</i>	-0.1735 <i>0.000</i>
Years since migration squared	-0.0209 <i>0.005</i>	-0.0200 <i>0.000</i>	0.0306 <i>0.000</i>	0.0225 <i>0.000</i>
Constant	-5.0590 <i>0.000</i>	-3.4468 <i>0.000</i>	0.8932 <i>0.000</i>	0.4222 <i>0.000</i>
% correctly predicted	82.74	67.4	89.32	79.5
Model 3				
Age	0.3426 <i>0.000</i>	0.1692 <i>0.000</i>	-0.1001 <i>0.000</i>	-0.0481 <i>0.000</i>
Age squared	-0.0042 <i>0.000</i>	-0.0022 <i>0.000</i>	0.0010 <i>0.000</i>	0.0003 <i>0.000</i>
Years of studies	0.0039 <i>0.000</i>	0.0854 <i>0.000</i>	-0.0296 <i>0.000</i>	-0.0431 <i>0.000</i>
NON-EU15 immigrant	1.0331 <i>0.000</i>	-0.0824 <i>0.476</i>	0.3300 <i>0.006</i>	0.1461 <i>0.205</i>
Years since migration NON-EU15	-0.2549 <i>0.021</i>	0.3191 <i>0.000</i>	-0.2126 <i>0.016</i>	-0.0757 <i>0.370</i>
Years since migration squared NON-EU15	0.0159 <i>0.318</i>	-0.0440 <i>0.000</i>	0.0266 <i>0.034</i>	0.0085 <i>0.495</i>
African immigrant	-0.0615 <i>0.679</i>	-0.6338 <i>0.000</i>	0.8152 <i>0.000</i>	0.7219 <i>0.002</i>
Years since migration Africa	0.3097 <i>0.001</i>	0.1593 <i>0.038</i>	-0.1945 <i>0.011</i>	-0.1324 <i>0.291</i>
Years since migration squared Africa	-0.0393 <i>0.002</i>	-0.0141 <i>0.148</i>	0.0207 <i>0.042</i>	0.0141 <i>0.335</i>
Latin America	0.3553 <i>0.000</i>	0.2851 <i>0.000</i>	0.6941 <i>0.000</i>	0.2527 <i>0.002</i>
Years since migration Latin America	0.0846 <i>0.187</i>	0.0943 <i>0.048</i>	-0.3786 <i>0.000</i>	-0.2429 <i>0.000</i>
Years since migration squared Latin America	-0.0149 <i>0.104</i>	-0.0084 <i>0.248</i>	0.0456 <i>0.000</i>	0.0346 <i>0.000</i>
constant	-5.0640 <i>0.000</i>	-3.4395 <i>0.000</i>	0.8924 <i>0.000</i>	0.4158 <i>0.000</i>
% correctly predicted	82.75	67.42	89.32	79.41

Figure 1. Assimilation of Immigrants. Labor Force Participation.

Men



Women

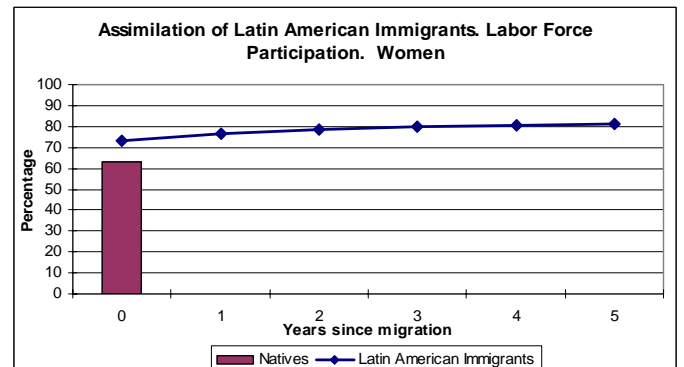
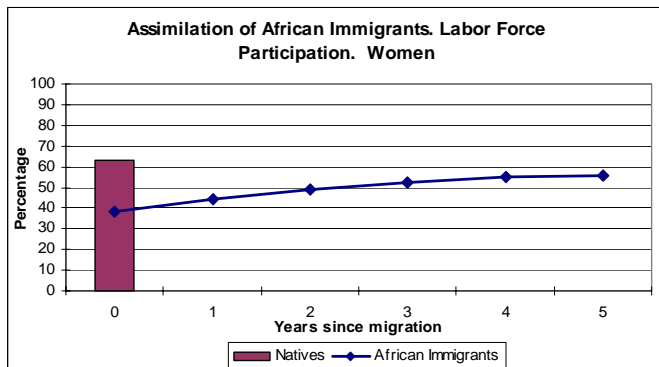
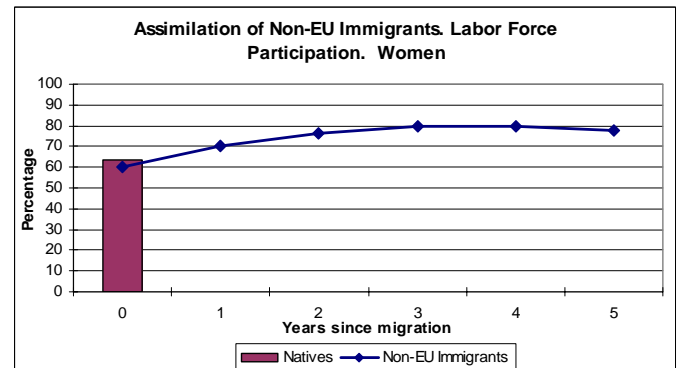
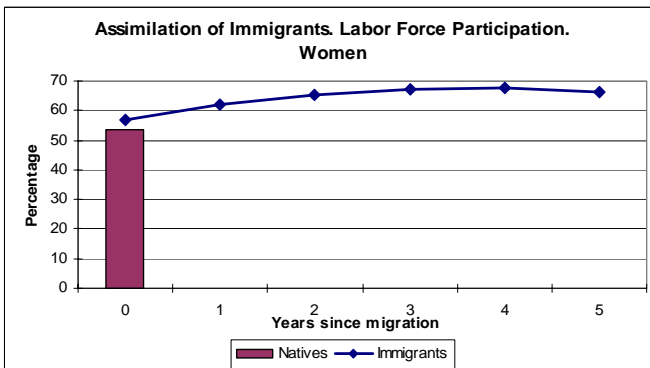
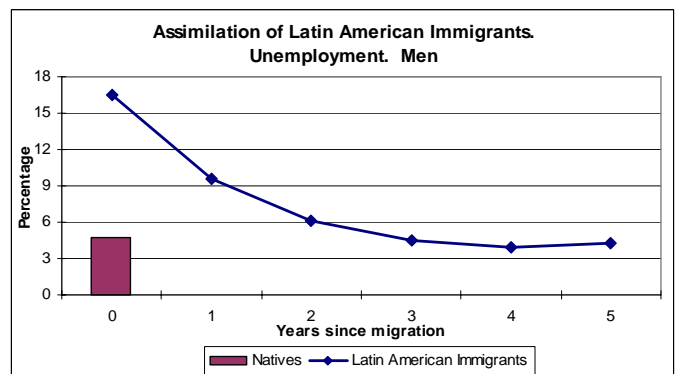
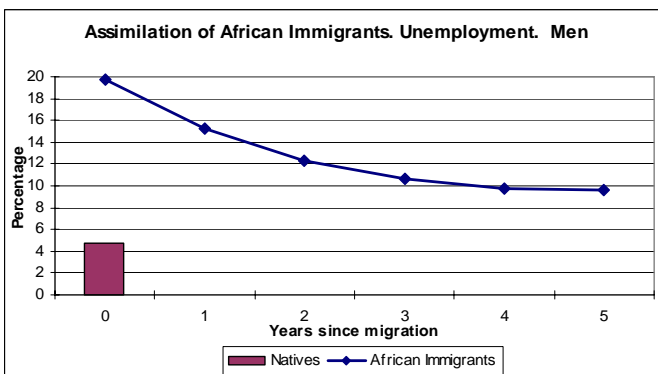
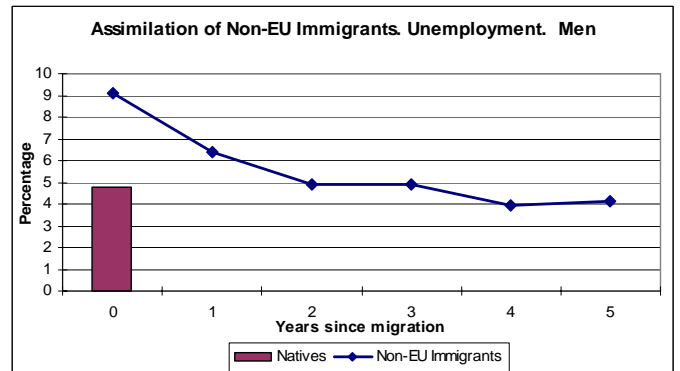
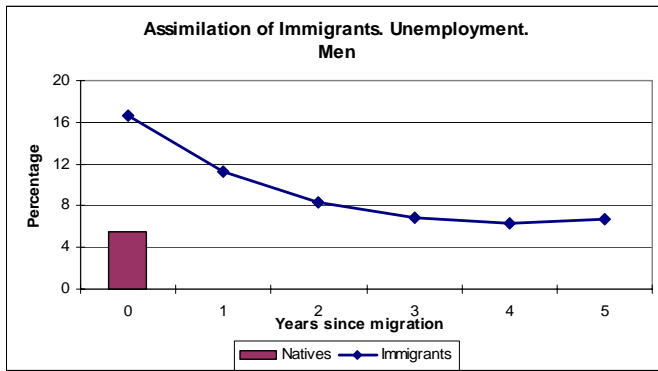
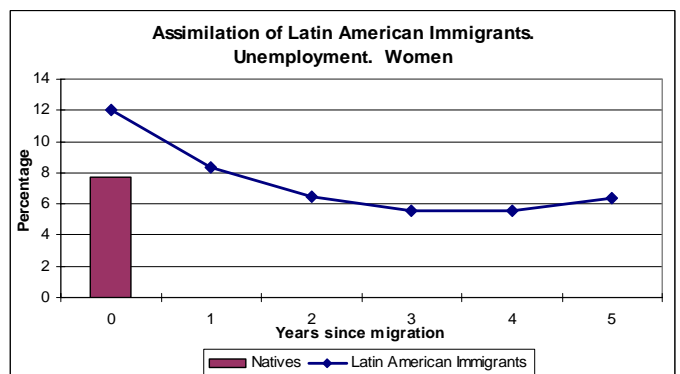
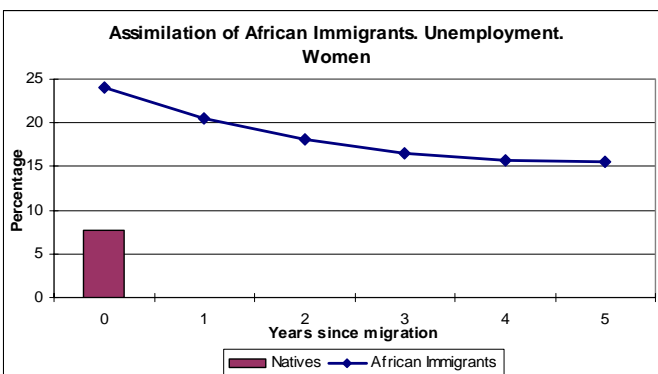
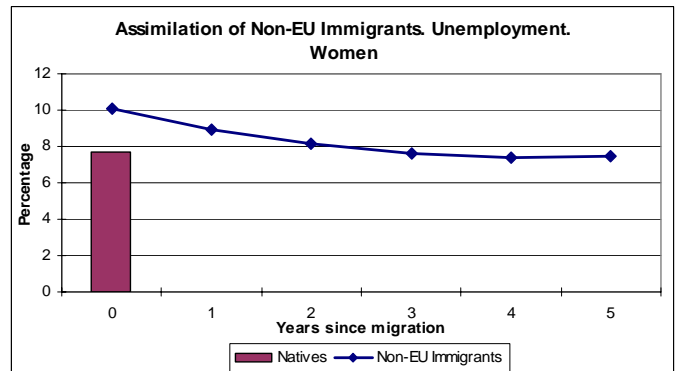
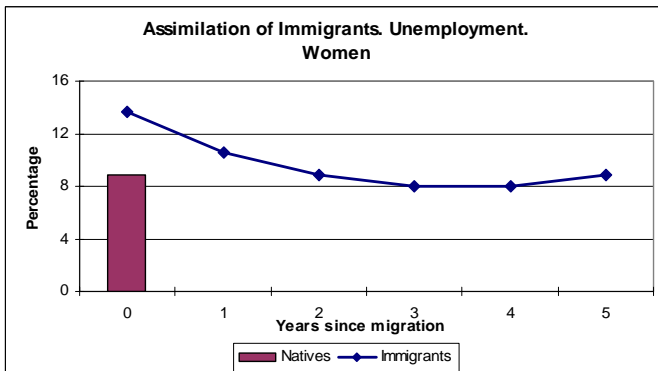


Figure 2. Assimilation of Immigrants. Unemployment.

Men



Women



Overeducation and temporary contracts

Table 3 shows probit regression results. As before, the first panel presents the results when we consider immigrants as a whole; the second panel shows the regression results when controlling for immigrant arrival cohorts; and the third panel presents results for models that control for area of origin. Again, to assist in the interpretation of the regression results, Figures 3 and 4 show the implied assimilation profiles for immigrants.

Regarding overeducation, we see that immigrants are much more likely to be overeducated than similar natives at arrival (see first panel of Table 3 and Figure 3). In fact, the immigrant-native differential upon arrival is around 16 percentage points for men and 23 percentage points for women.

While the incidence of overeducation seems to decrease smoothly after the third year of residence in Spain for women, it does not seem to have a statistically significant relationship with years since migration for men.

Nonetheless, female immigrants' likelihood of being overeducated remains constant after five years of residence. In contrast, men immigrants' gap with comparable natives tends to increase as time goes by. Therefore, it seems to be no assimilation of immigrants, neither men nor women, towards the lower overeducation incidence of natives with similar characteristics, at least within the first years of residence of immigrants in Spain.

As before, controlling for the immigrant arrival cohorts do not significantly alter the assimilation profiles for immigrants (see second panel of Table 3).

Although immigrants from all sending regions are much more likely to be overeducated than comparable natives at arrival, there are considerable differences in the magnitude of the gap (see third panel of Table 3 and Figure 3). On the one hand, the immigrant-native differences are largest for Non-EU (37 percentage points for men and 45 percentage points for women) and Latin America immigrants (around 28 percentage points for both men and women), the ones with the highest educational levels. On the other hand, the overeducation gap is smaller, although still sizable, for African (around 21 percentage points for both men and women).

The effect of years since migration is only significant for female Latin American immigrants, for which the relationship is inverted U-shaped. However, after five years of residence, the likelihood of being overeducated increases for Latin American immigrants and decreases for African immigrants. For Non-EU immigrants the incidence of overeducation increases in the case of men and decreases in the case of women five years after migration.

We now turn to the incidence of temporary contracts. Recent male immigrants are much more likely to have a temporary contract than comparable natives (15 percentage points), while recent female immigrants are a little bit less likely to have temporary contract than comparable natives (-7 percentage points) (see first panel of Table 3 and Figure 4).¹¹

Regarding assimilation, there is no significant effect of years since migration on the temporary rate of immigrant men. In contrast, the incidence of temporary contracts shows an inverted U-shaped relationship with time spent in Spain for women, reaching its minimum around the sixth year after migration. Then, the gap between female immigrants and their native counterparts increases by almost 20 percentage points, reaching 12 percentage points within the first five years in the country.

Again, controlling for the immigrant arrival cohorts do not significantly alter the assimilation profiles for immigrants (see second panel of Table 3). Only one change deserves to be mentioned. The likelihood of having a temporary contract seems to increase with years since migration, as the effect of its square is not statistically significant at the standard levels.

By region of origin (see third panel of Table 3 and Figure 4), Non-EU immigrants have the highest gap at arrival (32 percentage points for men and 58 percentage points for women), followed by African and Latin American men (28 and 4 percentage points, respectively). In contrast, upon arrival the incidence of temporary contracts is 29 and 10 percentage points lower for African and Latin American women, respectively, than for the reference group.

The evidence on the relationship between the incidence of temporary contracts and the time passed in Spain varies across origin groups. The incidence of temporary contracts has an inverted U-shaped

¹¹ The reference individual in this case is a person with job tenure lower than one year.

relationship with years since migration for Latin American men and African women and increases as time goes by for Latin America and Non-EU women. In contrast, we do not find a statistically significant effect of years of residence on the incidence of temporary contracts for Non-EU and African men.

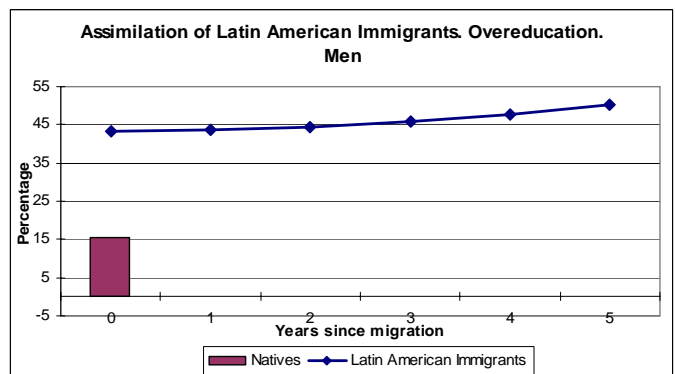
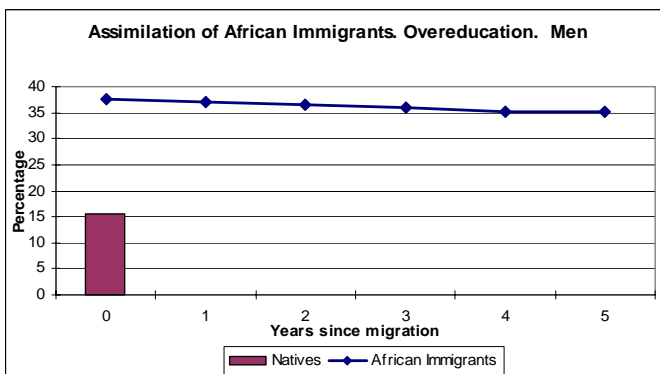
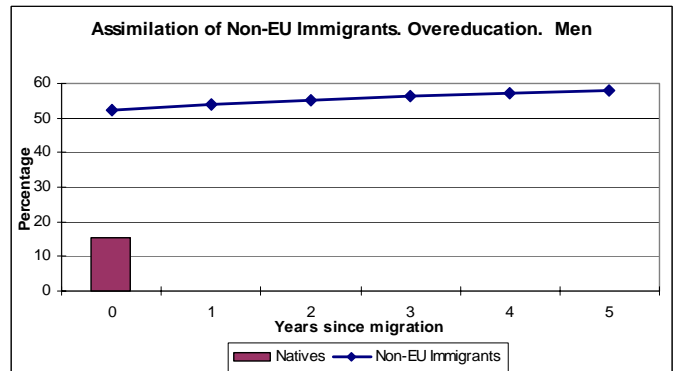
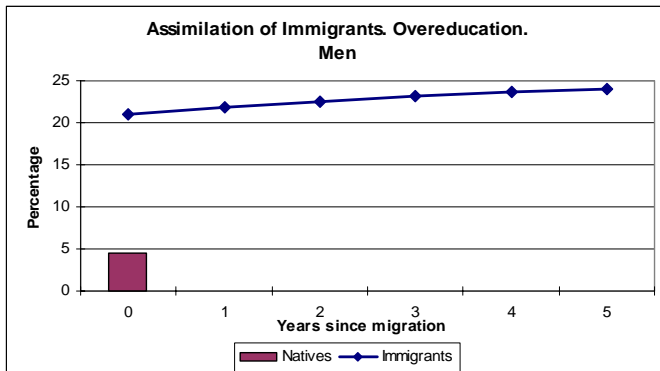
While the gap for African men remains roughly constant five years after migration, the gap for Latin American men increases to 12 percentage points and the gap for Non-EU men decreases to 24 percentage points. For women from all source regions, the incidence of temporary contracts increases noticeably after five years of residence in Spain, probably due to the increase in their labour force participation during this period. In particular, five years after migration the differential relative to similar native women reaches 23 percentage points for Non-EU immigrants and 8 percentage points for African and Latin American immigrants. In sum, it does not seem to be assimilation of immigrants, neither men nor women, to the incidence of temporary contracts of natives.

Table 3. Probit regressions (coefficients)

	Overeducation		Temporality	
	Men	Women	Men	Women
Model 1				
Age	-0.0258 0.000	-0.0386 0.000	-0.0336 0.000	-0.0262 0.000
Age squared	0.0001 0.000	0.0002 0.000	0.0002 0.000	0.0002 0.000
Years of studies	0.2512 0.000	0.2650 0.000	-0.0490 0.000	-0.0169 0.000
Immigrant	0.8855 0.000	1.1317 0.000	0.4253 0.000	-0.1833 0.025
Tenure 1 to 3 years			-0.9696 0.000	-1.0336 0.000
Tenure more than 3 years			-2.2562 0.000	-2.0840 0.000
Years since migration	0.0297 0.486	0.0597 0.198	0.0603 0.443	0.2401 0.001
Years since migration squared	-0.0019 0.755	-0.0124 0.063	-0.0083 0.538	-0.0278 0.055
Constant	-3.2082 0.000	-3.3958 0.000	1.6806 0.000	1.2564 0.000
% correctly predicted	84	86.65	85.7	82.85
Model 2				
Age	-0.0258 0.000	-0.0387 0.000	-0.0337 0.000	-0.0262 0.000
Age squared	0.0001 0.000	0.0002 0.000	0.0002 0.000	0.0002 0.000
Years of studies	0.2512 0.000	0.2650 0.000	-0.0490 0.000	-0.0169 0.000
1996-1999 cohort	0.6765 0.000	1.1701 0.000	0.3456 0.036	-0.3430 0.026
2000-2004 cohort	0.8749 0.000	1.1421 0.000	0.4042 0.000	-0.1367 0.118
2005 cohort	1.1235 0.000	1.0183 0.000	0.7274 0.035	-0.4881 0.046
Tenure 1 to 3 years			-0.9694 0.000	-1.0343 0.000
Tenure more than 3 years			-2.2560 0.000	-2.0844 0.000
Years since migration	0.0369 0.405	0.0536 0.273	0.0719 0.384	0.2037 0.009
Years since migration squared	0.0011 0.864	-0.0122 0.081	-0.0088 0.554	-0.0189 0.214
Constant	-3.2130 0.000	-3.3943 0.000	1.6790 0.000	1.2550 0.000
% correctly predicted	84	86.65	85.7	82.86
Model 3				
Age	-0.0259 0.000	-0.0385 0.000	-0.0335 0.000	-0.0259 0.000
Age squared	0.0001 0.000	0.0002 0.000	0.0002 0.000	0.0002 0.000
Years of studies	0.2509 0.000	0.2648 0.000	-0.0485 0.000	-0.0171 0.000
Tenure 1 to 3 years			-0.9729 0.000	-1.0339 0.000
Tenure more than 3 years			-2.2602 0.000	-2.0849 0.000
NON-EU15 immigrant	1.0743 0.000	1.4395 0.000	0.9983 0.000	0.1231 0.454
Years since migration NON-EU15	0.0375 0.623	-0.0415 0.610	-0.1963 0.282	0.1264 0.456
Years since migration squared NON-EU15	-0.0017 0.883	0.0004 0.974	0.0257 0.407	0.0000 1.000
African immigrant	0.6971 0.000	0.8167 0.004	0.8098 0.014	-0.7356 0.056
Years since migration Africa	-0.0124 0.889	-0.0774 0.623	-0.0489 0.838	0.6627 0.033
Years since migration squared Africa	-0.0007 0.958	0.0108 0.599	0.0109 0.766	-0.0945 0.081
Latin America	0.8490 0.000	1.0224 0.000	0.0974 0.365	-0.2470 0.010
Years since migration Latin America	0.0016 0.979	0.1119 0.055	0.2100 0.023	0.2420 0.004
Years since migration squared Latin America	0.0065 0.471	-0.0191 0.027	-0.0338 0.045	-0.0294 0.060
constant	-3.2063 0.000	-3.3981 0.000	1.6754 0.000	1.2526 0.000
% correctly predicted	84	89.9	85.7	82.87

Figure 3. Assimilation of Immigrants. Overeducation.

Men



Women

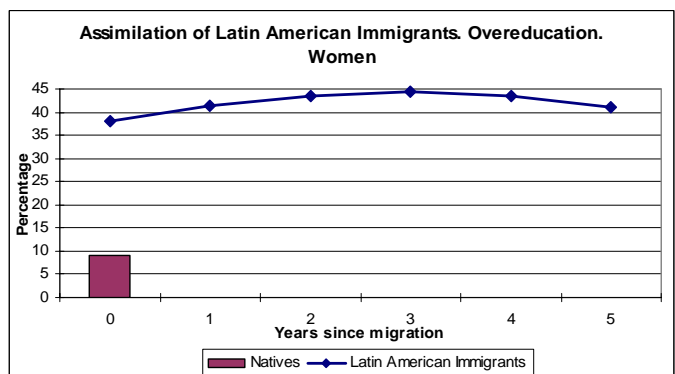
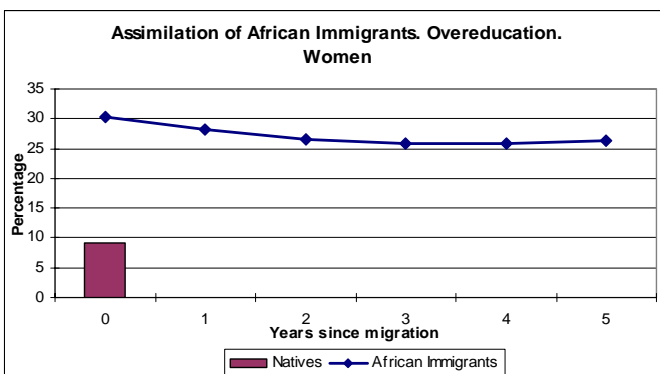
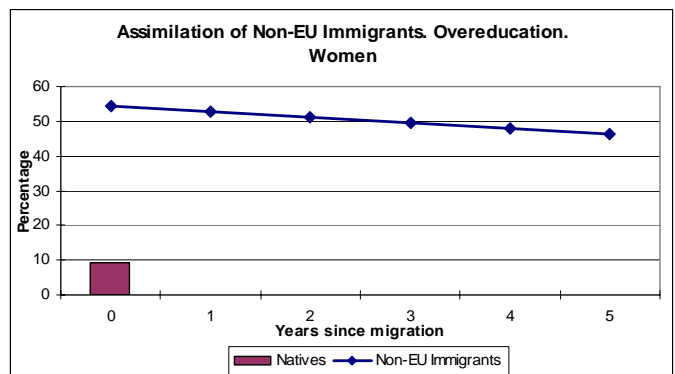
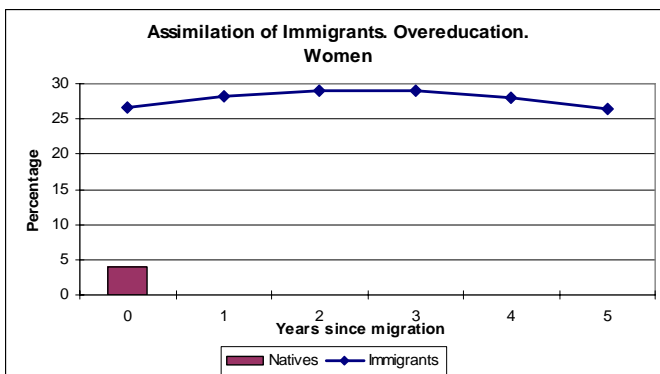
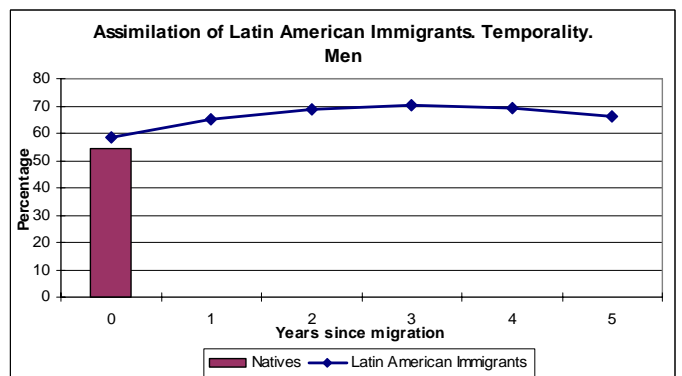
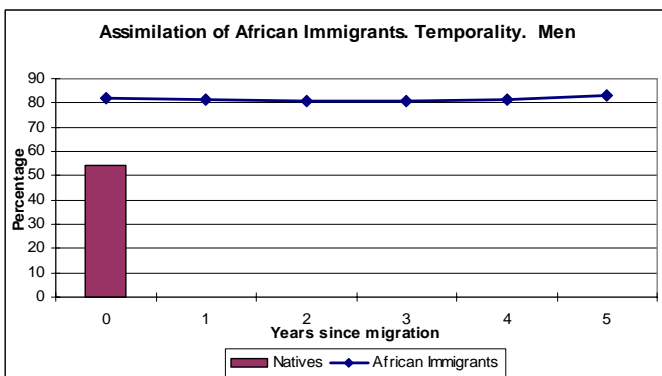
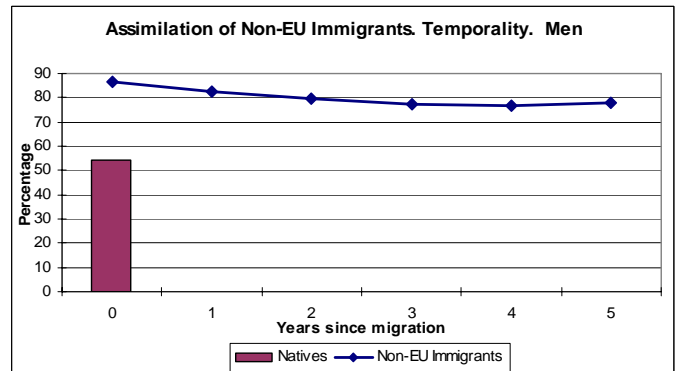
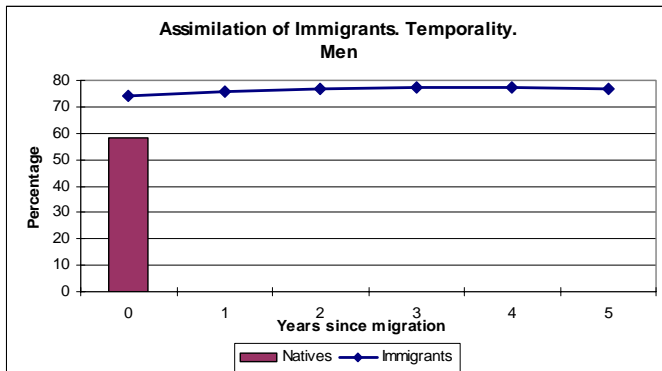
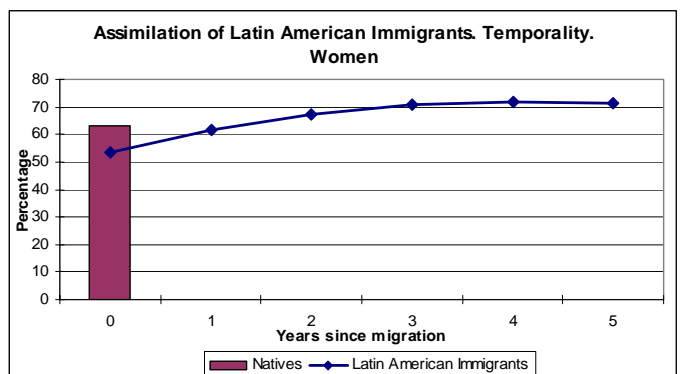
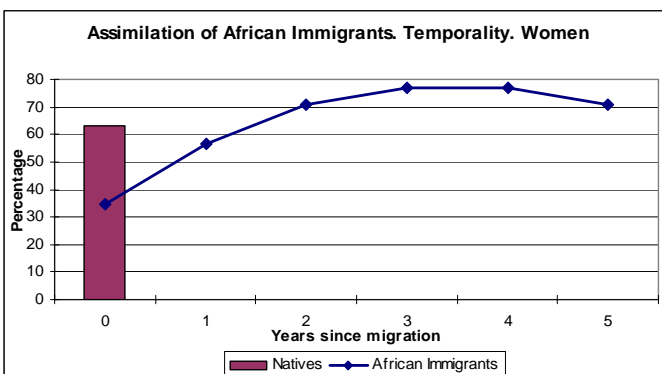
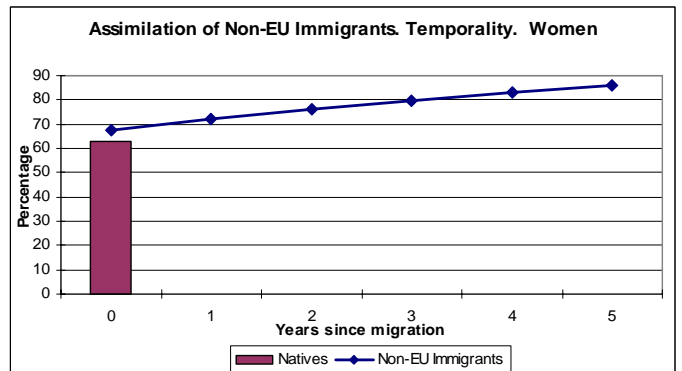
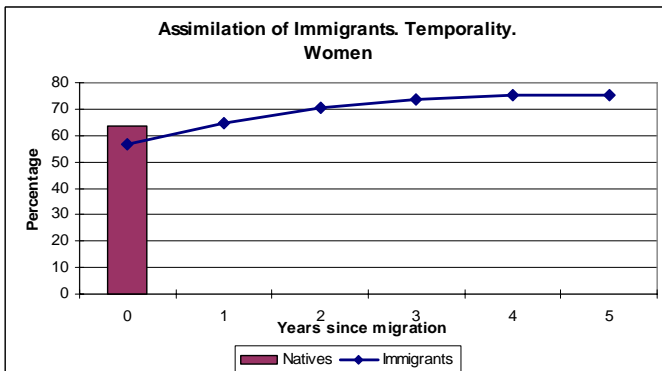


Figure 4. Assimilation of Immigrants. Temporary Contracts.

Men



Women



5. Conclusions

In the last decade, Spain has experienced one of the largest booms of immigration in Europe. In particular, the immigrant population has risen from 1.37% of total population in 1996 to 8.39% in 2005. This rapid increase in the immigrant population in Spain has posed some questions on the economic assimilation of immigrants. To what extent is the Spanish labour market able to absorb these flows of immigration? Do the labour market outcomes of these recent waves of immigrants converge to those of natives after a period in which they had to opportunity to integrate and adapt their skills to the expectations in the host country?. These are the questions that we try to answer in this paper.

Using data from the LFS for the period 1996-2005, we study the degree of assimilation of immigrants to the Spanish labour market. Given the characteristics of the recent boom of immigration in Spain, we focus on three wide groups of immigrants: Non-European, Latin-American and African immigrants. We investigate immigrants' ability to find a job as well as the quality of the job obtained relative to natives. We focus on labour force attachment by considering labour supply and unemployment and we measure the quality of the job via the incidence of overqualification and temporary contracts .

Results shows that compared to natives, immigrants face initially higher participation rates, higher unemployment rates, higher incidence of overeducation and higher incidence of temporary contracts. However, five years after their arrival we could broadly say that participation rates start to converge to native rates, unemployment rates decrease to levels even lower than those of natives, and the incidence of temporary contracts and overeducation remains constant: no reduction of the gap with Spanish workers is observed.

We conclude that the Spanish labour market is managing to absorb the immigration boom but at the expense of allocating immigrants in temporary jobs for which they are overqualified.

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